REMASTERING THE BEATLES

EQ

THE PROJECT RECORDING & SOUND MAGAZINE

1995 • ISSUE TWO

THE LATEST GEAR NEW FROM NAMM

PHIL RAMONE DOES 8MM

BRINGING UP BABYFACE

The producer of Boyz II Men builds an ADAT dream facility

02 > $3.95
Can. $4.95
U.K. £2.60
February 1995
Display Until
3/1/95
0 71896 47438 1

World Radio History

Alesis Matica™ Are Audio

Introducing the Alesis **Matica™ 500** and **Matica™ 900 High Speed Wide Bandwidth Dual Channel Power Amplifiers**. The first amplifiers to offer accuracy, precision and refinement with the performance of brute force audio machines. These are terms not often associated with professional audio amplifiers. But this isn't the first time Alesis has rewritten the rules.

ACCURACY

In the studio, the Matica amplifiers can handle the most critical reference monitoring situations. To accurately reproduce every nuance of today's digital recording, your amplifier must be able to keep up with the fastest audio transients. This ability is the slew rate of the amplifier. Matica's slew rate is a blazing 80 volts/microsecond and the frequency response is flat out to 80 kHz, for crystal-clear definition of high frequency detail without phase and amplitude distortion... a must for a great mix. The wideband noise is better than 103 dB below full output, A-weighted, and the typical midband distortion is better than .009%, making Matica an incredible amplifier for *any* recording studio application. Especially yours.

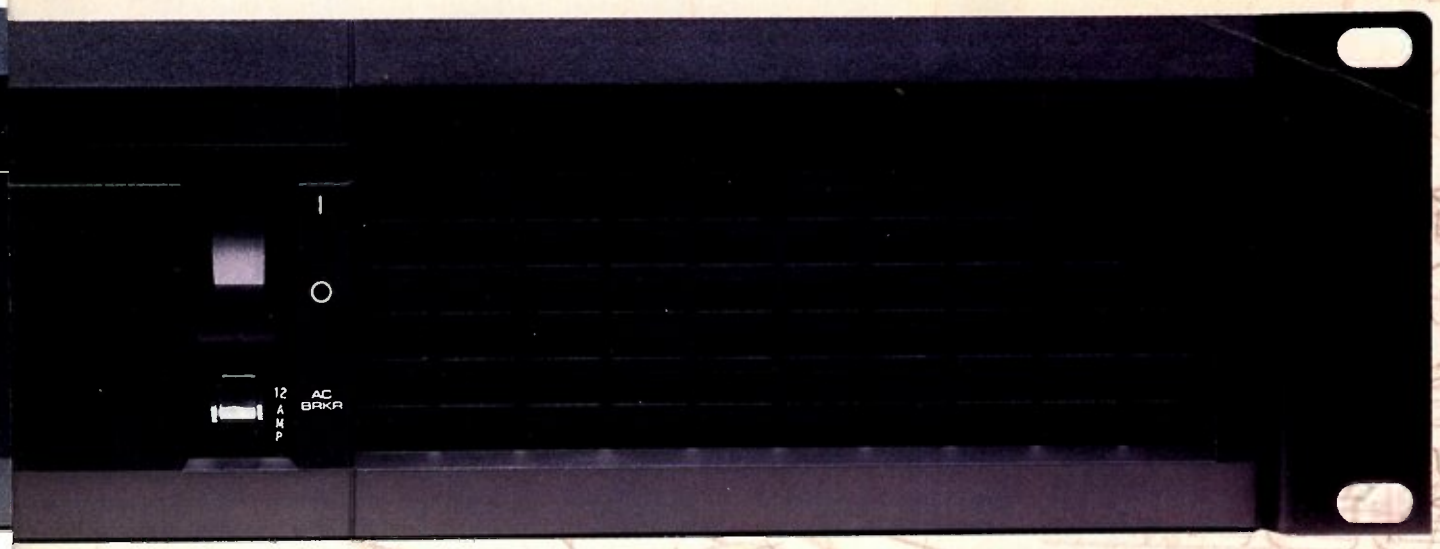
PRECISION

Matica amplifiers also have the muscle needed for professional live sound reinforcement. Most amplifiers have problems dealing with the low impedances typical of many live sound applications. We designed Matica amps to maintain their brilliant sonic characteristics while producing exceptional 2 ohm power ratings (350 and 680 watts for the 500 and 900 respectively). Matica uses the latest generation of ultra fast, linear power semiconductors, with high SOA (Safe Operating Area) ratings for improved reliability. Matica's high density, high efficiency, bobbin-wound power transformers produce more power and less heat than conventional units. When you're really rockin', Matica's high current output relays protect the amplifier (and your speakers) from turn on/off transients, over temperature, RF interference, DC offset, audio signals below 5 Hz, and excessively

Matica Power Output Rating — *Typical, 1kHz 1%THD, both channels driven.*

Amplifier	8Ω - 2 CH	4Ω - 2 CH	2Ω - 2 CH	8Ω - BRDG	4Ω - BRDG
Matica 500	162 Watts	250 Watts	350 Watts	500 Watts	650 Watts
Matica 900	270 Watts	450 Watts	680 Watts	900 Watts	1350 Watts

World Radio History



Power Amplifiers Machines

low line voltage, keeping all your gear (and your audience) happy. If something does go wrong, Matica's front panel resettable circuit breaker gets you back up and running in a hurry. In addition, Matica's rugged 19" two rack-space chassis is built to withstand the torture of the road. Serious amplification has never been so tough while sounding this great.

REFINEMENT

Matica amps employ balanced, 1/4" gold-plated TRS/XLR connectors and, for permanent installations, barrier strip inputs. Outputs are on five-way binding posts that accept heavy-gauge speaker wire and banana plugs. A recessed rear panel switch allows you to select stereo or bridged mono modes. Matica also features the new aLink™ Amplifier Interface, a 25-pin rear panel jack that is a platform for system level accessories from Alesis and 3rd party manufacturers. Future aLink interfaces will expand Matica's capabilities by allowing you to control levels, interface crossovers and signal processors, and monitor protection circuitry from a remote location. Finally, Matica's CoolSync™ (Patent Pending) Thermal Management System combines a whisper-quiet, dynamically controlled, brushless DC fan with a massive extruded aluminum heat sink to keep the operating temperature under control. CoolSync eliminates thermal cycling, which hinders both output power at low impedances and long-term reliability of other amplifiers. It makes Matica amplifiers cool by any definition.

The Matica 500 and 900 were designed by experienced engineers who have created extremely high-end reference amplifiers as well as bullet-proof touring amps. Now, with Matica, they've created what could be their crowning achievement. Gear up for the ultimate in amplification at your Alesis Dealer. Matica. The Power of Alesis.

CIRCLE 03 ON FREE INFO CARD

For more information on the Matica 500 or Matica 900, call 1-800-5-ALESIS or see your Alesis Dealer. Matica 500, Matica 900, aLink and CoolSync are trademarks of Alesis Corporation.

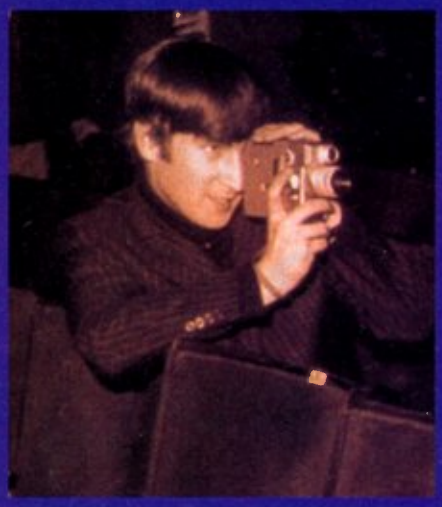
ALESIS

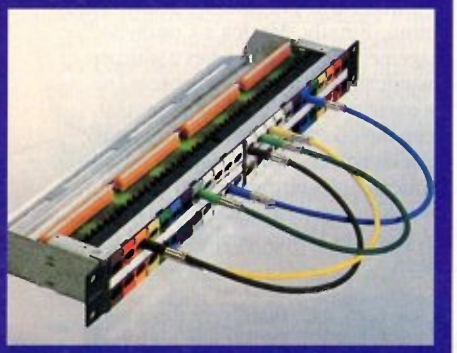
Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 1-800-5-ALESIS ALECORP@Alesis1.usa.com

World Radio History

EQ

PROJECT RECORDING
& SOUND TECHNIQUES
VOLUME 6, ISSUE 2
FEBRUARY 1995





FEATURES

SPECIAL NAMM ISSUE 14
Welcome to the wonderful world of NAMM '95. Last year recording and sound gear were the hot selling items at retail — and the industry is expecting even bigger things from the burgeoning project studio masses (that means you) in 1995.

BEATLES EXPOSED *By Zenon Schoepe* 56
Live at the BBC caused quite a stir in the UK recording community when it was discovered that several tracks were actually not from studio masters, but rather from off-air recordings. We take you behind the scenes in preparing this mega-reissue for the record racks.

BRINGING UP BABY(FACE) *By David Hampton* 64
Start with one of L.A.'s most prominent studio complexes, add the insights and talents of one of the music business's reigning star producers, and what do you have — a new production compex that features everything from Alesis Dream Studios to SSL Dream Machines.

TAKING MDM'S FOR A SPIN *By Phil Ramone* 72
The master himself takes the TASCAM DA-88 for a spin and offers some valuable tips and techniques for getting the most from the new modular digital multitracks.

EQ LIVE

STEVE MILLER: SPACE COWBOY STICKS IT IN HIS EAR *By Steve La Cerra* 83
NAMM GEAR FOR THE GIGGING MUSICIAN 92
MULTIMEDIA ON STAGE (PART 2) *By Tony Ohama* 94
AEROSMITH'S MAMA KIN: THIS MAMA KIN ROCK *By Steve La Cerra* 100
BBE SONIC MAXIMIZER ROAD TEST *By Wade McGregor* 106
AMP AMPISO ROAD TEST *By Wade McGregor* 110

TECHNIQUES/WORKSHOPS

MASTERING THE ELECTRONIC WOODWINDS *By Calix Lewis Reneau* 46
DEMO QUEEN TAKES A MEETING *By C. Reeder* 52
DISTANT MIKING TECHNIQUES *By Bartlett & Bartlett* 126
BUILD YOUR OWN TRAPCAN *By Hufker & Shepard* 52

COLUMNS/DEPARTMENTS

MI INSIDER: I THINK, THEREFORE I NAMM *By Craig Anderton* 14
ACROSS THE BOARD: ORANGE, YELLOW, RED BOOK BLUE *By Roger Nichols* 154

LETTERS TO EQ 6
EQ&A 8
FIRST LOOK: MACKIE ULTRAMIX 30
EQ TRACKS: GLORIA ESTEFAN 34
ROOM WITH A VU: BETH STYLES 36
ROOM WITH A VU: ROBERT SCOVILL 40
MICRO-PHILE: GROOVE TUBES 44
IN REVIEW:
YAMAHA VL-1 112
SOUNDSCAPE HARD DISK 118
E-MU MORPHEUS SYNTH MODULE 124
AD INDEX 131

EQ (ISSN 1050-7868) is published ten times each year except July and November by P.S.N. Publications, 2 Park Ave., Ste. 1820, New York, NY 10016. Second class postage paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532. SUBSCRIPTIONS: U.S. 1 yr. $24.95, 2 yrs. $39.95, 3 yrs. $59.95; CANADA add $10.00 per year for surface; other countries add $15.00 per yr. for surface; All add $30.00 per yr. for Airmail. Back-issues $5. Printed in the U.S.A.

World Radio History

WITHOUT DIGITECH'S STUDIO VOCALIST, YOUR FIVE-PART HARMONY MAY SOUND A BIT TOO ANIMATED.

Easy front panel controls let you develop harmony ideas before your singers show up.

Control key and harmony directly.

Keystrokes transmit to MIDI out allowing automated changes and adjustments.

Now there's a vocal processor that doesn't make the human voice sound so inhuman. Our Studio Vocalist's patented technology lets you easily create harmonies with human characteristics like random pitch fluctuation and timing imperfections. Recording those harmonies won't take multiple passes, either—just lay down a track, then play it back in 2, 3, 4 or 5 part harmony, in a variety of styles. Ideas get from your brain to your ears sooner. And the design is just as human as the sound, with controls, jacks and features suggested by thousands of original DigiTech Vocalist owners. So choose a vocal processor that doesn't sound so processed. Visit a DigiTech dealer today.

STUDIO VOCALIST

- Natural harmonies and pitch correction
- Intuitive operation
- Bright, easy-to-read display
- XLR and 1/4" ins and outs; separate outs for each voice
- 48V phantom power
- Full frequency response (20 Hz - 20 kHz)
- VHM-5 and Vocalist II download feature
- Keystroke MIDI out for automation

DigiTech

H A Harman International Company

Separate balanced outs for each voice.

Auxiliary loop lets you attach your favorite compressor/expander.

Digital I/O (1995) will help you be ready for whatever the future brings.

8760 S. Sandy Parkway, Sandy, UT USA 84070 (800) 449-8818 (801) 566-8919 Fax (801) 566-2086 © 1994 DigiTech

CIRCLE 36 ON FREE INFO CARD

World Radio History

EQ

A PSN Publication
Vol. 6, No. 2
February 1995

PAUL G. GALLO
Publisher/Editorial Director

KATHLEEN MACKAY
Associate Publisher

HECTOR LA TORRE
Executive Director

MARTIN PORTER
Executive Editor

ANTHONY SAVONA
Managing Editor

CRAIG ANDERTON
Technology Editor

STEVE LA CERRA
Senior Editor

DENISE MCMUNN, LIANA JONAS
Associate Editors

MELISSA HUNTER
Assistant Editor

DAVID MILES HUBER, EDDIE CILETTI, DAVID FRANGIONI, BOB LUDWIG, WADE MCGREGOR, ROGER NICHOLS, MARTIN POLON, J.D. SHARP
Contributing Editors

MP&A EDITORIAL
Editorial/Design Consultants

MATT CHARLES
Sales Manager

DANIEL A. HERNANDEZ, ANDREA BERRIE, CHRISTINE CALI (Classifieds)
Advertising Sales

RIVA DANZIG
Creative Director

MARK ALHADEFF
Art Director

SUSAN FALCO
Assistant Art Director

FRED VEGA
Production Manager

Editorial Offices
939 Port Washington Blvd.
Port Washington, NY 11050
Tel: (516) 944-5940, Fax: (516) 767-1745

Administrative/Sales Offices
2 Park Avenue, Suite 1820
New York, NY 10016
Tel: (212) 213-3444, Fax: (212) 213-3484

BPA INTERNATIONAL®

EQ (ISSN 1050-7868) is published monthly except for July and November by P.S.N. Publications, 2 Park Avenue, Suite 1820, New York, NY 10016. Second class postage paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to EQ, P.O. Box 0532, Baldwin, NY 11510-0532. SUBSCRIPTIONS: U.S. 1 yr. $24.95, 2 yrs. $39.95, 3 yrs. $59.95; CANADA add $10 per yr. for surface; other countries add $15 per yr. for surface; All add $30 per yr. for Airmail. Back issues $5. All product information is subject to change; publisher assumes no responsibility for such changes. All listed model numbers and product names are manufacturers' registered trademarks. **Printed in the U.S.A.**

LETTERS TO EQ

MEDIUM IS THE MASTER

I enjoyed Bobby Owsinski's article in the December '94 issue of *EQ* about mastering to CD-R. He covered the topic well and clearly emphasized the point that musicians and CD plants are happier with CD-R as a mastering format.

Unfortunately, this is not completely the case with premastering houses. Although CD-R is extremely convenient as an audio reference, it still has its shortcomings as a mastering format.

Very often, after we have sent out a reference to a client, we have to make further minor changes to individual tracks, such as level, EQ, and so on. The PCM-1630 format, because of its video insert capability, allows us to reinsert a single track without rewriting the entire program. With SMPTE timecode and a slick system like Sonic Solutions, we can even punch in the middle of a track! This is a huge time and money saver both for us and the client.

The U-matic 1630 also has a built-in error-checking capability using the Sony DTA-2000. It is the only audio format I know of where you can play back a tape, walk away from it, and be 100 percent sure that the data got transferred or copied properly. Unfortunately, manufacturers have not yet given us the same error-checking equipment for CD-R. Have you seen any CD-R dubbing decks with built-in error checking lately?

The above reasons are why we still prefer the 1630 format. It affords us the greatest flexibility at the lowest cost to the client. The cost of CD-R may be going down rapidly, but we do not like taking a step backwards in terms of efficiency.

Dr. Toby Mountain
President
Northeastern Digital Recording

IT TAKES TWO

Your magazine is excellent for those who are musicians, producers, and multitrack engineers, but I seem to be a lost soul — I enjoy 2-track recording and engineering (no laughing, OK). I am not a musician, but I enjoy music and I love recording it for my personal listening. I have become so good at what I do that I make decent money doing custom 2-track recordings for friends and clients. Believe it or not, I teach people how to make high-quality recordings on consumer grade (some high-end included) equipment. I've been able to make CD-quality recordings from a variety of sources, including CD, cassette, reel-to-reel, DAT, DCC, and LP. Most of my clients like their music on cassette or DAT, although I recently purchased a CD-R recorder and now my clients want their custom recordings on a CD-R.

It would be nice to see some articles on 2-track recording. Other than that, I really enjoy your magazine. I would like to thank Roger Nichols for his articles. I look forward to reading more from him in the future.

Wendell E. Jones
Yobear Productions/WGRU

[*Hey Wendell, thanks for reading. However, home recording ain't our bag. Fortunately, you'll be able to glean some hints from our upcoming mastering tips for DAT and CD-R. And who knows — you might just see an article on 2-track recording sometime soon. — Ed.*]

BRICKS 'N' STONES...

In regards to your issue featuring the Walter Becker interview (as well as the entire issue)...

The actual interview revealed very little about the artist or the recording of the album in question. In fact, the issue was mostly made up of buzzwords and promises of more in-depth reviews (the Roland DM800 and Yamaha ProMix 01, for example).

While I agree that Mr. Becker is more than worthy to grace your cover and to devote ample space to, it would have been nice to actually have had some insight into this wonderful artist instead of putting up with Mr. Nichols's smarmy attempts at intellectualizing his quirky insights.

Brick Briscoe
NFE Entertainment
Northport, NY

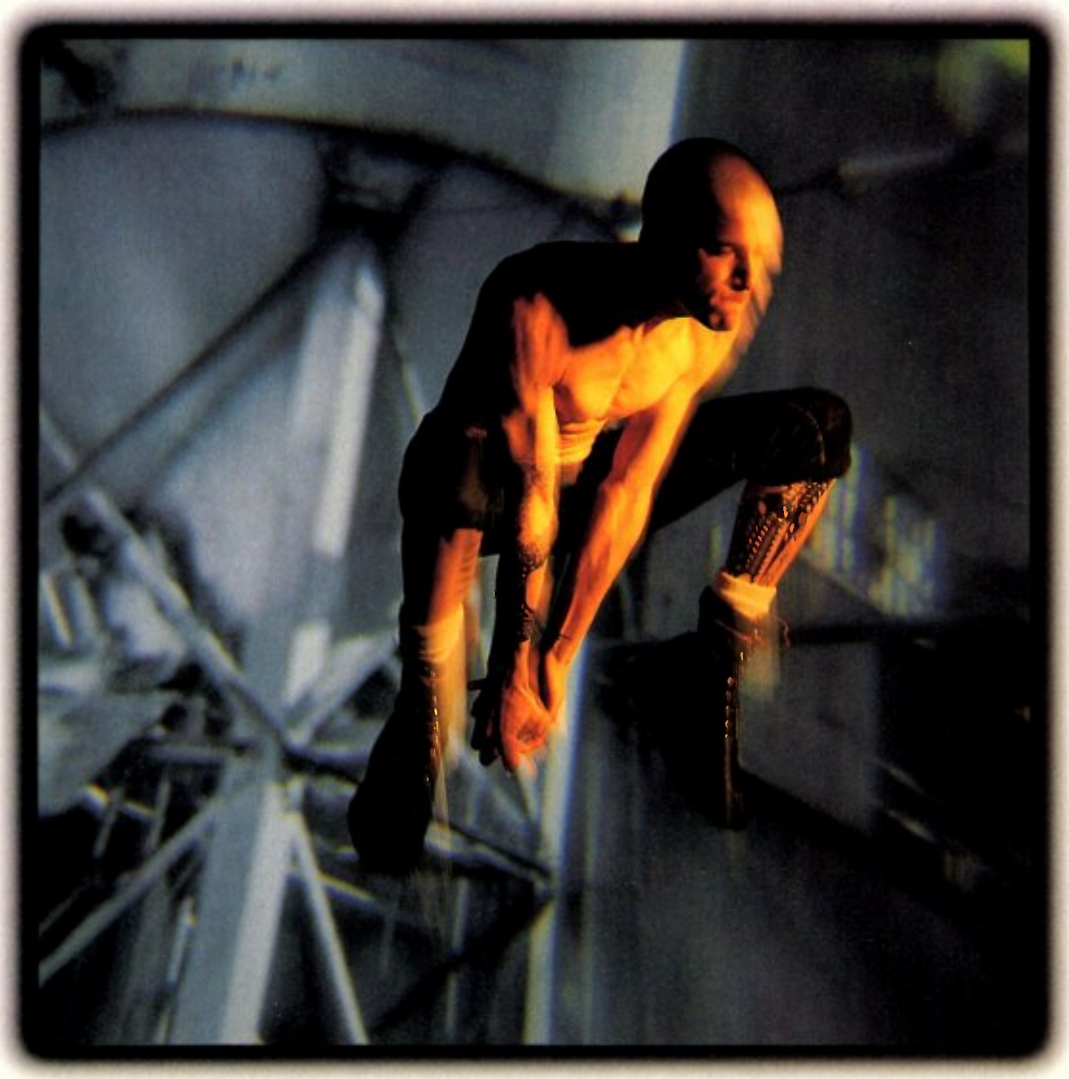
WE INTERRUPT THIS PAGE...

...To announce the birth of Brian Savona to our Managing Editor Tony and his wife Marianne. Welcome the new baby or send any other letter to:

EQ MAGAZINE
939 Port Washington Blvd.
Port Washington, NY 11050
MPANDA@AOL.COM

World Radio History

The product manager said we could graphically represent the Tri-Power sound anyway we wanted provided we told you it provides "more gain before feedback without requiring EQ or displaying funky off-axis honk."



[Perhaps he was expecting a chart.]

Tri-Power. It cuts through the Music.

You want live sound that grabs the audience? Just grab a Tri-Power mic and cut loose. Tri-Power gives you incredible vocal presence and punch, without feedback. So even when you crank it up, you never lose your edge. The Tri-Power sound is always crisp, clean and natural. With more cut-through than any other performance mic. Hands down.

AKG

H A Harman International Company

AKG. 8500 Balboa Blvd., Northridge, CA 91329 USA Phone 1-818-893-8411 Fax 1-818-787-0788 Flash Fax 1-818-909-4576 ID-964

World Radio History

HUM DRUM

Q *My cassette deck hums in Play mode. It doesn't hum in Stop, Fast Wind, or Record modes. It is mounted in a rack with a compressor, an equalizer, a single-rack-space mixer, and a power amp. What should I do?*

Terry Dame
New York, NY

A Here's what to do: Put a blank tape in the deck, press Play, and enjoy the hum while removing the rack screws. What you will discover is that the hum is likely to diminish as the deck is pulled away from the rack. This must be done in Play mode because muting circuitry intercepts hum and residual hiss from the tape/preamp combo in all other modes.

The problem is caused by a transformer in one of the other pieces of gear. It radiates 60 Hz hum and the tape head, being magnetic, cannot differentiate between magnetized particles on the tape and the radiating magnetic fields from transformers, power cables, fluorescent lighting, and video monitors. If the hum does not go away, you might have a power supply or television interference (TVI) problem. In addition, any device with a proclivity toward ground loops might also clean up when removed from the rack. (The trick is to get it to behave with the other children.)

Eddie Ciletti
Manhattan Sound
Technicians, Inc.
New York, NY

READY TO WARE

Q *I am new to the computer aspect of recording, and have a question I can't seem to get answered. Is there a software program available that would allow you to record analog straight to a multitrack (4-, 8-, or 16-track) hard disk? I don't want to "just go MIDI." What's my alternative? I simply want to plug in an instrument through analog equipment directly into the mic input of my 16-bit sound card and record on separate tracks. Is this possible?*

David Schneider
Dallas, TX

A Turtle Beach is certainly not the first company to provide a multitrack software/hardware solution for you, but we have what we believe to be the best product for the price. It's called Quad Studio. Quad Studio uses our Tahiti sound card, which provides 16-bit, 44.1 kHz hard-disk recording (CD-quality). Tahiti is the digital audio-only section of our popular MultiSound sound card that has garnered virtually every award available for quality. (Sorry, the marketing side of me slipped out for a minute.) The Quad software allows you to record one track while listening to another, and because of its digital nature, you can bounce and layer these tracks endlessly without any degradation of sound. (Perfect for that "Bohemian Rhapsody" remake you've been planning.) If you want to do the MIDI thing, that's possible too. Just use a Windows MIDI sequencer that supports timecode, our Monterey sound card, and Quad becomes a timecode master that your sequencer can lock to. That way you can add your sampled bass, drum, and keyboard tracks via MIDI and don't have to waste valuable hard disk space by recording them. Now you can add analog instruments and voice to MIDI to your heart's content and have a high-quality product as your end result. (Note: the Tahiti sound card has only a line-level input, so you'll have to power your analog instrument or voice.)

Jeff Klinedinst
VP Marketing
Turtle Beach Systems

SMART SHOPPER

Q *I'm in the market for a new sound module and sampler. Can you give me any tips on what I should look for when buying? I own a Kawai Keyboard and use Finale software on a Mac.*

Andrea Gilbert
St. Louis, MO

A It's really up to the individual to go out and listen to the myriad of options available for both modules and samplers. In fact, there are so many that I would first find a suitable price range and then focus on options in that range. Also, what kind of music are you primarily composing?

With that said, I would recommend a module rather than another keyboard. You really only need one keyboard in your setup and adding more modules will be a cost-effective way to expand your palette of sounds. For example, the Roland SC88 Sound Canvas costs under $900 and offers 32 MIDI channels, 64 voices, and effects. It conforms to General MIDI and even offers a serial port for direct connection to a Macintosh or IBM. It has 128 very good sounds, plus drums. For under $2500, you could get a Kurzweil K2000R. It has 24 voices, 16 MIDI channels, and a sampling option. If you're working on contemporary pop music, it might help to have a sampler. The K2000 offers the best of both worlds (sampling and ROM sounds).

Good luck, and remember to listen carefully to every option at your local music store. Ask the salespeople, read *EQ* reviews, and get literature from the manufacturer. This will help you make the best choice.

David Frangioni
Arlington, MA

GOING DIRECT

Q *I would like to record a signal directly from my electric guitar to the hard drive of my PC. When I do, however, I get an unbelievable amount of hiss and noise — some of which can be relieved with a little EQ. When I use EQ, though, I lose some of the overall ambience of the recording. Is there a way to record analog to digital without losing sound quality? I am currently recording at 16-bit stereo at a 22.05 kHz sample rate.*

D. Schneider
Bryan, TX

A You should be able to record directly from your guitar to your PC sound card with good results. But there are some things that require careful attention.

The hiss is generated by the input amplifiers on your sound card. The trick is to get the level of your guitar signal to be much greater than the hiss signal. Run your guitar signal into the line-level input of the sound card. Then bring up the sound card's mixer panel

World Radio History

AMEK

RN EQ

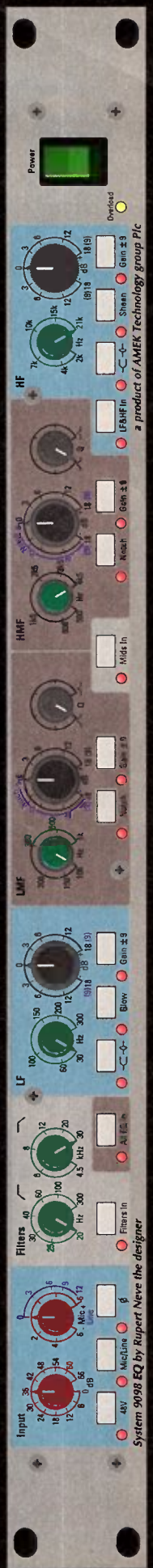
The EQ
The tradition
The pedigree

" The SYSTEM 9098 EQ is a high performance Equalizer and Preamplifier designed to originate microphone signals of the highest quality and to process signals generally in terms of frequency response. The circuitry is based on the research I put into the 9098 console and the approach bears many similarities to that used in the 9098. Paramount importance has been given to the sonic quality of the audio path, taking great care to retain the highly-prized musical character of the famous old designs of this pedigree.

The SYSTEM 9098 EQ embodies the original curve shapes now enhanced by improved circuitry which provides swept frequency bands in place of the discrete switched steps of the past. Thus the EQ has become even more powerful yet remains a subtle and creative tool, using the same basic circuit configurations which have been successful over many years. However, new amplifying devices and better quality components have resulted in lower noise, lower distortion and the ability to handle higher frequencies.

The result is an equalizer which has the solidity and sound of Class A without the cost, heat and weight penalties and thus provides the 'best of both worlds'. We have also left behind cumbersome and expensive hand cabling, noisy connectors, heavy separate power supplies and outdated assembly techniques which contribute nothing but nostalgia. Apart from the robustness, repeatability and reliability, we have now made one of my designs more affordable than ever before."

Rupert Neve



AMEK

Head Office, Factory & Sales:
AMEK Systems & Controls Ltd.
Regent Trading Estate,
Oldfield Road, Salford M5 4SX, UK
Tel: 061-834-6747.
Telex: 668127.
Fax: 061-834-0593.

AMEK US Operations, Inc.:
10815 Burbank Blvd.
North Hollywood
CA.91601
USA.
Tel: 818/508 9788.
Fax: 818/508 8619.

AMEK Germany:
Vorstadt 8
D-55411 Bingen
Germany
Tel: 06721 2636.
Fax: 06721 13537

AMEK Systems & Controls Asia:
Singapore Representative Office
Orchard P.O. Box 0655
Singapore 9123
Tel: 65 251 1629
Fax: 65 251 1297

CIRCLE 05 ON FREE INFO CARD

World Radio History

on your screen (on a 16-bit SoundBlaster card, for instance, the "SB-16 Mixer" icon brings up the mixer).

Turn up the line-level input gain as high as you can go without clipping. Just as important, turn down all the other inputs as far as they will go. In particular, turn off the mic input, since it is usually the noisiest because of its high gain.

Using a 16-bit SoundBlaster and a Fender electric guitar, we got good results with the line level turned all the way up. If your card needs more gain, try an external preamp.

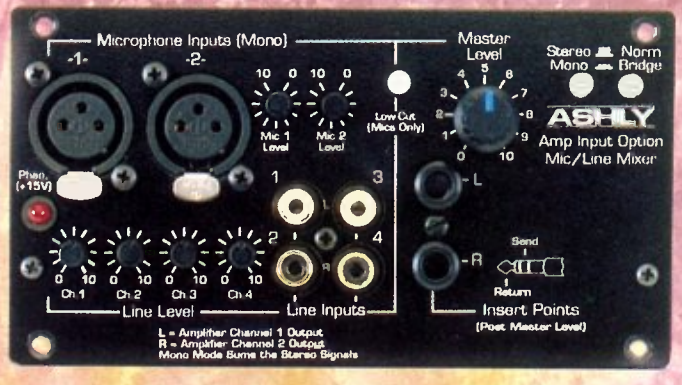
You may also want to consider a more professional sound card. For a professional-level setup, take a look at the CardD Plus from Digital Audio Labs. For exceptional sound quality on a budget, take a look at the sound cards from Turtle Beach.

Jeff Wilson
Director of Marketing
Digital Audio Labs, Inc.

Power Mixer

Large mixing consoles can come in mighty handy when the situation calls for lots of microphones and several different mixes. But what about those applications when the needs are much more basic? Introducing the MM-6 PowerCard from ASHLY. Just plug this input option into any of ASHLY's new amplifiers and you've got all the power the job requires without the extra complication and cost of a separate mixer.

The MM-6 has separate controls for each line level channel, allowing for the connection of two stereo sources or four monaural ones. Phantom power is provided for condenser microphones, and there are even patch points on each channel for the connection of an equalizer or any other signal processing device. Combine all this flexibility with any of ASHLY's latest amplifier models, and you have a *truly powerful* powered mixer! Sometimes the best solutions come in small packages.



Ashly Audio Inc., 100 Fernwood Ave, Rochester, NY 14621
Toll Free (800) 828-6308, Telephone (716) 544-5191 , FAX (716) 266-4589

ASHLY

TOM TROUBLE

Q *Because I was having problems miking our drummer's mounted toms, I purchased a number of Alesis 3630 compressor/gates. (I want to tighten the tom tracks before printing them to tape.) I was hoping the 3630's gates (set for –10 dBv operation) would isolate just the tom hits, but the rest of the kit, especially kick and snare, tend to open the gates more often than not. I set the console mic input pad to its lowest sensitivity, but the entire kit is still getting recorded onto the two stereo tracks allotted for the toms. I've tried to find a passive one, a balanced mic attenuation pad (–10 to –20 dB), but without success. Am I doing something wrong, or is the problem the 3630's lack of front-end variable sensitivity controls?*

Ellis Burman
Calabasas, CA

A The biggest problem with gating tom tracks is that the snare drum is often as loud or louder than the tom sounds themselves. This is why a volume adjustment is often only part of the problem. Check the tom mics and try to adjust their placement so that you get as little snare signal as possible. You may also want to try a more unidirectional microphone, such as a hypercardioid polar pattern. Another common solution to this problem is to EQ the signal that opens the gate, called the key signal. The Alesis 3630 compressor has a sidechain input that allows you to better control the gated signal. Split the tom signal and feed one half to the gate input and the other to an equalizer. Boost the center frequency of the tom, cut the rest of the signal, and feed this signal into the key (or sidechain) input of the gate. This should allow you to open the gate only when a tom is hit.

Ted Keffalo
Director of Marketing
Alesis Corporation

Send your queries to:
EQ Editorial Offices,
939 Port Washington Blvd.,
Port Washington, NY 11050
E-mail:
MPANDA@AOL.COM

CIRCLE 09 ON FREE INFO CARD

World Radio History

Vintage Circa 1995

PVM™ T9000 CONDENSER TUBE MICROPHONE

The new Peavey PVM™ T9000 tube microphone features a very special, self-polarized condenser capsule coupled with a vacuum-tube preamplifier to provide all of the mellow warmth for which tube microphones are revered.

With smooth, extended-range frequency response and a very uniform cardioid directional pattern, the PVM T9000 is ideally suited for studio vocals and a host of critical applications.

This microphone will easily handle SPLs of up to 137 dB and includes a 10 dB attenuator and 80-Hz low-cut filter switches. The unique shock suspension incorporates a finned heat-sink to help dissipate tube filament heat!

Get all of the vintage sound, state-of-the-art functionality and classic styling from a company dedicated to quality and performance in professional sound productions. Get the Peavey PVM™ T9000.

PEAVEY®

Audio Media Research™

The *MONITOR Magazine* is a publication filled with the latest information musicians want to know. To receive 4 issues for only $5 (price good in U.S.A. only) send check or money order to: Monitor Magazine, **Peavey Electronics**, 711 A Street, Meridian, MS 39301 • (601) 483-5365 • Fax: 486-1278 • ©1994

CIRCLE 55 ON FREE INFO CARD

World Radio History

"Get more done. Make more money. Sleep easier."

I was always fascinated by automation — used to drool at the mega-buck automated consoles at NAMM, AES or elsewhere. But I always passed it off as more envy rather than rational thinking. Sure, automation sounded good — but what would it really do for me? Was it worth the money.

It didn't really hit me till I looked at (and tried) the TASCAM M-3700. First off, the console is priced within reach of most any project studio. That's good. But what it could do — and what it did — really got me. It proved to me that automation is affordable and could help me do more projects and make more money. And, I never have to worry about remembering to log my fader positions and mute points, I can sleep easier at night.

For me, automation isn't a luxury — it's a necessity. We keep track of all of our customers' mixes on disk so we can recall them anytime. Plus, we can provide our customers with multiple mix options — they can A/B test them and make more informed decisions. In the end, they get a product they are more comfortable with because all their "what if" questions have been answered. That means they'll come back.

What makes the M-3700 so affordable is the entire automation system is built into the console. You don't need to dedicate an external computer or other MIDI device to use it. It includes two types of VCA automation. And each is easy to use.

Snapshot automation with 99-scene memory can be set or recalled using keyboard or MIDI program change

Store automated mixes on standard 3½" floppies

Disk drive included at no extra cost

Enter song names or transition times with the DATA ENTRY dial.

MIDI compatible for dynamic real-time fader and mute automation.

TASCAM FAX-BACK 1-800-827-2268

For information and specs via fax call 800-827-2268 and request document #6670.

World Radio History

...ney.

Double your inputs! 8-Bus in-line design means no repatching

Available in 24 or 32 inputs — Meter bridge optional.

Macintosh interfaces are available for power users.

Impressive Master Section: complete control of AUX sends, studio and control room monitoring.

First is snapshot automation. At any point during a mix you can take a picture of all fader and mute settings. Think of it as a mixer with a photographic memory. Then there's dynamic automation: real-time recording of your fader and mute movements. Which means if you're fading in and out, bringing up the horns, then vocals and other dynamic movements the console remembers them. Next time, just sit back and listen.

The M-3700 is a great console even without the automation system. But now that I have it — I won't give it up! Until you try an automated console, you'll just keep wondering what it can do for you. Try the M-3700. It comes with all the features you'd expect in a recording console and more. And if you're an automation "power user," JL Cooper's Pro 3700 automation expander works with most any Macintosh computer. You can do more. You can make more money. But you'll need to take the next step to automation and buy the TASCAM M-3700 today. Once you do, you'll sleep easier.

Quality components & rugged design!

TASCAM®

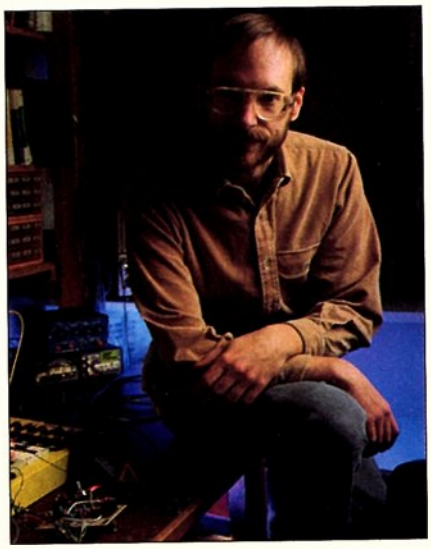
Take advantage of our experience.

© 1994 TEAC America, Inc. 7733 Telegraph Road Montebello, CA 90640 213 726-0303

CIRCLE 75 ON FREE INFO CARD

World Radio History

I Think, Therefore I NAMM



Project recording & sound is the big news at the NAMM show. Here's what all the biz buzzing means to you.

BY CRAIG ANDERTON

It's NAMM time again, but what does it hold for project studio enthusiasts? Here are some of the trends that the NAMM show revealed:

WINDOWS 95

With Windows 95 now incorporating a PC-compatible version of the Open MIDI System (OMS), the gauntlet has been thrown down to the Mac: when it comes to the music community, use it or lose it. Apple has known about the Open MIDI System for years, and Opcode has attempted to enlist Apple's support. Yet when a computer platform finally got an official, integrated MIDI operating system, it was not the Mac — which frittered away a massive head start — but the PC.

Apple showed signs of musical life by including MIDI and "Sound Fonts" in QuickTime 2.0, but it needs to recognize that MIDI is not going to go away. Apple should fix its serial ports once and for all to make them work properly with MIDI, and either retool MIDI Manager from top to bottom or adopt OMS (probably the better of the two options). Otherwise, despite the blinding speed of native PowerMac applications and the Mac's historical dominance of the artists' market, this year's NAMM show may go down as the last one where Apple still had a significant share of the professional music and recording market.

Apple's best hope is to take advantage of Windows 95's delay (originally it was supposed to be out by March; the latest word is August) to consolidate the gains it has made with the PowerMac, and roll out System 8.0 soon so that Windows 95 looks dated when it's introduced. However, rumor has it that 8.0 won't be out until 1996 — which creates even more uncertainty about the "battle of the operating systems."

MESSAGE IN A BOTTLE

After the transistor made it big, tubes were supposed to just go off quietly and die. But guitarists and a few hardcore audiophiles became the self-appointed keepers of the vacuum-tube faith, and their tenacity has been rewarded: tubes have made an astounding comeback. Paradoxically, their popularity is due to the same sonic imperfections that made people want to find a substitute in the first place — tubes are a quick and simple way to "warm up" digital audio, which some people hear as too perfect.

In a digital recording environment, where you don't have tape saturation to fall back on, tubes provide a sort of natural compression and pleasing distortion that's unobtainable by any other means (sure, there are lots of decent solid-state tube emulations, but there's something about that glowing filament in a glass bottle that refuses to be pinned down). The popularity of tubes delivers a very clear message: no technology is obsolete as long as it makes sounds that people find pleasing.

CLASH OF THE TITANS

In this corner, the young American upstart Alesis with its ADAT. In that corner, the venerable industry veteran TASCAM and its DA-88. Now that the dust has settled, who's the winner?

First off, the dust hasn't really settled. Although ADAT got off to a dazzling start, the DA-88 has since built a respectable following. But you ain't seen nothing yet. With Panasonic working with Alesis and Sony now backing TASCAM's format, this is one format war that still isn't over.

So far, the real winners are the companies making products that complement modular digital multitracks (MDM). Eight-bus mixers, octal limiters, and sequencers with MIDI Machine Control are just a start; it seems everybody wants a piece of the MDM market, so expect to see a tsunami of MDM peripherals in the months ahead.

DIGITAL DOMINANCE

Despite all the excitement about digital recording, the world is still very much a hybrid of digital and analog technology. Yet digital isn't about to quit in its quest for total control. Signal processors, keyboards, and mixers are all appearing with digital I/O ports; it's already commonplace to shuttle data between DAT, hard disk recording, and digital tape decks.

Next on the horizon: the eclipsing of digital tape by hard-disk recording devices. Tape has held an economic advantage over hard drives because tape serves as both the capture and storage medium. Hard-disk recording will eventually fill up a hard drive, which requires a secondary storage medium to back up those huge quantities of data (ironically, that backup system is often tape-based). But as prices of big hard drives and backup systems continue to plummet, hard-disk recording becomes more attractive, particularly because of the built-in editing and DSP options. EQ

World Radio History

"Obviously, These Guys Are Serious About Audio."

—D&R Orion Review, Mix Magazine

If you weren't aware of how popular D&R consoles have become, we understand. After all, we're not very good at making a lot of noise.

As thousands of D&R owners know, however, it takes more than our 20-bit-ready- noise floor to sound good. It takes more than our acclaimed Hi-Def™ EQs, and our RFI-killing, welded-steel chassis and stargrounding designs.

It also takes attention to a spec few console manufacturers are willing to discuss. We're talking phase coherency—which we tackle head-on by meticulously phase correlating each and every audio stage in every module in every console we craft. The result? Virtually no audible phase shift.

Is all our trouble worth it? Yes. You see, if we settled for "industry standard" phase specs, your music and audio could suffer up to 300% more phase shift. So thanks to our trouble your D&R will deliver sonic ecstacy. Not sonic smear.

Like the magazine said, we're serious. True, maybe we'd have to settle for industry standard performance if we stopped handcrafting consoles, and started assembling them. But we assure you that's another phase we won't be going through.

D&R

EUROPE'S LEADING HANDCRAFTER OF HIGH-PERFORMANCE CONSOLES

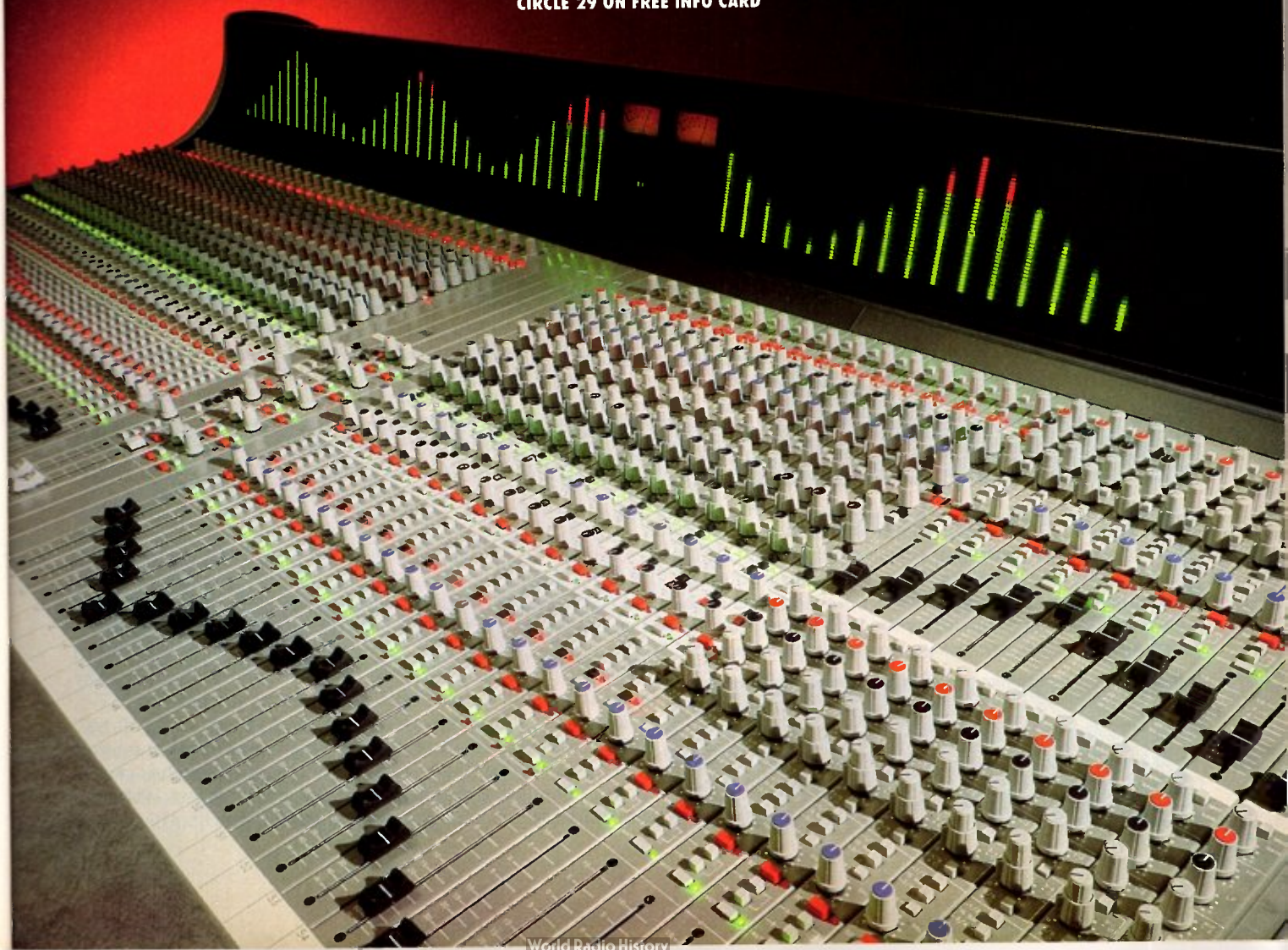
D&R Electronica b.v., Rijnkade 15b, 1382gs Weesp, The Netherlands

D&R West: (818) 291-5855 • D&R Nashville: (615) 661-4892 • D&R Southwest: (409) 756-3737

D&R North America: (409) 588-3411 • D&R Latin America: (713) 350-4569

D&R crafts remarkably affordable consoles for music, audio, broadcast, post production, and sound reinforcement. Call us for a free reprint of the 2/94 Mix Magazine Review.

CIRCLE 29 ON FREE INFO CARD



World Radio History

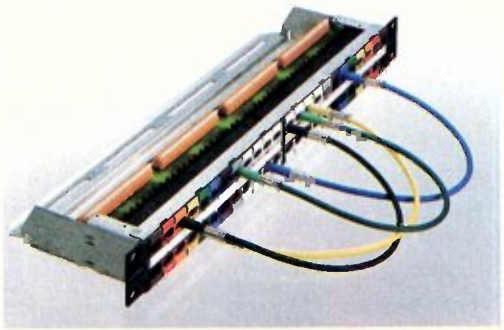
EQ NAMM REVIEW

PLUG IT IN

Carver is out there plugging its new plug-in electronic crossover, precision attenuator, and output transformer modules for the CA and PM Series of professional power amps. The new CX-2 stereo electronic crossover incorporates Linkwitz-Riley networks for each channel, as well as separate second-order infrasonic filters. Plug-in components are supplied for ten selectable crossover frequencies between 80 Hz and 7 kHz, and ten infrasonic filter frequencies between 10 Hz and 100 Hz. The AT-2 stereo precision attenuator allows adjustment of amplifier input levels in steps of 0.5 dB, 1 dB, and 10 dB from 0 dB to –59.5 dB. Both the CX-2 and the AT-2 are available as user-installed options on Carver Professional PM700, PM950, PM1400, and CA900 amplifiers. The XO-200A/XO-450A output transformers provide isolation between the amp and load in distributed sound systems. The XO-200A is designed for use with the CA400 amplifier, the XO-450A for use with the CA900. For the inside word, contact Carver Professional, P.O. Box 1237, 20121 48th Ave. W, Lynwood, WA 98046. Tel: 503-488-5542. Circle EQ free lit. #101.

FOLLOW DDRUM'S LEAD

ddrum has a beat on the Nord Lead, a keyboard synthesizer that uses digital methods to simulate analog synthesizer sounds. Nord Lead's sound generation is built on a technique called "virtual analog" synthesis. ddrum has analyzed analog synthesizer design and implemented the research in a digital model. Features like true pulse width modulation and real oscillator synchronization have been brought back from the dead in the Nord Lead. All sound generation functions are accessed via knobs on the front panel; no confusing LCD displays like "parameter selection" here. Each function has its own knob or button. Nord Lead comes in two versions: one with a four-octave keyboard and the other in a 19-inch rack-mountable format. For the inside scoop, contact ddrum, Inc., 300 Long Beach Blvd., Stratford, CT 06497. Tel: 800-882-0098. Circle EQ free lit. #102.



A NEW TRICK UP THEIR SLEEVE

Neutrik takes the pain out of patching with its new series of Patch Panel and Patch Bay products, the EASY PATCH patchbay. Features on the EASY PATCH include PC board jumpers that program switching configurations, TT and 1/4 Military-TB gauge jacks that are gold-plated, and an integrated wire stripper. Also, individual, group, or central grounding is available, and the front panel has three identification areas: one middle, writable strip, and two colored coded tags for top and bottom rows. To patch into this, contact Neutrik USA, 195 Lehigh Ave., Lakewood, NJ 08701. Tel: 908-901-9608. Circle EQ free lit. #103.

REFLEX SOME MUSCLE

Lexicon is again testing its reflexes with its new digital reverberation system called the Reflex. Its applications go from the studio to the stage. The Reflex is MIDI-controlled and has eight algorithms, including a unique "Resonator" algorithm designed to simulate the acoustic effects of multistringed instruments. A full 128 user registers and 112 factory-programmed effects are standard on the Reflex. The "Advanced Programming Mode" is a special feature that makes it possible to access and modify the deeper portions of an algorithm from the front panel. Editing can also be performed by an external MIDI device such as the Lexicon MRC (MIDI Remote Control). The Reflex is compatible with existing editors for the Lexicon LXP-1, such as Mark of the Unicorn's Unisyn and TB Systems' Soft MC. The Dynamic MIDI feature allows control over effects parameters from any MIDI controller, and up to four MIDI patches can be created per effect. Contact: Lexicon, 100 Beaver Street, Waltham, MA 02154-8441. Tel: 617-736-0300. Circle EQ free lit. #104.

World Radio History

THE BIG W

Yamaha's VL-1 is only part of its arsenal of new keyboards. It has also unleashed two new professional music workstations, the W5 and the W7. Both offer 32-voice polyphony, six internal digital processors and an internal digital mixer, a 100,000-note sequencer, a disk drive, general MIDI support, and new user interfaces. The W5 and the W7 share full integration with both GM and Standard MIDI. The two models are identical, the only difference being the number of keys: the W7 has 61 and the W5 has 76. Eight MB of all-new sample ROM provides the raw material of the sounds and the Yamaha Advanced Wave Memory architecture gives users the opportunity to combine these sounds in a variety of ways. There is an internal expansion slot that allows for the installation of a 4 MB expansion wave voice board. Retail price for the W5 is $2495 and for the W7, $1995. For more information contact Yamaha Corporation of America, P.O. Box 6600, Buena Park, CA 90622-6600. Tel: 714-522-9011. Circle EQ free lit. #105.

4 MIDI

Rocksonics has announced its new MVCA-4 MIDI-controlled quad VCA that reads MIDI data. Now the user can use the MIDI sequencer to control MIDI sound modules and analog sounds. The MVCA-4 contains four individual audio channels of VCAs with 1/4-inch unbalanced inputs and outputs. MIDI data can be read by any one of the four channels in accordance with the settings made by the user on the front panel. Each channel responds to its own MIDI channel. Two or more audio channels can be set to receive the same MIDI channel, thus allowing stereo and multiple channel tracking. The MVCA-4 reads MIDI continuous controller data #1 and #7 (modulation and volume) as well as Note On commands, allowing the MVCA-4 to be controlled by any MIDI device. Retail price is $249. For information, contact Rocksonics, P.O. Box 442, Los Angeles, CA 90720. Circle EQ free lit. #106.

RANE ON ME

Rane keeps the gear coming. It has introduced the DMS 22, a dual-channel studio-grade mic preamp with equalization and a stereo mixer. Features include 48 V phantom power, polarity invert switches, and gain controls. Direct line-level outputs are available for each channel with level controls. Pan controls on the mixer section send to a separate balanced stereo line-mix output. A three-band Accelerate-Slope equalizer for each channel, which is defeatable, provides selectable high and low shelving frequencies and controls, as well as a parametric midrange filter. The outputs on the DMS 22 each feature a selectable 15/50/100Hz low-cut filter. Mic inputs are three-pin with balanced line level 1/4-inch TRS direct and three-pin stereo outputs. For information, contact Rane Corporation, 10802 47th Ave., West, Mukilteo, WA 98275-5098. Tel: 206-355-6000. Circle EQ free lit. #107.

DA-30: THE SEQUEL

TASCAM keeps the DAT improvements coming, with the release of its new DA-30MKII DAT recorder, the successor to the DA-30. This time around, TASCAM has added a data/shuttle wheel, a Cal/Uncal select switch for the analog inputs, selectable Copy ID provisions, Standard and Long record modes, and an improved 1-bit AD/DA system. The Cal/Uncal switch provides the user with flexibility in optimizing the machine for recording. Cal automatically sets the machine up to accept +4 dBm balanced or –10 dBv unbalanced signals. In the Uncal position, the user can calibrate the machine to accept signals of different nominal levels. With selectable Copy ID, the DA-30MKII lets the user decide the amount of digital copies to be made when using the S/PDIF via the coaxial digital output: make one copy or no copies. Long mode doubles the amount of playback time; it is available via the analog inputs at both 44.1 kHz and 48 kHz, and digitally at 32 kHz. For details, contact TASCAM, 7733 Telegraph Road, Montebello, CA 90640. Tel: 213-726-0303. Circle EQ free lit. #108.

World Radio History

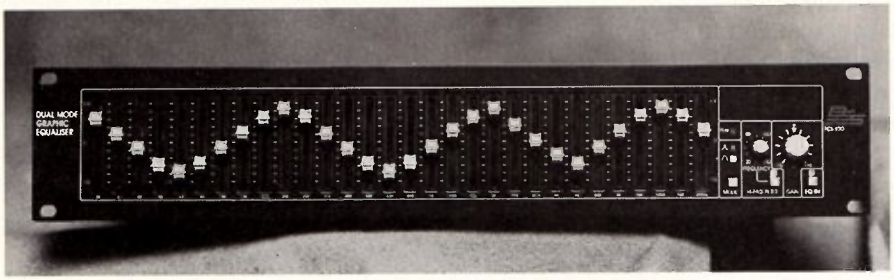
EQ NAMM REVIEW

IT'S IN THE BAG

BAG END's elf's didn't quit working after X-mas. They have unveiled the latest addition to their extended low-frequency integrator line, the BAG END ELF-M. The ELF-M incorporates the design principles of the ELF-1 and ELF-M2 for a lower price. Standard features on the newest ELF are stereo inputs with stereo high-pass output at unity gain and dual integrated ELF output,with Concealment. The high-pass and cutout frequencies on the ELF-M are internally set at the factory, and are also adjustable for custom applications. Also noteworthy is the fact that the ELF-M operates on 12 volts, DC, enabling automotive and portable applications. Retail price is $798. Contact BAG END Loudspeaker Systems, P.O. Box 488, Barrington, IL 60011.

A FAMILY AFFAIR

BSS Audio has introduced the New FCS-930. Following in the steps of its predecessor, the FCS-960, this graphic equalizer is a single-channel, 2U rack-space unit that includes the dual-mode filter Q-switching that addresses feedback where a narrow filter is required. Constant-Q filter technologies are employed so that filter interaction is minimized.



Other features include a variable high-pass filter, adjustable gain, and a peak warning LED. Inputs and outputs are electronically balanced, and an automatic bypass relay operates in the event of power failure. For more information, contact BSS Audio, 8500 Balboa Blvd., Northridge, CA 91329. Tel: 818-894-8850. Circle EQ free lit. #110.

The Lexicon Reflex Dynamic MIDI reverberator.

Our new Reflex Dynamic MIDI™ Reverberator is one *serious* piece of Lexicon gear that gives any studio the famous Lexicon sound on a project studio's budget.

Reflex offers the famous Lexicon sound, with eight stunning algorithms to bring new dimensions to your recordings. There's reverb, rich chorusing and echo effects, flanging, multi-tap delays and a unique resonator program — a total of 112 Presets. And 128 User Registers.

The new Hall algorithm includes two elements derived from our top-level processors, for the most realistic reverb available in its class.

Lexicon's randomization process reduces coloration and improves the character of longer reverb tails. Additionally, a pair of early reflections is available, allowing you to increase the audibility of a stage or walls, resulting in incredibly realistic hall and room simulations.

Reflex also incorporates

World Radio History

IT CAME FROM OUTER SPACE

Roland once again proves that 'space is the place' with the release of its RSS-10 Roland Sound Space processor, a two-channel system that utilizes a new three-dimensional DSP sound processor. A complete 360-degree reverb soundscape can be generated using the RSS-10, including digital processing of reflections, delays, and Doppler effect. Sound can be placed or moved above, toward, or around the listener using only two normal stereo speakers for playback. Up to 16 units can be linked together for a total of 32 channels of three-dimensional audio. The RSS-10 also comes with two types of controlling software for either Macintosh or Windows platforms. For the real deal, contact Roland, 7200 Dominion Circle, Los Angeles, CA 90040. Tel: 213-685-5141 x337. Circle EQ free lit. #111.

STATUS REPORT

Otari 's new STATUS line is breaking pricepoints for digitally controlled analog desks. The first to be introduced is the STATUS R, which is designed for music and postproduction applications. It features console-wide image recall as a standard feature and has an entry-level price of under $25,000. Also standard are fader, mute and snapshot automation, as well as fader grouping. Each input module has two independent signal paths and a four-band equalizer that can be assigned to either path or split between the two. The Active Block Diagram module status display, pioneered on the CONCEPT 1, is standard on the STATUS R. For more info, contact Otari Corporation, 378 Vintage Park Drive, Foster City, CA 94404. Tel: 415-341-5900. Circle EQ free lit. #112.

The affordable new standard in reverberation.

Lexicon's Dynamic MIDI™, allowing real-time control of effects parameters via MIDI. For example, the mod wheel on your keyboard can control Reverb Decay Time, or alter the pre-delay from a drum machine snare hit. Plus, Reflex lets you slave delay times to MIDI tempo and do MIDI bulk data dumps. Reflex works with any existing LXP-1 editor, such as our MRC MIDI Remote Controller.

Of course, Reflex is at home not only in the studio, but in musician's racks as well. Reflex is part of the same Performance Series as the Alex, JamMan and Vortex — all extraordinary processors which maintain Lexicon's impeccable standards for sound quality.

Check out Reflex today.

Reflex. Only at your authorized Lexicon dealer.

Lexicon

HEARD IN ALL THE RIGHT PLACES

Lexicon, Inc., 100 Beaver Street, Waltham, MA 02154
Tel: 617/736-0300 Fax: 617/891-0340 E-mail: 71333.434@compuserve.com

A Harman International Company

CIRCLE 82 ON FREE INFO CARD

World Radio History

EQ NAMM REVIEW

A TOUR DE FORCE

Sennheiser's new MD735/736 ProForce microphones can handle the pressure (as in SPL). Both the MD735 and 736 incorporate a supercardioid pattern along with a tailored frequency response that addresses the problem of feedback. The ProForce series is ideally suited for vocals. Equipped with Neodymium/Iron/Boron (NdFeB) magnets and featherweight membranes and voice coils, Sennheiser boasts the microphones' ability to withstand high sound pressure levels without distortion. Also included in the ProForce series is Sennheiser's Spring Capsule Suspension (SCS), a calibrated system that deals with handling noise by isolating the capsule within the microphone from the housing. For the full story, contact Sennheiser Electronics Corporation, 6 Vista Drive, P.O. Box 987, Old Lyme, CT 06371. Tel: 203-434-9190. Circle EQ free lit. #113.

THE SKY'S THE LIMIT

Aphex Systems has introduced the Model 722 Dominator II stereo multiband peak limiter. The Model 722 features switchable pre- and de-emphasis as well as switchable 50 or 75 microsecond emphasis curves. The unit can be configured to accommodate systems such as microwave links, FM and TV audio, satellite uplinks, and certain digital systems. For details, contact Aphex, 11068 Randall St., Sun Valley, CA 91352. Tel: 818-767-2929. Circle EQ free lit. #114.

You're a Musician. Your Language is Music and BBE is Your Essential New Tool!

You speak through your instruments and your songs. No ordinary words can convey all the complexities, the joy, the pain, the ideals and the dreams. Only your music can do that. But how does the music you hear in your head fight its way through a morass of electronics to reach the ears of your audience without losing some of your meaning? ***BBE IS THE ANSWER!***

BBE is your indispensable companion in the recording studio, the club and concert stage. BBE reveals the richness of your texture, the nuances, the subtleties, the inner meanings in your music. Your artistic presence is more vivid–the colors in your sound more vibrant. The crystalline clarity of your music is triumphantly unveiled!

World Radio History

FOR THE RECORD

Akai Digital is making the hard disk alternative mightly attractive. The DR8 features 8-track recording to a single disk, a built-in 16-channel mixer, and is a recording/editing station that does not require a host computer for its operation. Simultaneous recording and playback are standard features on the DR8, as is the 1 GB internal hard disk that provides up to three hours and 17 minutes of recording time. External drives may be connected via the supplied SCSI interface. Data may be backed up to DAT because of the DR8's digital I/O interface. Other features include 18-bit, 64x oversampling A/D converters, and one-bit dual 20-bit D/A conversion. The programmable mixer within the DR8 can mix up to eight external channels with eight internal ones. MIX mode allows the recording of pan, level, the two effects sends, and bus On/Off. Other features include a jog/shuttle control; word clock/video-sync terminal; and up to 109 memory locations for instant recall. Future options include the MT8, an external mixing controller, and built-in digital EQ. For further details, contact Akai Professional, 1316 E. Lancaster Ave., Fort Worth, TX 76012. Tel: 800-433-5627. Circle EQ free lit. #115.

THE X FILES

Korg has announced its new X5DR, a 64-voice polyphony, half-rack space sound module. The X5DR incorporates the Ai2 synthesis technology that is found in the Korg O, X, and i Series music workstations. Added sounds, an increased polyphony, and an expanded CD-ROM of 8 MB can all be found in the X5DR. There is a total of 430 multisounds, 215 drum sounds, and 47 different effect types with real-time control. The X5DR is fully compatible with the Korg 05R/W Sound Module, X5 Music synthesizer. Other features include 128 General MIDI programs plus eight drum programs. For the inside word, contact Korg USA, Inc., 89 Frost St., Westbury, NY 11590. Tel: 516-333-9100. Circle EQ free lit. #116.

"Increases intelligibility, restores harmonics, and improves clarity . . . recaptures the natural sparkle and punch . . . "
Mix Magazine

Wherever There is Music and Sound, BBE Plays A Vital Role:

Electric and Acoustic Guitars have sparkle, clarity, and definition. BBE brings out the harmonic complexity and bite–significantly increases cutting power.

Keyboards & Synthesizers take on a new realism. Percussive and plucked sounds are uncannily clean and sharp. Chords are rich and fully-textured, each note in the chord retaining its integrity.

Vocalists and Soloists BBE is for everyone using microphones—singers, saxes, horns, flutes, whatever. You'll hear all the texture of the sound, all the rich harmonic structure, all the essence of your music.

Recording Studios home and professional. On individual tracks, multitrack down to two track, cassette duplication and mastering, BBE brings out the full spectrum of sound and gives a superb, professional result.

Percussion The snap of the drums, the ping and sizzle of the cymbals never sounded so real as with BBE.

Stage and Club Sound systems are wondrously improved with BBE. Discos leap into life. The vitality, presence, texture and realism of the performance shines through.

Radio and TV stations all over the world are broadcasting with BBE for richer, fuller, cleaner sound and a presence that commands and holds the audience.

BBE® *"All The Sound You've Never Heard"*

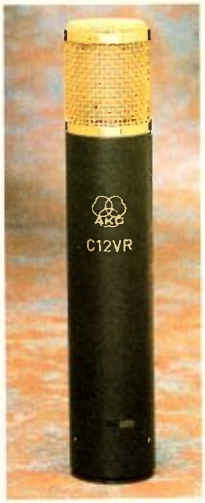
5381 Production Drive • Huntington Beach, CA 92649 • 714-897-6766 • FAX: 714-896-0736
Made in USA

CIRCLE 11 ON FREE INFO CARD

World Radio History

EQ NAMM REVIEW

IT'S ALIVE!



AKG is going 'back to the future' with the re-creation of a classic, the new C12VR tube microphone. The new C12VR is designed to follow in the footsteps of its predecessor, the C12, which was manufactured by AKG between the years 1954 and 1963. The C12VR maintains the original 6072 vacuum tube at the heart of its circuitry, with enhanced user control. Selectable preattenuation is provided in 10 or 20 dB increments. A frequency range of 30 Hz to 20 kHz ±2.5 dB is standard on the new tube. Other features include a large-core-section output transformer design that addresses low-frequency distortion with a two-position roll-off/bass-cut circuitry that can be remotely controlled, special shock mounting elements, a 30-foot connecting cable, and a foam windscreen. Retail price is $3,999. For complete details, contact AKG Acoustics, 8500 Balboa Blvd., Northridge, CA 91329. Tel: 818-894-8850. Circle EQ free lit. #117.

A BOARD WITH VISION

Studiomaster displayed its line of professional, stereo powered mixing consoles, the VISION Series. The consoles are available in three versions: 8-channel (rack mountable), 12-channel, and 16-channel. The VISION boasts 350 watts per side (4 ohms), along with an on-board 16-bit digital processor that provides 82 different stereo reverb, delay, and special effects settings. Four additional "power memories" are provided for quick storage and recall. Two stereo inputs are provided on the 8- and 12-channel versions, while four stereo inputs are provided on the 16-channel version. Retail prices are 82V, $2195; 122V, $2695; 162V, $3195. For details, contact Studiomaster, 3941 Miraloma Ave., Anaheim, CA 92807. Tel: 714-524-2227. Circle EQ free lit. #118.

PLAYING THE (NEAR)FIELD

Take a listen to these nearfield monitor debuts from NAMM

Spirit Absolute 2

Spirit's Absolute 2 nearfield monitor features a 6 1/2-inch, cast-frame bass driver with edge-wound voice coil and a 1-inch, soft-dome high-frequency tweeter that utilizes a ferrofluid-cooled voice coil. Rated at 100 watts of continuous power handling, the Absolute 2 features a frequency response of 45 Hz to 20 kHz. For more information, contact Spirit Corp., 8760 S. Sandy Pkwy., Sandy, Utah 84070. Tel: 616-695-5948. Circle EQ free lit. #119.

BAG END MM-8

The BAG END MM-8 nearfield™ monitor offers a frequency response of 100 Hz to 20 kHz and is an 8-inch, two-way coaxial Time Align® system. Shown here is the Studio A system that includes the MM-8, two D10 ES subwoofers, and an ELF-1 integrator. For more details, contact Bag End, P.O. Box 488, Barrington, IL 60011. Tel: 708-382-4550. Circle EQ free lit. #120.

JBL DMS-1

JBL's DMS-1 utilizes dual 335 14-inch neodymium transducers that incorporate JBL's patented Vented Gap Cooling. Flat response beyond 20 kHz is provided by JBL's latest compression driver, which is comprised of a neodymium magnet, titanium diaphragm, and Coherent Wave phasing plug. For more information, contact JBL, 8500 Balboa Blvd., Northridge, CA 91329. Tel: 818-909-9748. Circle EQ free lit. #121.

Apogee Sound CSM-2

The Apogee Sound CSM-2 monitors are three-way, single-amped loudspeakers that offer a frequency response of 34 Hz to 25 kHz. The working distance ranges from approximately one meter for nearfield use to four meters when soffit-mounted. For more details, contact Apogee Sound, Inc., 1150 Industrial Ave., Petaluma, CA 94952. Tel: 707-778-8887. Circle EQ free lit. #122.

KRK K-RoK

KRK Monitoring Systems has debuted the K-RoK close-field monitor. The new monitor features new designs in driver and enclosure technology. Featured on the K-RoK is a proprietary 7-inch, latex-coated, long-stroke woofer and a one-inch, silk-dome tweeter. The monitor is capable of handling 100 watts of input power and has a metric sensitivity of 92 db. Crossover on the K-RoK occurs at 2.5 kHz and features a custom KRK network of inductors and capacitors. Retail price for the pair is $449. For the inside word, contact KRK Monitoring Systems, 80 Sea Lane, Farmingdale, NY 11735. Tel: 516-249-1399. Circle EQ free lit. #123.

World Radio History

WHO ELSE GIVES YOU THIS KIND OF ROOM SERVICE? NOBODY.

YDG2030 Digital Graphic Equalizer

YDP2006 Digital Parametric Equalizer

Offering two vastly superior EQs in the same ad might be considered digital overkill. But for Yamaha, it's business as usual.

So whether you prefer the graphic or parametric variety, Yamaha has just what the doctor ordered.

Superlative features like 20-bit AD and DA conversion. 40-program memory. Signal delay for time alignment and distance compensation. And full MIDI implementation.

The YDG2030 graphic equalizer also offers 2-channel 30-band equalization, plus four programmable notch filters as well as high- and low-pass filters.

The YDP2006 parametric equalizer offers two EQ modes: either 2-channel, 6-band parametric equalization with programmable notch filters, plus high-and low-pass filters. Or single-channel 12-band PEQ with eight notch filters as well as high- and low-pass filters.

Another critical feature is price. You can pick up either one of these digital marvels for about the same price as you'd expect to pay for your basic, run-of-the-mill, analog EQ and delay.

Stop by your nearest Yamaha dealer for a hands-on demonstration.

One look and you'll agree, about the only thing we left out is room for improvement. **YAMAHA®**

EXT. 1-800-937-7171 430

Call for more information.

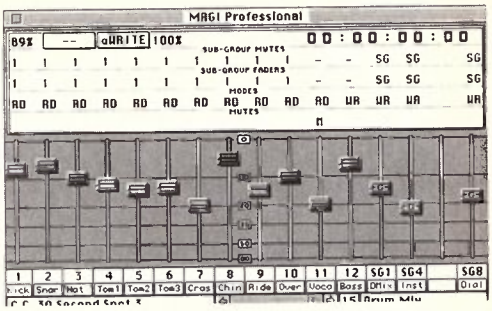
© 1995 Yamaha Corporation of America. Pro Audio Products, P.O. Box 6600, Buena Park, CA 90622. (714) 522-9011. Yamaha Canada Music LTD. 135 Milner Avenue, Scarborough, Ontario M1S 3R1 (416) 298-1311.

CIRCLE 78 ON FREE INFO CARD

World Radio History

EQ STUDIO WARE

AUTOMATION FOR THE PEOPLE



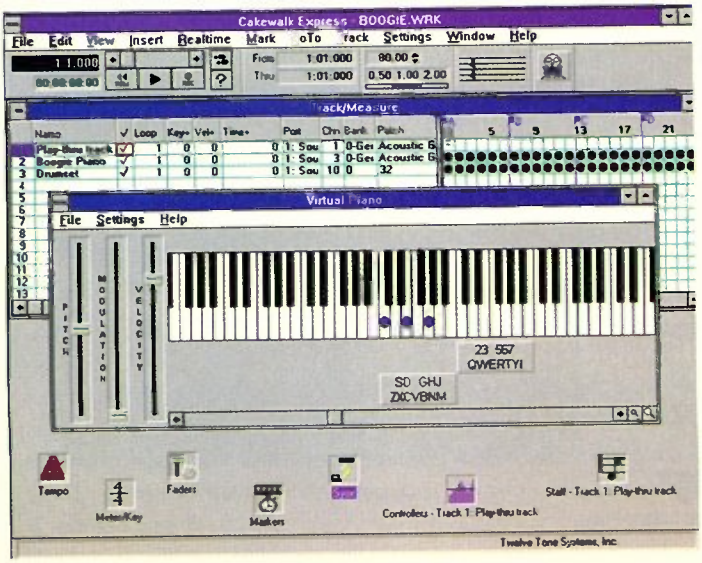
JLCooper has unveiled the MAGI M24 fader automation system for the Alesis X-2 console. The new system can be retrofitted to the console without any modification and installs in less than an hour. The package allows an X-2 user to control and edit dynamic changes within the mix. M24 is a Mac-based system that provides SMPTE-locked fader and mute automation. There are a variety of editing features — Cue List Off-Line Editing, Hit List, Solo Mode, and Off-Line MIDI Event Editing, to name a few. For the whole story contact: JLCooper Electronics, 12500 Beatrice Street, Los Angeles, CA 90066. Tel: 310-306-4131. Circle EQ free lit #124.

POWER STATION

Kurzweil has introduced the new K2500R Production Station. At the heart of the system are a 25 MHz 68340 processor and Kurzweil's proprietary chips. Features include true 48-note polyphony, a backlit 64 x 240 front-panel display, 60 internal DSP functions arranged in 31 algorithms, up to 28 MB of internal ROM sounds, sample RAM expansion to 128 MB, program memory expansion to 1256 KB, dual industry-standard SCSI ports, software operating system upgrades via floppy disk, interfacing options that include digital conversion to the Alesis ADAT and TASCAM DA-88 formats, a full-function 32-track sequencer, and a hierarchy file directory system. Want to hear more? Call 1-800-400-6658 for a free audio CD. For more information, contact Kurzweil Music Systems, 13336 Alondra Blvd., Cerritos, CA 90703; Tel: 310-926-3200, Fax: 310-404-0748. Circle EQ free lit. #126.

INTER YA' FACE

MIDIMAN has released the PORTMAN 2 x 4, a 2-In/4-Out parallel port MIDI interface. The PORTMAN 2 x 4 attaches directly to the external parallel (printer) Centronics interface on any IBM-compatible computer using a standard printer cable. The two MIDI Ins and the four MIDI outs are independent, giving the unit the ability to drive 64 different MIDI channels on the outputs and to have two independent MIDI devices on the inputs. A 6-foot printer cable is also included. Retail price is $179.95. For more information, contact MIDIMAN, 236 W. Mountain Street, Suite 108, Pasadena, CA 91103. Tel: 818-449-8838. Circle EQ free lit. #125.

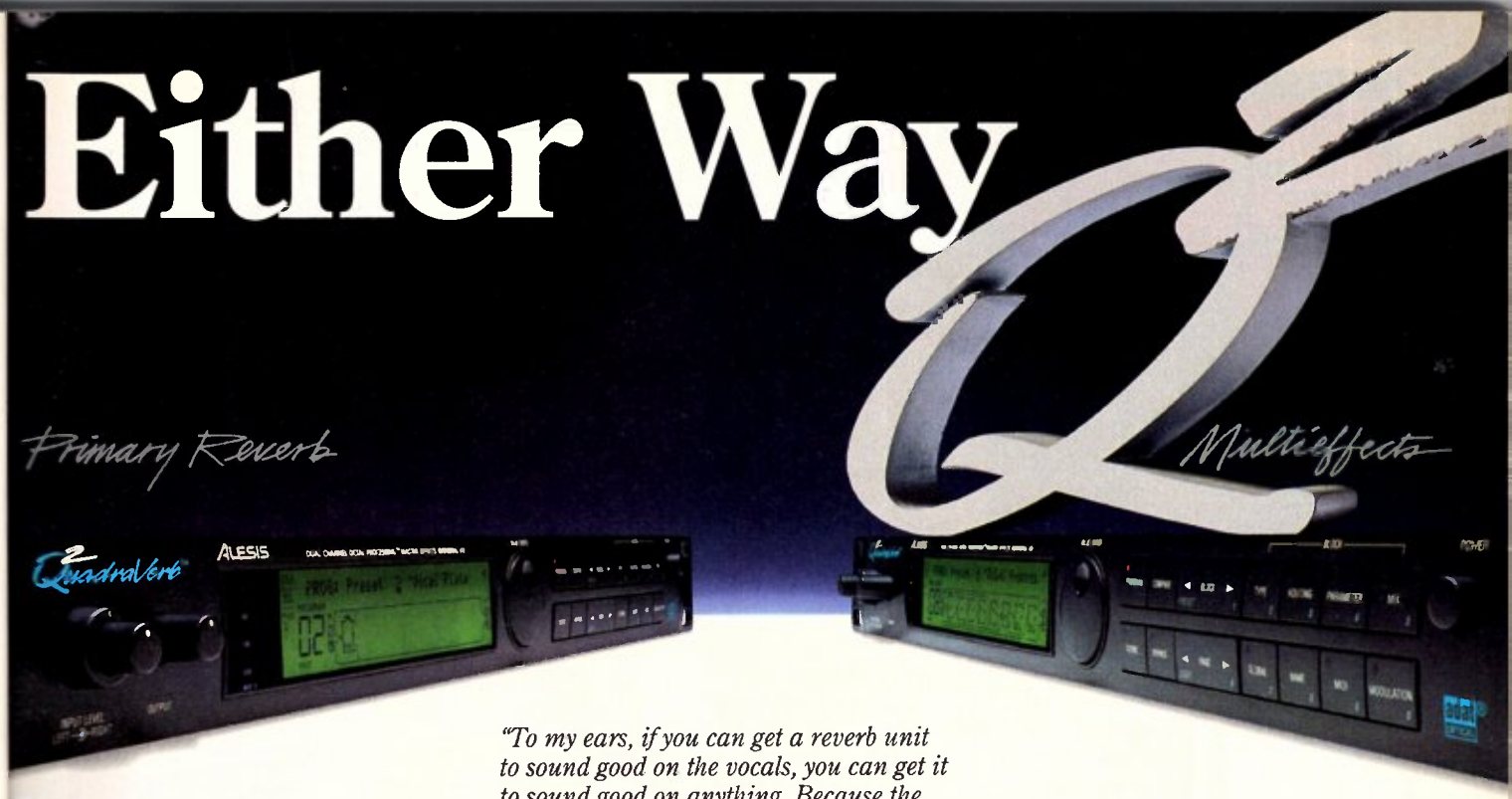


TAKE THE EXPRESS

Twelve Tone Systems has announced its new entry-level software called Cakewalk Express. It is designed for use with Windows and allows anyone with a Windows-compatible sound card to record, edit, and play back music without the need for an external MIDI device. Music can be arranged and edited in a number of graphical windows, including a multitrack Staff view, a Piano Roll view, a Faders view, and a Track/Measure view. Cakewalk Express includes the Virtual Piano, which turns the PC itself into a musical instrument. The user can create music via computer keyboard or mouse while viewing an on-screen piano. Playback of digital audio wave files and MCI (Media Control Interface) commands are supported by Cakewalk Express. A sound card MIDI adapter is included with the software, giving users the option to expand their MIDI systems by connecting a MIDI instrument to their PC sound cards. Retail price is $89. For details, contact Twelve Tone Systems, Inc., 44 Pleasant Street, P.O. Box 760, Watertown, MA 02272. Tel: 617-926-2480. Circle EQ free lit. #127.

World Radio History

Either Way



In a world filled with too many confusing options, it's good to know that there's a product built to deliver just two things. The best reverb you've ever heard. The most powerful multieffects you've ever used.

Your primary reverb is always the first reverb on the echo buss. The best reverb in the studio. Until now, reverb this good used up most of your equipment budget.

"To my ears, if you can get a reverb unit to sound good on the vocals, you can get it to sound good on anything. Because the biggest challenge for any reverb is the lead vocal. I put this reverb up against everything else out there and nothing surpasses it. I use Q2 on the vocals."

- Francis Buckley, Independent Engineer: Album, Film and Television

"It's nice to see a company interested in the user's input before they release a product. They developed a reverb that really works. It's easy to make these kind of programs run if you've got tons of hardware. How they did it with such a small box at such an affordable cost is really impressive. It was worth the wait."

- Charlie Brewer, Chief Engineer, Village Recorders

"The architecture is the best I've ever seen. You can see exactly what's happening. This is critical if you're going to squeeze the ultimate sound out of a processor. If you need to get at a chorus in a complex patch, you take one look at the display and you're there. Plus, there isn't a classic reverb sound the Q2 can't simulate and improve upon. This unit is a must."

- Jay Graydon, 2 Time Grammy Winner, Engineer, Producer

Q2 changes all that, delivering primary reverb for any budget.

Delivering more is what Alesis does best. So you can always do your best.

We threw in the multieffects so you don't have to make any compromising choices. This is truly the way it should be. Q2™ is at your Alesis Dealer now.

simultaneous effects. Octal Processing™ allows any effect in any order. Stereo or independent dual-channel operation, 100 preset, 100 user programs, custom LCD graphic user interface with Virtual Patch Cables™, >90dB dynamic range, 20Hz - 20kHz frequency response, 24-bit internal processing, One-Touch Value/Enter Wheel, +4dBu balanced (servo on outputs) and -10dBV unbalanced operation on 1/4" TRS, separate L/R input levels, THD+N <0.009%, 16-bit Delta-Sigma 128x oversampling A/D conversion, 18-bit Delta-Sigma 64x oversampling D/A conversion, 48kHz sampling rate. Rooms, Plates, Chambers, Halls, Nonlinear, Reverse, Spring. Chorus, Quad Chorus, Flanging, Phasor, Lezlie, Pitch Shift, Pitch Detune. Delays: Mono, Stereo, Ping-Pong, Multitap, BPM, Tap Tempo/ MIDI Clock. Mono & Ping-Pong. Ring Mod, High/Low/Bandpass/Shelving Filters, 2-Band Sweep EQ, 3&4-Band Parametric EQ, 5-Band Graphic EQ, Resonator, Tremolo, Stereo Sim. ADAT® Optical Digital Interface™. Reverb Only Mode. Input Envelope, Peak Following and Ramp Dynamic Response Mode. Tons of MIDI stuff. All trademarks are property of Alesis.

Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 1-800-5-ALESIS ALECORP@Alesis1.usa.com

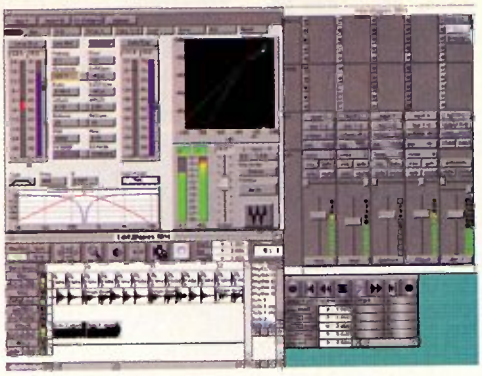
ALESIS STUDIOPHILES

CIRCLE 02 ON FREE INFO CARD

World Radio History

EQ STUDIO WARE

RIDE THE WAVE



Waves has announced the release of TDM Bus-compatible versions of all Waves Plug-In processors. The Waves Q10 Parametric EQ, the L1 Ultramaximizer, and the new C1 Compressor/Gate are all now compatible with the Digidesign TDM Bus and Didgidesign Pro Tools III digital audio workstation. TDM pricing for the Waves Plug-Ins: Q10, $600; L1-TDM, $800; C1-TDM, $850. Upgrades to TDM from previous versions are $150 per plug-in, plus a one-time purchase of the WaveShell TDM for $100. For information, contact Waves, 4028 Papermill Road, Suite 14, Knoxville, TN 37909. Tel: 615-588-9307. Circle EQ free lit. #128.

GROOVIN'

Steinberg has unleashed ReCycle! With ReCycle! the user can change the tempo of a groove without altering its pitch, and vice versa; remove/replace any sound inside the sampled groove without altering the feel; and send different sounds in the groove to different sampler output. It supports Akai S1100, S2800, and S3000, and Digidesign's SampleCell I and II. Support is coming soon for Roland and Ensoniq samplers. Retail price is $199. Contact: Steinberg/Jones, 17700 Raymer St., Suite 1001, Northridge, CA 91325. Tel: 818-993-4091. Circle EQ free lit. #129.

LABEL MAKER

Re-an has unveiled its new patchbay labeling software, called PATCHLABEL. PATCHLABEL's on-screen graphics show the respective panel with jack spacings and diameters. System requirements are a 386SX IBM-compatible PC with hard disk drive, Windows 3.1, and a minimum 600k of disk space. A Macintosh version of the software is expected soon. For more details, contact Re-an, Inc., 16 Passaic Ave., Fairfield, NJ 07006. Tel: 201-808-0063. Circle EQ free lit. #130.

AFFORDABLE SAMPLE RATE CONVERSION – THE MISSING LINK IN YOUR DIGITAL CHAIN.

z-link and z-link+ MINI SAMPLE RATE CONVERTERS

You've invested in DAT and CD machines, samplers, MiniDisc recorders, CDRs, digital audio workstations, and digital consoles, but you've problably found that linking them up in the digital domain is easier said than done. The new **z-link** and **z-link+ palm-sized sample rate converters** let you keep it digital. And at **$349** (z-link, sugg.), there's no excuse for going analog again.

ZSYS.

Z-Systems Audio Engineering
4641-F NW 6th Street
Gainesville, Florida 32609
Tel: 904-371-0990
Fax: 904-371-0093

CIRCLE 80 ON FREE INFO CARD

World Radio History

K-ROK'N IN THE FREE WORLD

The new KRK K-RoK close-field monitor looks as if it's been carved out of solid granite. These bizarre-looking little monsters feature a unique box design that produces better linearity and low-end punch than any monitor in their class.

Featuring a powerful 7" long-stroke woofer, a 1" silk-composite dome tweeter and fanatical KRK engineering, the affordable K-RoKs ($449.00 per pair) deliver the smooth response and high power handling capability that have made KRK monitors legendary.

Perfect for the home studio, K-RoKs provide world-class performance without blowing your budget. Why settle for some cheaply-constructed mini-monitor when you can own an authentic KRK reference monitor for about the same dough? Contact your local KRK dealer for a K-RoK demonstration. K-RoK, fanatical by design.

COME SEE US AT NAMM BOOTH #990

KRK MONITORING SYSTEMS

Distributed by Group One
East Coast Office:
(516) 249-1399 • FAX (516) 753-1020
West Coast Office:
(310) 306-8823 • FAX (310) 577-8407

KRK Monitoring Systems
16462 Gothard St., Unit D
Huntington Beach, CA 92647
(714) 841-1600 • FAX (714) 375-6496

CIRCLE 37 ON FREE INFO CARD

World Radio History

THE NEW TSR-24S LETS YOU CREATE YOUR OWN SOUNDS IN TWO STEPS. 1-DREAM THEM UP. 2-LAY THEM DOWN.

With the TSR-24S, frustrating menus and time-consuming steps don't control your programming. You do. Choose the effects you want, in the order you want, then program and listen to them instantly. No catches. Naturally, the TSR-24S has plenty of raw material, with an arsenal of more than 75 effects. Plus, multiple modulation effects

S-DISC™ PROCESSING

SPECIAL EFFECTS

OVER 75 EFFECTS

Gigaverb (the world's most flexible reverb), crystal clear sampling, multitap and modulated delays, multi-phase choruses and flangers, duckers, auto panners, 4-voice phasers, 10 separate EQs, 4 octaves of multi-voiced pitch shifting, arpeggiators, and more.

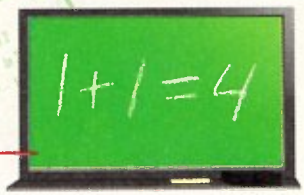
94 DB S/N RATIO

When it comes to sound, not even compact discs are as clean as the TSR-24S. Our Silencer™ digital noise gate wipes out noise by writing digital zeros when there's no signal present.

94 dB

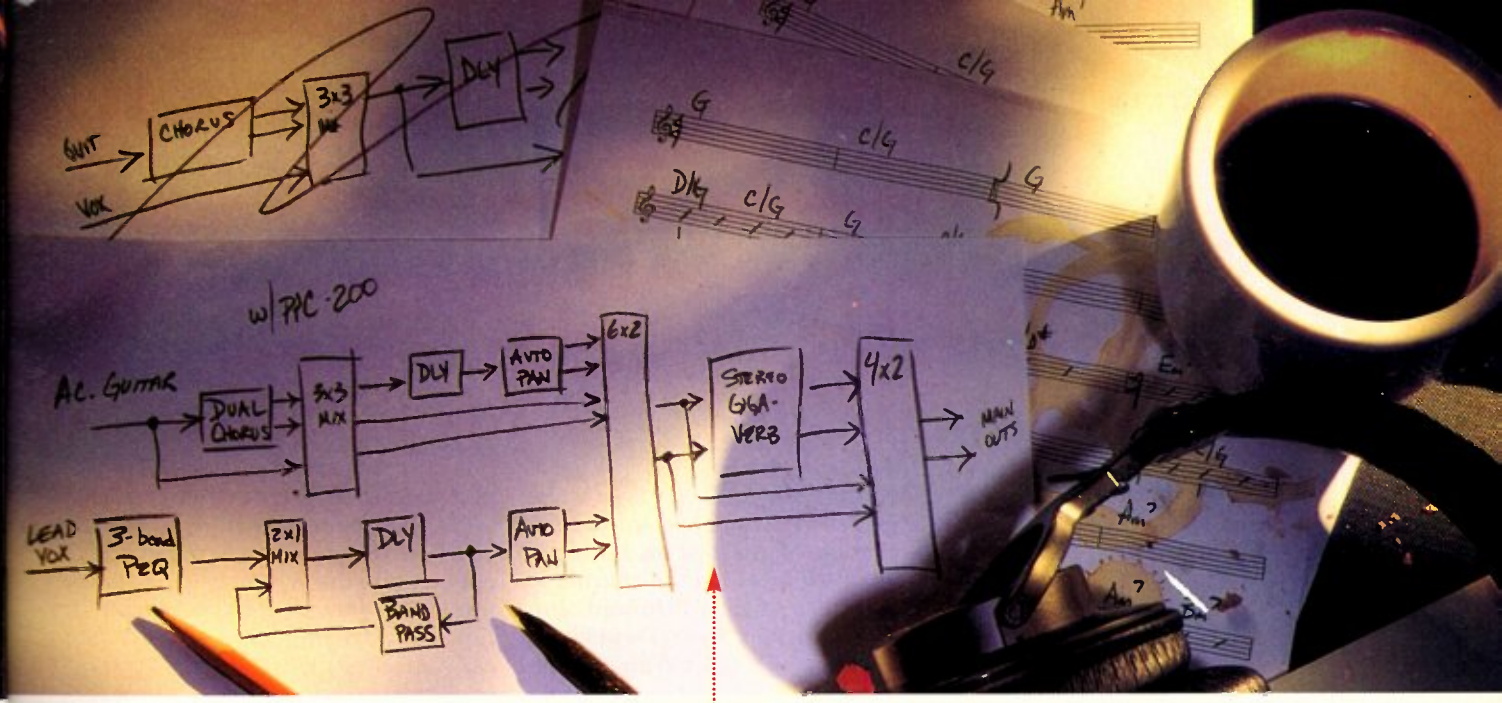
DUAL DISCRETE STEREO

Take true stereo inputs, add four assignable outputs, and you get a lot of routing configurations. Let's see, there's stereo in, quad out; mono in, quad out; dual mono in, dual stereo out...well, you count 'em.



HAVE A TSR-24? *No problem—upgrading is a snap. Just contact your nearest DigiTech dealer.*

World Radio History



capability and instant module/parameter access mean your great ideas become great music in a matter of seconds. No other machine at any price can match its flexibility. But even before you start dreaming up new sounds, you'll have to take the real first step. Drop by your nearest DigiTech dealer today.

DigiTech

H A Harman International Company

EXPANDABLE

Add the available PPC 200 card, and you'll have the power of two TSR-24S processors. Parallel processing means seamless effect changes and more.

S-DISC™

This chip defines DSP horsepower. S-DISC delivers superior sound, quiet operation and performance unmatched by anything in the market. This incredibly powerful chip was designed specifically for audio.

ALGORITHMS

Want reverb, chorus and flange? Press a couple of buttons. Reverb, chorus and reverb again? Redundant effects are not a problem. Link effects in any order to create algorithms, then program them in nearly limitless combinations.

8760 S. Sandy Parkway, Sandy, UT 84070 USA (801) 566-8919 Fax (801) 566-2086 ©1994 Digitech

CIRCLE 26 ON FREE INFO CARD

World Radio History

Mackie Ultramix Pro Automation

Get the scoop on Mackie's (still) much-awaited new console automation system

Mackie is a name that needs little introduction: its 8•Bus consoles helped revolutionize the project recording studio market. It has also tried its console customers' patience while it puts the finishing touches on its automation package. The good news — yes, it's coming. The bad news — we're still not sure when. A 'first look' at Mackie's Ultramix Pro at the November AES in San Francisco, indicated that it'll be worth the wait.

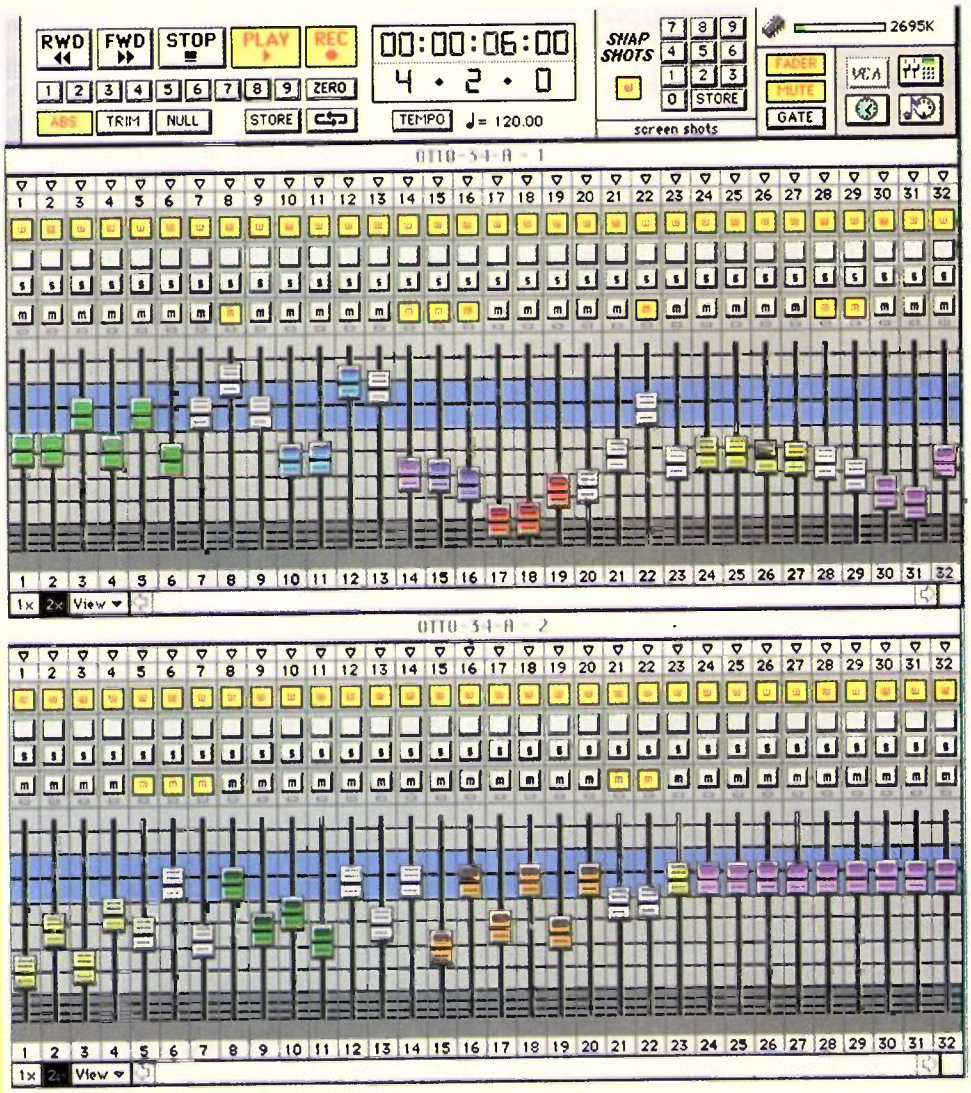
The Ultramix Pro System actually consists of several components. The first is the OTTO 34 hardware interface, a two-space, rack-mount box that contains 34 channels of VCAs designed to control any console. Typically, the input channel and L/R insert points are patched to the OTTO 34 via TRS cables, but the OTTO 34 can actually be used to control any line-level signal such as tape sends/returns or effect sends/returns.

The OTTO 34 becomes part of your patchbay: It has a set of front-panel balanced send and return jacks (set up in a normalized patchbay configuration) that allows you to access the console inserts even while the OTTO 34 is patched into them. Installation of the system does not require opening either the console or the OTTO 34. Mackie's Ultramix Pro software provides bypass switching that sets the OTTO 34's VCAs at unity gain. The OTTO 34 has rear panel jacks for the 34 TRS connectors, MIDI in/out jacks, and a DB-9 connector for OTTOpilot (more on that later). Since the OTTO 34 responds to MIDI protocol for mute on/off and fader "moves," it can be automated with many computer-based sequencers. Mackie recommends using its Ultramix Pro software for achieving the best results. List price for a single OTTO 34 is under $1200.

Fader moves and mutes are entered into the system using a hardware fader pack. The AES demonstration of Ultramix Pro used CM AUTOmation's FX-100 fader pack, but Mackie is planning the introduction of the OTTOpilot F-16 at NAMM. Information regarding the OTTOpilot controller was very sparse at press time, but it appears to be a 16-fader

HARDWARE SPECIFICATIONS

THD: less than 0.009% at 1 kHz
Frequency response: 10 Hz–65 kHz, +0, –1 dB
Input channel gain: –80 dB to +10 dB
L/R master gain: –90 dB to 0 dB
Maximum input level: +22 dBu



TOTALLY AUTOMATED: Take control of your 8-bus console with Mackie's versatile Ultramix system.

World Radio History

Even with 512 user-adjustable programs, 2-octave pitch-shifting, true stereo operation and more, the most amazing thing is how it sounds.

SOUNDS. The reason Zoom is a recognized leader in digital signal processing worldwide.

To get those sounds into the new Studio Reverb, Zoom engineers sampled the world's finest audio environments to create powerful new algorithms*. They also insisted on a CD-standard 44.1 kHz sampling rate and massive 24-bit internal processing to ensure the highest level of audio over the full 20 Hz to 20 kHz bandwidth†.

Then they added the kind of features that just don't exist in a processor this affordable. Like 512 user-adjustable programs (32 different effects including reverbs, delays, gates, tremolo, chorus, flanging and more) with two dedicated edit controls that affect selected parameters. Giving you literally *thousands* of sound variations.

Plus a smooth 2-octave pitch shift for new harmonic possibilities. And true stereo operation so you can run stereo effects or two discrete mono effects. 2-band EQ. And Zoom Noise Reduction to keep everything studio-quiet.

The Zoom Studio. What it does will surprise you. How it sounds will amaze you.

**Our algorithms are complex, step-by-step computational procedures painstakingly created by Zoom digital engineers that ultimately determine the depth and sound quality of each environment (halls, rooms, etc.).*

†*Yes, we know you've heard this before, but definitely not in a reverb costing $249.99.*

THE 1202 STUDIO REVERB

ZOOM®

CATCH US IF YOU CAN

Zoom is distributed in the United States by Samson Technologies Corp., P.O. Box 9068, Hicksville, N.Y. 11802-9068 • Tel: (516) 932-3810 • Fax: (516) 932-3815

© 1995 Samson

CIRCLE 81 ON FREE INFO CARD

World Radio History

hardware controller capable of generating MIDI-continuous data that Ultramix Pro will translate into VCA control. *EQ* will furnish more information about the OTTOpilot F-16 as it becomes available.

Mackie's Ultramix Pro software is designed to handle up to four OTTO 34's, thus allowing a maximum simultaneous automation of 136 channels. Those who are familiar with OTTOmix 2.02 will be right at home with Ultramix Pro, but Ultramix is much more than a just repackaging of OTTOmix. Ultramix offers eight color-coded, user-definable subgroups plus a single virtual fader that automates both the left and right master channels. The program has adjustable fader curves, and *each* virtual fader can have its own "taper" assigned by the user. Graphic editing of mix data is expandable; it can show every single volume change and mute, or only the basic automation move.

Ultramix Pro also comes with some extras that can really make studio life more pleasant. For example, the program can generate (and print) preformatted track sheets for 8-, 16-, 24-, and 32-track systems and includes fields for song title, artist, engineer, and producer. Since equalization and auxiliary sends are not automatable, the software includes a manual recall feature using "views" of the Mackie CR-1604, 8•Bus Series, and LM-3204 consoles. By using a mouse to rotate knobs on the input and master sections of these consoles, the knobs in the view can be set as per the real thing and then stored and printed for later recall.

Ultramix Pro software runs native on PowerMacs but will also run on '030/20 MHz (and faster) Macs, including PowerBooks. The automation software has the ability to import and run standard MIDI file sequences, negating the need to multitask another sequencer with Ultramix. Automated control of MIDI-based effects devices (such as the Lexicon LXP series) will be facilitated by software plug-ins planned for Ultramix. The program is compatible with the Opcode Open Music System and list price is expected to be under $500.

—Steve La Cerra

DEMETER
INNOVATIVE AUDIO SYSTEMS

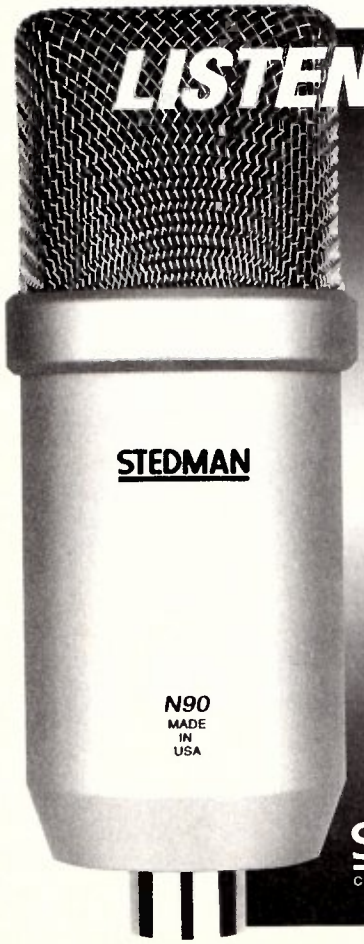
NEW
TUBE MICROPHONE PRE-AMP VTMP-2b

The Demeter Tube Microphone Pre-amp Model VTMP-2B offers several improvements over its predecessors. New features include : **-20dB pad • Phase reverse switch • Low-cut filter • 60dB of gain • Pin 2-3 selectors.** Most importantly, though, the VTMP-2b features the same great pure tube sound which has characterised recordings by **Sting, Suzanne Vega, John Prine, Vince Gill, Reba McIntyre, Kenny Loggins, Keith Jarrett, Ry Cooder, Allan Holdsworth, John Guess, Walter Becker, Hugh Padgham, Paisley Park, Manhattan Center Studios,** *"We auditioned every mic pre out there. . . by far the Demeter was the most pleasing."* - **Richard Becker** Mixed Nuts Recording Studio (post-production), "Musical ...Clarity ...Warmth & Body. Everybody that uses it, loves it" - **Bill Dooley** Brooklyn Recording Studios, and many other great artists, engineers, producers & recording facilities.

Uses genuine Jensen Transformers

DEMETER 2912 Colorado Ave. #204 Santa Monica, CA 90404 • Sales : **818.986.7103** • Fax : **310.829.3755**

CIRCLE 22 ON FREE INFO CARD



LISTEN CAREFULLY...

You're about to hear what users are saying about the Stedman N90 studio microphone . . .

"Miking male vocals with the N90 produced a very big sound...The sound was both warm and detailed"
REVIEW in H&SR, May 94' by Micheal Cooper

"I used to use 57's to mike my AC 30, but the N90 brings out so many more nuances, it's incredible"
Phil Solem, The Rembrandts

"I love the N90 for vocals. I actually prefer the high end over my tube mics."
Danny Wilde, The Rembrandts

"Percussion instruments such as toms, snare and timbales are reproduced with splended realism"
Rick Asmega, PBS Engineer

If you like what you hear or see . . .
Ask your dealer or call us today!
1-800-873-0544

STEDMAN CORPORATION
4167 Stedman Dr
Richland MI 49083
Phone 616-629-5930 • Fax 616-629-4149

CIRCLE 70 ON FREE INFO CARD

World Radio History

TANNOY®

Get Real

PBM II

For more than three-quarters of a century, Tannoy has been designing and producing loudspeaker systems and components to meet the demands of the world's most demanding user. A philosophy of constant research and investment in state of the art materials, technology and processes enables Tannoy to ensure that every monitoring system we produce will re-produce absolute fidelity to the source, true dynamic capability, and most importantly, real world accuracy. This is why Tannoy systems are used in more of the world's professional facilities than any other brand.

In the North American marketplace, Tannoy has been the number one monitor of choice for several years according to the Billboard's international recording and equipment statistics. This clearly illustrates why Tannoy enjoys its reputation as the world's leading manufacturer of reference loudspeakers. In fact, **leading the market is what Tannoy is all about.** While other multi-faceted manufacturers, not dedicated solely to the art of reference monitor loudspeakers, scurry to produce products to compete with Tannoy's original highly acclaimed and award-winning PBM series, **Tannoy moves on.**

TANNOY
HEAR
BELIEVE

The new PBM II series, once again, is setting new standards in the industry. Pioneering new technologies such as **variable thickness, injection molded cones with nitrile rubber surrounds** are but one fine example of our dedication to perfection. The new molded cones are stiffer than conventional cones producing more linear extended low frequency. They are better damped for reduced distortion and exhibit more naturally open and detailed midrange. They are immaculately consistent and durable for years of faithful trouble free use. From the high power polypropylene capacitors to the hardwired minimilist crossover, every component has been carefully selected for the new breed of PBM II series. When leading edge technology is so affordable, *Get Real.* Don't settle for second best.

Tannoy/TGI North America • 300 Gage Avenue • Kitchener, Ontario, Canada • N2M 2C8 • 519 745 1158 Fax: 519 745 2364

CIRCLE 61 ON FREE INFO CARD

World Radio History

Estefan's "Turn the Beat Around"

How Crescent Moon engineer Eric Schilling recorded the beat in Gloria Estefan's hit remake

BY LIANA JONAS

EQ: During the breaks in the song "Turn the Beat Around" there is a lot of Latin percussion. What was programmed and what was recorded live?

Schilling: There are some drum loops that have some Latin percussion in them, but the congas and timbale were recorded live in those breaks. I believe that it's a mixture of a set of loops and the live parts that were laid on top of them that give the song its drive. The live percussion parts were recorded one at a time as overdubs, since they were both played by the same person, Edwin Bonilla. There were probably six inputs dedicated to the live percussion on the console. The congas were on two tracks, the timbale on one, and there were a couple of shaker parts in the background.

What mics did you use to record the live percussion?

What I mostly use here is the Sony 800G. I do use other mics, but this is my primary mic. I put them about four feet away from the instruments. In the case of the timbales, I used the 800G plus a Sennheiser 421 on the bottom of the timbales.

The percussion sounds very bright and very clean. What techniques did you use to achieve that sound?

There are a few things. One is that I try to make sure that with all the percussion that's going on I don't use the same reverb. On the loops I used an AMS reverb, and on the longer stuff I used an EMT 250. I also try to be very up front in the mix. For instance, in the song when the break comes, I pull things down to create space for the intro. It's not uncommon for me to put pads and other things on groups so that I can pull them back for the break. When I'm miking, I move the mic around a fair amount until I get the right placement.

Did you record the percussion flat or with EQ?

I used EQ. I'm a firm believer in that, if you need to change the sound, you must take these steps: First you go out into the room and hear what the person is playing. If you think that the drums are too bright or need adjusting, you do that first. Second, move the mic around so you get as close as you can. Third, start to add EQ. Also, I tend to use a healthy amount of compression so it always feels very loud. I used a compressor called the Compex by Audio Design. I like that it's very punchy.

Gloria's vocals sound really tight and polished. How did you achieve that sound?

I compressed her vocal but cut it flat. The reason for that is that if you EQ something and then it's got to be changed, you don't always get back to the point you started from. There's a long predelay on the chamber that I use on her voice. I normally don't use that long a predelay, but it worked really well in the song. This was during mixdown.

What mic did you use for Gloria's vocal and how did you route it?

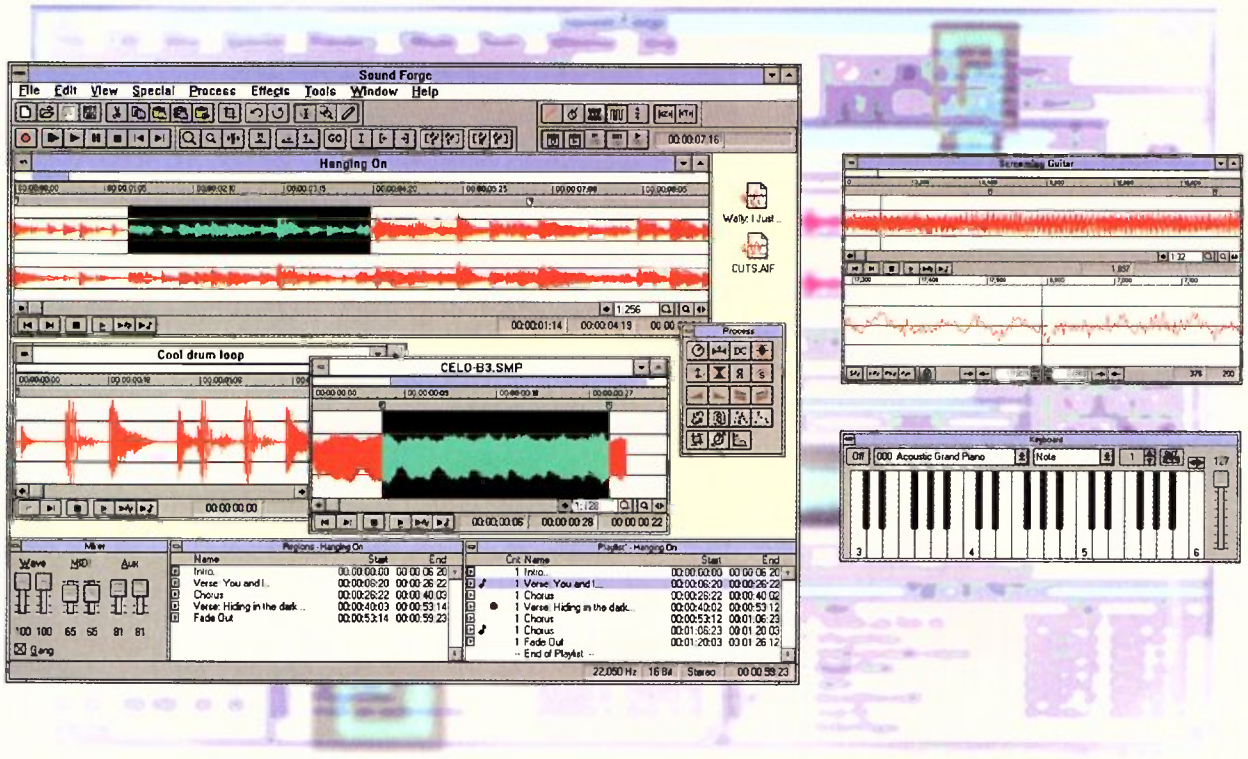
The Sony 800G. I ran the Sony to a John Hardy mic preamp, followed by a Teletronix LA2A tube compressor. We recorded Gloria at no more than 5 dB of compression at her peak. When I recorded her I rode the continuous gain pot on the mic preamp throughout the song because I know her voice and I knew what parts she'd sing loud. EQ

OPEN INVITATION: The cover to Gloria Estefan's hit album *Hold Me, Thrill Me, Kiss Me.*

World Radio History

SOUND FORGE 3.0

Digital Sound Editing for Windows™ and Windows NT™



Introducing the first (yes, the first) "professional" Sound Editor for Windows.

Easy to Use

Why be limited to 1 or even 4 audio windows when you can open over 50 at once with Sound Forge? Drag and drop audio sections for fast mixing or creating loops and regions. Snap to zero crossings for perfect cuts. With multiple tool palettes, effects and tools are just a mouse click away.

Unrivaled File Support

Read and write almost any file format including VOC, WAV, AIFF, AU, SD1, SVX, SMP, and SDS. Compress your audio with a variety of compression schemes. Maintain your sample loop points across platforms.

Region and Play Lists

Create named regions and arrange them in the playlist. Use the auto-region tool to detect beats or split your audio into precise measures. Create a new digital file from the playlist, without the hassle of external recording equipment.

Sampler Support

Now you can download sound files to a sampler using SCSI (fast!) or MIDI, tune your sustain loops with the real-time loop tuner, and then quickly test them with the keyboard window. Sampling was never so easy.

Killer Effects

Sound Forge has just about every imaginable sound processing tool, including Dynamic Compression , Noise Gating, Pitch Change, Envelope Editing, EQ, Reverb, Time Change, and Variable Rate Resample, to name a few.

Expandable

Our expandable architecture makes it easy to keep your software up to date. Sound Forge Plug-In modules allow you to add new tools as you need them.

Call us now to find out what Sound Forge can do for you. 1-800-57 SONIC (577-6642)

100 South Baldwin, Suite 204, Madison, WI 53703, Tel: (608) 256 3133 Fax: (608) 256 7300, CompuServe: 74774,1340 or GO SONIC, Internet:sales@sfoundry.com

SONIC FOUNDRY

Demo disks are $5 to cover shipping and handling. System Requirements: 4 MB RAM, Windows 3.1 or higher, VGA graphics, Hard disk, and a Windows compatible sound card. Sound Forge and Sonic Foundry are trademarks of Sonic Foundry, Inc. Other products mentioned are trademarks of their respective manufacturers.

CIRCLE 68 ON FREE INFO CARD

World Radio History

House of Styles

Producer Beth Styles goes digital in her Connecticut-based project studio

STUDIO NAME: Slam Productions
LOCATION: Stamford, CT
KEY PEOPLE: Beth Styles, producer, engineer, owner; Carol Lesser, co-owner; Michael Magrage, producer
PROJECTS RECORDED: *A Dog Named Rex* by Rex Fowler; *Island Moon* by Beth Styles; project still in production by James Mee.

CONSOLE: Mackie 32•8 mixing console. Beth and carpentry expert Andy Katz designed a maple wood console to encase the Mackie, three ADATs, a CD player, and a cassette machine.
RECORDERS: Alesis ADATs [3]; Panasonic 3700 DAT machine; Nakamichi MR-1 cassette machine
MICROPHONES: AKG 414's [2] and an array of other AKG studio mics
MONITORS: Yamaha NS10's [2], JBL 4410's [2]
SYNTHS & SEQUENCERS: Kurzweil K2000; Korg T2; Yamaha SY77; E-mu Proteus 2 sound module; Roland D330
COMPUTERS & SOFTWARE: Macintosh Quadra 640 with color screen and CD-ROM drive; Mark of the Unicorn Performer 5.0 for sequencing
OUTBOARD GEAR: dbx 160xt compressor/limiters [2]; Yamaha SPX 990; Lexicon LXP-1, LXP-5, and noise gate.
EQUIPMENT NOTES: Styles states: We're very excited to have a CD-ROM drive, and a whole new library of the coolest drum sounds and loops available. We're about to acquire the Akai library of sounds on CD-ROM as well. But, as much as we love our Mac and our CD-ROM, as musicians and songwriters we still do most of our recording live.
STUDIO NOTES: Styles continues: We are set up to do all the vocals, artistic overdubs for keyboards and guitars, and programming needed on a client's project. When we record live setups with drum kits we use other local studios. This is because at this time we are not set up acoustically for recording live drums. It's great because we give each other work. **EQ**

Photo by Michael Partenio

World Radio History

gate.
s: We're
M drive,
e coolest
vailable.
he Akai
l as well.
Mac and
nd song-
r record-

s: We are
, artistic
l guitars,
a client's
e setups
ocal stu-
time we
r record-
cause we
EQ

2:00 a.m. The band just found the sound they've been looking for. Everyone's rockin'. Except you. **You're figuring out how to tell them the HIGH OUTPUT master you were using just "crapped out."**

Of course, you wouldn't be having this anxiety attack if you used new **BASF 900 *maxima*** High Output Mastering Tape. With 3 dB more output and 2 dB less noise than standard analogue mastering tapes, it is identical to the MOL and the signal–to–noise ratios of other high output masters. But it has the reel–to–reel reliability and consistency of BASF 911. Low rub off. Precision–manufactured. It's classic BASF. The kind of BASF tape studios have been relying on since 1934. As you turn to face the band (gulp), you make a vow. If you survive the next ten minutes, the first thing you'll do is contact BASF, 1–800–225–4350 (Fax:1–800–446–BASF); Canada 1–800–661–8273.

DEMAND IT.

BASF

CIRCLE 14 ON FREE INFO CARD

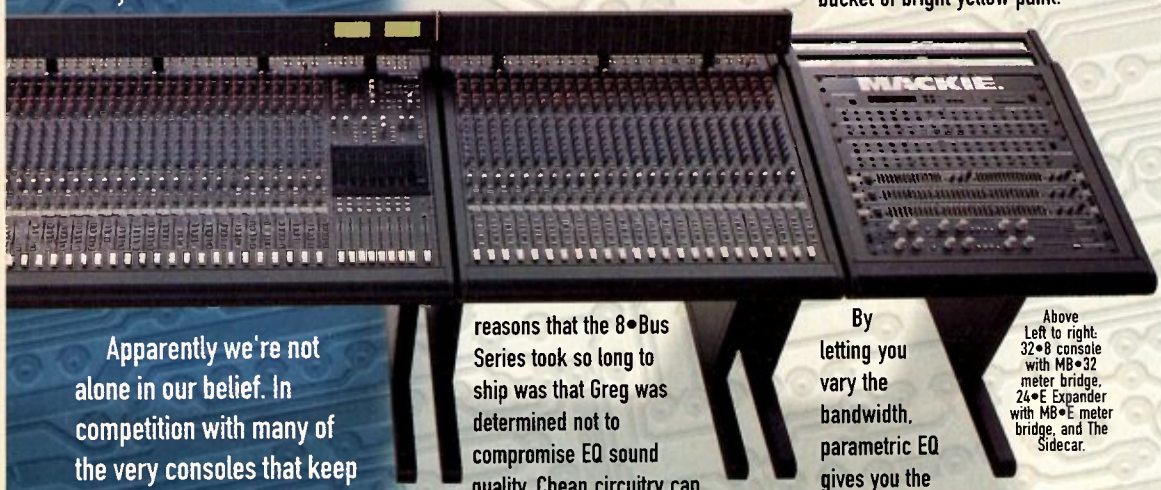
© 1994 BASF Corporation Information Systems

World Radio History

WHY MACKIE IS YOUR BEST 8-BUS

Lately, several big pro audio companies have gone out of their way to "mention" us in their own 8-bus console ads. Many satisfied Mackie owners have urged us to shoot back with hardball comparisons of our own. But that's not our style.

Greg believes that if a product is really good, it should speak for itself — without resorting to slagging the competition. First in a series, this ad details some of the features that we believe make our 8•Bus the best recording or PA console value available today for under $20,000.



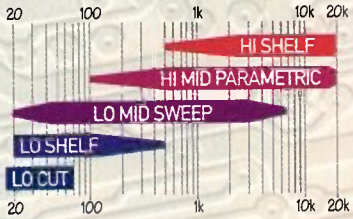
Above Left to right: 32•8 console with MB•32 meter bridge, 24•E Expander with MB•E meter bridge, and The Sidecar.

Apparently we're not alone in our belief. In competition with many of the very consoles that keep "mentioning" us in their ads, we recently won the coveted *MIX* Magazine TEC Award for Small-Format Consoles. As well as *LIVE! Sound* magazine's Best Front of House Mixer Award.

To learn why, call us toll-free for our detailed, 24-page 8•Bus brochure.

Comprehensive equalization for creativity and problem-solving.

To quote Electronic Musician[1], *"It's no secret that the versatility and pristine sonics of the 8•Bus EQ have astonished jaded pros and home hobbyists alike. The 4-band EQ section includes two shelving controls fixed at 12kHz and 80Hz; parametric high-midrange EQ with a 500Hz to 18kHz sweep and a bandwidth that can be adjusted between three octaves and one semitone; and low midrange EQ with a 45Hz to 3kHz sweep. A full 15 dB of boost or cut is provided for each band. In addition, an 18 db/octave low-cut filter is set at 75 Hz. That's a heck of a lot of firepower!"*



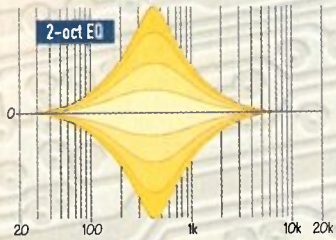
No kidding. But we also like that part about pristine sonics. One of the reasons that the 8•Bus Series took so long to ship was that Greg was determined not to compromise EQ sound quality. Cheap circuitry can create all sorts of sonic grunge that may add distinctive "character" to a console's EQ...but Greg's goal was clarity, not eccentricity.

To further quote Electronic Musician, *"In all applications, the 8•Bus EQ was extremely musical and transparent... One of the engineers summed it up best by saying, 'The 32•8 is so clean that you don't really hear the EQ; everything sounds deceptively natural, which is really great.'"*

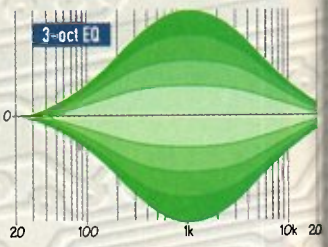
We wouldn't have it any other way.

What parametric EQ means to you.

The biggest gun in the 8•Bus' EQ arsenal is its true parametric high midrange EQ. Conventional sweepable midrange (like our 8•Bus' *low* mid), has a fixed bandwidth of about 2 octaves. No matter how high or low in frequency you sweep it (or how much you boost or cut it), 2-octave EQ's *contour* stays the same. While extremely useful, it's just one tonal "color." Having to rely on swept 2-octave midrange alone is like being asked to paint a picture with only a bucket of bright yellow paint.

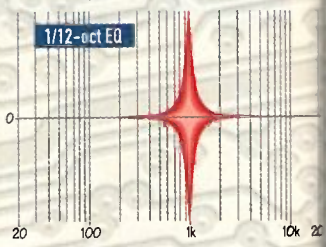


By letting you vary the bandwidth, parametric EQ gives you the equivalent of a full rainbow of tonal "colors" in your artistic pallet. Spreading high midrange EQ over three full octaves transforms it into an extremely subtle — yet extremely dramatic — effect[2]. Sweet and natural-sounding, it can unobtrusively change the character of a track without noticeable tonal intrusion. If you're used to conventional 2-octave swept midrange, you'll be surprised at how much 3-octave EQ you can add without things starting to sound obnoxious.



On the other hand, there are times when you want what can only be called surgical EQ. At its narrowest, our parametric Hi Mid is four times as precise as a 1/3rd-octave graphic equalizer. It's like having a delicate artist's brush and a magnifying glass for erasing or enhancing tiny details.

Between three octaves and 1/12-octave is a vast range of tonal colorations, nearly all possible only with parametric equalization. And, since our "HI" mid's sweep range extends from 18kHz all the way down to 500Hz, your creative palate extends over six octaves — to our knowledge the widest midrange sweep currently available[3].

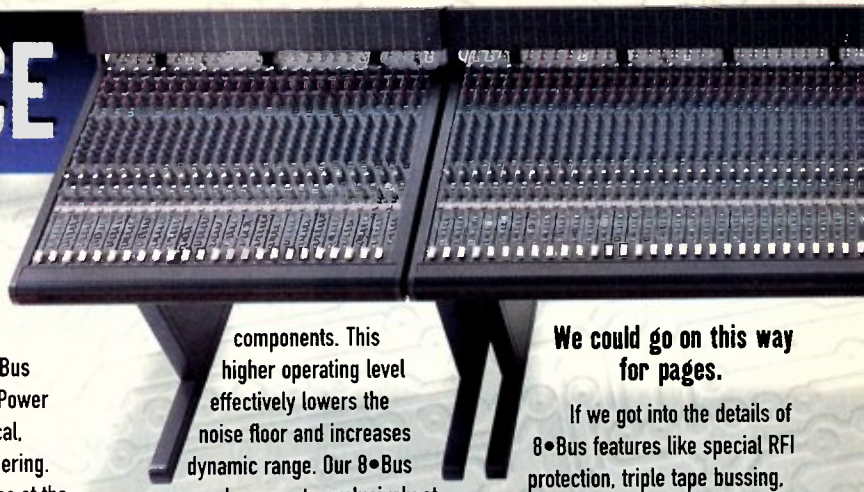


[1] September 1994 issue, page 64, in a sidebar to an article on The British Invasion (of consoles). We urge you to read the whole thing so that we don't get in trouble for quoting stuff out of context.

[2] This is what we meant when we used the phrase *"Expensive British Console Sound"* in our first 8•Bus ads: Classic English desks were the first to offer extremely wideband (i.e. greater than 2 octaves wide) equalization. Obviously we didn't make ourselves clear on this point, because everyone from our competitors to at least one reviewer has taken us to task over this phrase. Okay, we apologize to all of you Anglophiles. We were merely trying to explain why we consider wide bandwidth EQ such a powerful tool and where we got our inspiration for including it...not attempting to rekindle the Revolutionary War.

World Radio History

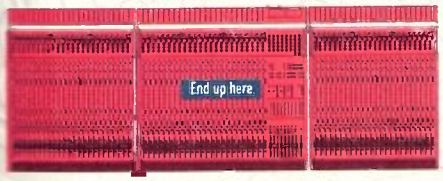
BUS CONSOLE CHOICE



An expandable console system.

If you can successfully foretell the future, you might as well play the commodity futures market, make a zillion bucks and buy a 128-channel SSL console.

However, because most of us are less clairvoyant



and a lot poorer, we've designed a system that can grow with your needs and budget. Start with our 24•8 or 32•8 console[4]. Then, when your tax refund comes back, add an optional meter bridge[5]. When you land that Really Big Project That Pays Actual Money, add more input channels (and tape returns) in groups of twenty-four with our 24•E Expander console[6].

You can keep right on growing your Mackie 8•Bus console system up to 128 channels or more.

And, beginning this spring, you can automate the whole shebang with our extremely affordable Universal MIDI Automation system. It consists of the OTTO-34 VCA gain cell unit, wicked-fast Ultramix™ Pro software and the innovative OTTOpilot™ control interface. Both the hardware and the software were debuted in final form at last Fall's AES Convention. They received rave reviews from seasoned pros who are used to working with "mega-console" automation systems.

3 ...on a comparably-priced 8-bus console. Oops! We're starting to sound competitive.
4 $3,995 (24•8) and $4,995 (32•8) suggested retail. Slightly higher in Canada.
5 $795 (MB•24) and $895 (MB•32) suggested retail. Slightly higher in Canada.
6 $2,395 suggested retail; MB•E meter bridge $695...Yadda yadda, Canada, etc. etc.

Very Low impedance Circuitry (VLZ) for very low noise.

We like to say that the 8•Bus console's monster 220-Watt Power Supply was a product of typical, fanatical Mackie over-engineering. But one of our real motives lies at the other end of the power supply's multi-voltage connecting cable.

At room temperature, all electronic components create thermal noise. Cumulatively, this can become audible and objectionable. We design around thermal noise by making internal circuit impedances as low as possible in as many places as possible. For example, resistor values in our mix bus are 1/4 the value of those typically used — hence thermal noise is proportionally lower. Another advantage of VLZ is that low-impedance circuitry is far more immune to crosstalk problems.

VLZ

VLZ isn't easy to achieve. All circuitry must be thoroughly buffered. Plus, console current consumption goes way up, requiring a beefy power supply. Such as the massive, 31-pound, power supply we ship with each 8•Bus console.

Powersupplyus Humungoidus

+4dBu operation throughout.

This is a biggie in terms of overall noise and headroom. There are two current standards for console operating levels: –10dBV and +4dBu. Without knocking our competition, let's just say that +4dBu is the professional standard, used with all serious recording, sound reinforcement and video production components. This higher operating level effectively lowers the noise floor and increases dynamic range. Our 8•Bus consoles operate exclusively at +4dBu (although their tape outputs and returns can be switched to –10dBV to match other semi-pro/hobbyist gear you may still own).

Built like tanks.

Our 8•Bus Series consoles have been in the field long enough to gain an almost legendary reputation for durability. For example, a lot of them absorbed the impact of toppling monitor speakers during last year's Los Angeles earthquake with little more than a few broken knobs. Others have survived drops off loading docks, power surges that wiped out whole racks of outboard gear and beer baths, not to mention hundreds of thousands of air and semi trailer miles with major tours[7]. Read our 8•Bus tabloid/brochure to learn about the impact-absorbing knob/stand-off design, fiberglass circuit boards and steel monocoque chassis that make our consoles so rugged.

Bottom line: You simply can't buy a more dependable console. Maybe that's why *LIVE! Sound* magazine readers voted us their 1994 "Best Front of House Console."

7 Including the latest Rolling Stones, ZZ Top, and Moody Blues tours. (Footnote to the footnote: Mention in this ad denotes usage only, not official endorsement).

We could go on this way for pages.

If we got into the details of 8•Bus features like special RFI protection, triple tape bussing, in-place stereo solo, constant power pan pots, or the extra 15dB of gain available at the 8•Bus's aux sends and returns, this ad would have even teenier type than it already has.

For these and other facts, call us toll-free (8:30AM-5PM PT) and ask a real live person for our obsessively-detailed, 24-page 8•Bus brochure.

OUR 8•BUS CONSOLES REALLY WORK, THE UPDATE:

Ricky Peterson mixed ☥'s recent hit single, "*The Most Beautiful Girl in the World*" entirely on his Paisley Park Studio 32•8 console.

Queensryche's new platinum album, *Promised Land*, was totally tracked on Mackie 8•Bus consoles (with help from OTTO-automated CR-1604s). A sonic (and musical) masterpiece, it has the tight bass, crisp highs and ear-boxing dynamic range that's becoming an 8•Bus console signature. Need more proof as to why pros prefer Mackie? Buy this superb CD.

CIRCLE 45 ON FREE INFO CARD

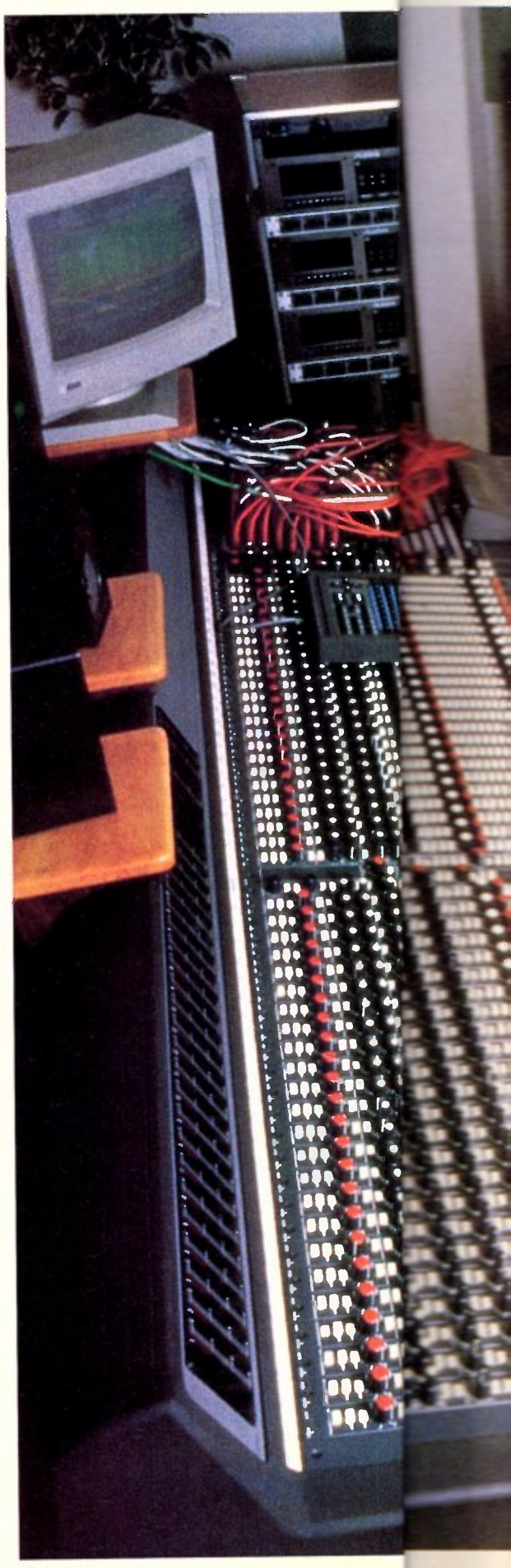
MACKIE.

16620 Wood-Red Road • Woodinville • WA • 98072 800/898-3211 206/487-4337
mackie.com • Outside the US 206/487-4333 • Represented in Canada by S.F. Mktg. 800/363-8855

World Radio History

Off-Road Vehicle

If you thought that Robert Scovill was a live-sound-only guy, think again



STUDIO NAME: Scovill would like the readers of *EQ* to help name his studio. Winners will receive the satisfaction of knowing they named Robert Scovill's studio. Send suggestions to our editorial address (found on the letters page) or E-mail us at MPANDA@aol.com.
LOCATION: Scottsdale, AZ
MAIN MEN: Robert Scovill and Joel Singer, owners
CREDITS: Robert Scovill: Three-time TEC award winner for his engineering work with RUSH and Def Leppard, and currently only allowed out of the studio for breakfast, lunch and dinner; Joel Singer: Head honcho for MusiCanvas Specialized Audio Group, Inc., an equipment rental and retail sales orginization that specifically targets the high-end recording and touring market.
CURRENT PROJECTS: When Marsupials Joust; The Fake McCoys
CONSOLES: 48-input/96-monitor Soundtracs Quartz in-line console with Soundtracs TrackMidi 3.0 automation (main control room); Dynamix 40-input split (mobile)
SYNTHESIZERS: Roland S770; E-mu II+, II, and III; Korg M1 keyboard and modules; Korg D550; Oberheim OB8; and on and on and on...
MONITORS: Meyer HD-1; Yamaha NS-10; Tandy Minima 7; Tannoy PBM6.5 and PBM8; Alesis Monitor One
AMPLIFIERS: Crown MicroTech; Yamaha P2075
COMPUTERS: Macintosh IIci 69 MB/260 MB; Atari 1024 and Mega 4
SOFTWARE: Digidesign; Opcode; Mark of the Unicorn; and on and on and on...
RECORDERS: 48 tracks Otari MX80 with Dolby SR; 32 tracks Alesis ADAT; 24 tracks TASCAM DA-88
DAT MACHINES: TASCAM DA-30; Panasonic SV-3500
OUTBOARD GEAR: In the floor rack of the control room: SPL Vitalizer; Behringer BassFex, Combinator, splitter mixer, and Multiband de-noiser; Aphex Expressor; API 3124; Neve 33609C; SSL FXG 384 compressor; Drawmer 1960; UREI 1176LN [2], LA4A [2], and 1178; Tube Tech MP1A preamp, CL1-A compressors [2], and PE1C equalizers [2]; KMX MIDI Patchbay; Valley People PR2A de-essers; BSS DPR402; Drawmer DS201 noise gate; t.c. electronics 2290 [2] and M5000; Zoom 9200; Yamaha SPX90-II; Lexicon PCM41, PCM60, PCM70, and LXP-15; Eventide H3000SE; AKG ADR68K reverb; Dynatek 45 MB RMD; Roland S770 sampler
MISCELLANEOUS: Synchronizers by TASCAM, digital editors by Digidesign and Hybrid Arts; Glyph hard drives
MICROPHONES: The standard list of crown jewels, including Neumann; Audio-Technica; Sennheiser; AKG; CAD; Shure; Electro-Voice; Milab; Crown
EQUIPMENT NOTES: Scovill states: An enormous additional ancillary equipment cache is kept in interlocking custom-built satellite racks constructed by the venerable Joe Gagliardi at Custom Wood Designs in Peoria, AZ.
STUDIO NOTES: Scovill continues: We actually had SMI Contractors bring in a concrete cutter and cut big troughs in the concrete foundation to facilitate cable runs in and between the control room and the studio. This was actually more cost effective than putting in a false floor and it actually sounds better...who knew? It also allowed us to preserve the 9-foot ceiling height. The studio's diffusion and absorption was designed and positioned by Chris Klein at ASC Tube Trap. Thanks, Chris, it really sounds great! All the custom woodwork was designed by me using MiniCAD 4.3 on the Mac and was custom-built by Joe Gagliardi at Custom Wood Designs.
PRODUCTION NOTES: Two things we never seem to have enough of: hours in the day and patch cables — anyone know where I can buy some more hours in the day? **EQ**

World Radio History

Photo by Richard Avolio

World Radio History

World Radio History

The SV-4100 Pro DAT Recorder from Panasonic. Think of it as an SV-3700 with Instant Start, External Sync, improved sonic performance, and a whole lot of attitude. If you would like detailed information, call 800-777-1146, code 02.

Panasonic

Broadcast & Television Systems Company

©1994 Panasonic

World Radio History

Groove Tubes MD-2

Tubes rule in this new classic condenser mic

MICROPHONE NAME: Groove Tubes MD-2
PRICE: MD-2: $1100; System Two package, including MD-2, PS1 power supply, EC1 cable, and STI suspension: $1375
TYPE OF MIC: Vacuum tube condenser
POLAR PATTERN: Cardioid
FREQUENCY RESPONSE: 40 Hz–20 kHz (±2 dB)
SENSITIVITY: Variable: –30 dB to –50 dB (1 kHz, 0 dB=1 V/µbar)
RATED SOURCE IMPEDANCE: 200 Ohms
EQUIVALENT NOISE: 28 dB (A-weighted)
MAXIMUM INPUT SPL: 150 dB
POWER REQUIREMENTS: Groove Tubes PS-1, PS-2, or PS-4 power supply
TUBE: 12AT7
WEIGHT: 18 ounces
MIC NOTES: The capsule used in the MD-2 has a gold-sputtered Mylar diaphragm with a thickness of 3 microns. Diaphragm tension for each capsule is individually tuned by Groove Tubes for optimum frequency response from the front of the microphone.
USER TIPS: The MD-2 is the first condenser mic to offer a continuously variable sensitivity control. A small potentiometer on the bottom of the mic casing can be adjusted by the engineer to actually vary the polarization voltage on the diaphragm. The sensitivity of the mic can be adjusted to suit the instrument being recorded, causing the maximum SPL specification to vary from 130 dB to 150 dB. Since this adjustment does not use the typical "pad" circuit, the frequency response of the mic remains consistent at all sensitivity levels.

The Groove Tubes ST-1 shock mount suspension shown in the accompanying photo has user-adjustable tension; moving the two clamps closer together decreases the mounting tension, thus increasing the amount of shock rejection. The ST-1 has a built-in flange used for holding its pop filter, which is supplied. This negates the need for a separate stand or the stand clamp/gooseneck combination typically used to hold a pop filter. EQ

Photo by Ed Colver

World Radio History

Man's mind, *stretched to* a new idea, never goes back to its original DIMENSION

Oliver Wendell Holmes

Subwoofer System maximized with conventional technology

Extended Low Frequency Reproduction System

20 Hz
Phase Shift
and Delay

ELF
8 Hz
Time Aligned™

Revolutionary. The way of the future for bass reproduction

"Extended Low Frequency . . . ELF"
a groundbreaking new technology from BAG END.

How is ELF a revolutionary new idea?

Unlike ALL OTHER loudspeakers which are designed to operate above resonance in big boxes, the patented **ELF dual integrator** operates the loudspeaker **BELOW** resonance in a **small box**, eliminating the need for a low pass filter and resulting in a previously believed impossible **PERFECTLY FLAT** frequency response down to **8 Hz** (an octave below the lowest musical note).

Why extend the low frequency response to 8 Hz if I can't hear that low?

By extending the frequency response below the audible range, the difference in the range you *can* hear is almost unbelievable. For the first time ever – the very lowest frequencies are actually **TIME ALIGNED™**. You experience a **greater body impact at high AND LOW levels** – greater than ANY other system when measured at the same sound pressure level. And, since the actual audible range is extended – **you will hear sound you've never heard before**. For example, ELF makes it possible to identify LF problems on digital recordings that cannot be detected by conventional monitoring systems.

Can I use the ELF Processor with my current speaker system?

ELF will enhance the bass reproduction of any size sound system from stadium concert sound reinforcement, recording studios and film post production houses, down to the smallest home stereo system. ELF can be added to an existing upper range system but requires ELF type drivers in small sealed enclosures for the sub-woofer section. **ELF is extremely economical**. In larger systems ELF may require less than half the drivers and one third the space required by a conventional subwoofer system.

Arrange for a demo at your favorite BAG END dealer and enter a new sound dimension. For information on the dealer nearest you **call 708-382-4550**.

CIRCLE 98 ON FREE INFO CARD

ELF-1
Full two channel ELF and high pass outputs offering a high degree of flexibility and laboratory grade accuracy.

Features:
- ELF dual integrator response down to 8 Hz.
- ELF Concealment™ dynamic protection circuit.
- CVR Limiter™ on high pass sections.
- Internal voltage selection operates throughout the world.
- Recessed front panel with 90 calibrated dip switches offer precise, repeatable, easily documented settings.
- Built-in anti-fiddle security cover.
- Large LED displays track signal presence and reaction time of ELF Concealment™ and CVR Limiter™ circuits.

ELF-M2
Fundamentally similar to the ELF-M with the addition of stereo high pass gain controls and CVR Limiters™. The ELF-M2 is internally switchable to mono 3-way operation with ELF, mid and high outputs.

ELF-M
Stereo inputs with mono sum ELF and stereo high pass outputs.

Features:
- ELF dual integrator response down to 18 Hz.
- ELF Concealment™ dynamic protection circuit.
- Unity gain stereo high pass outputs.
- 12 VDC operation meets commercial code requirements, plus enables automotive use.
- Flush mounted evenly calibrated controls for ELF gain and ELF Concealment™ threshold.
- LED display tracks signal presence and reaction time of ELF Concealment™ circuit.
- Includes internal plug-in resistor sockets for changing factory settings of contour, ELF cutoff, and high pass filter frequency.

BAG END

BAG END *Loudspeakers* P.O. Box 488 Barrington, IL 60011 **708.382.4550** Fax: 708.382.4551

***Canadian distribution: A.C. Simmonds & Sons Limited* 905.839.8041**

ELF™ and Concealment™ are trademarks of Long/Wickersham Labs. Time-Aligned™ is a trademark of E.M. Long Associates. CVR Limiter™ and Bag End® are trademarks of Modular Sound Systems Inc. Copyright Modular Sound Systems, Inc. 1994

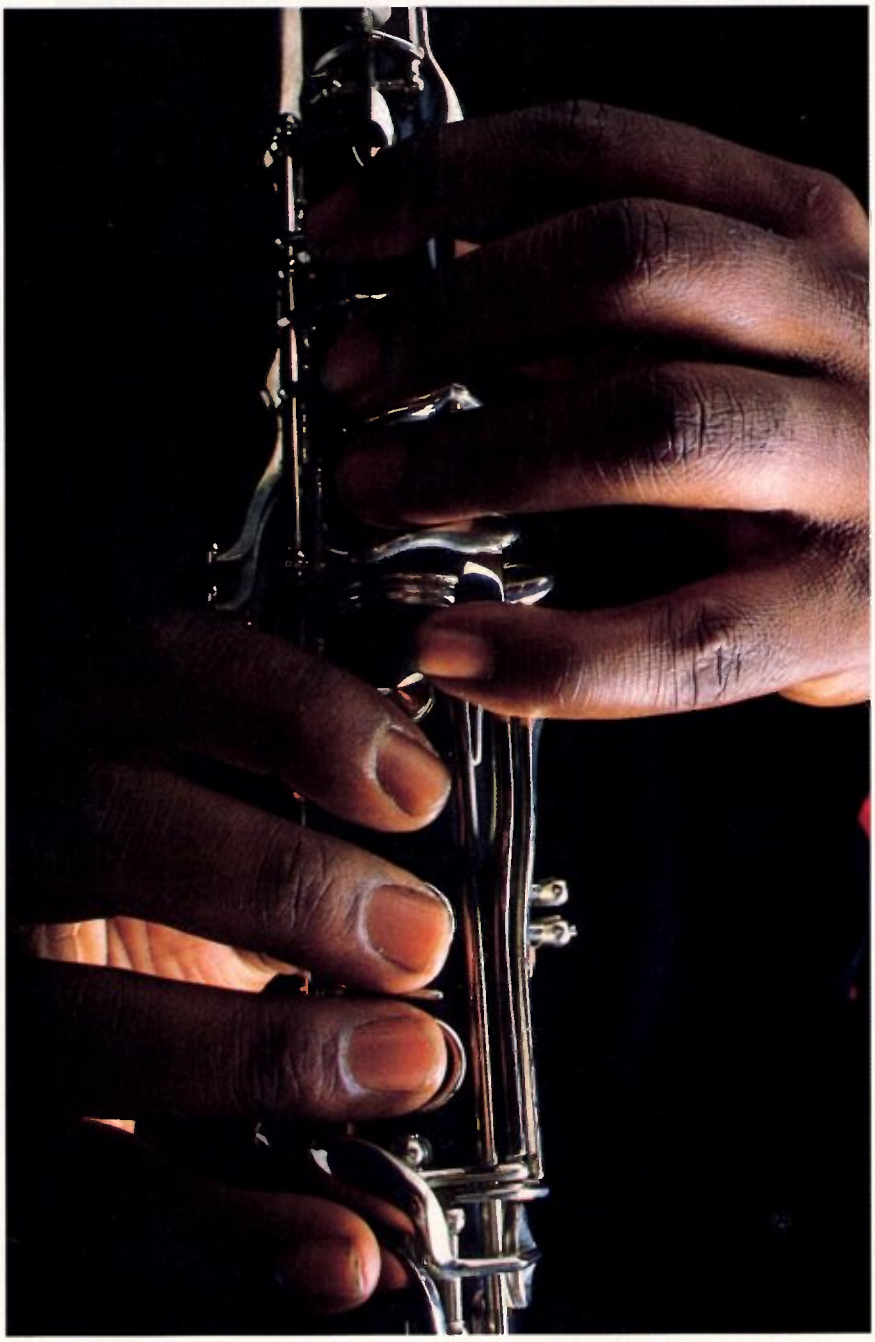
Photo by Ed Colver

World Radio History

A Breath of Fresh Air

How you can spice up your sequences by adding an electronic woodwind

BY CALIX LEWIS RENEAU



In spite of all the digital workstations, samplers, sound cards, MIDI racks, and even algorithmic composition, hopefully, when all is said and done, it's still about the music. And even though the rumor mill has rumbled for the past decade or so with threats of the death of the acoustic musician, the fact is that all music is ultimately acoustic. It stands to reason, then, that acoustic musicians performing live to tape (or even digital computer tracks) can breathe life into even the most sterile electronic compositions — a fact that hasn't escaped commercial, film, and television composers — or their more artistic counterparts.

Fred Selden mixes the best of both worlds. An accomplished woodwind multi-instrumentalist, he has also carved out a niche in the competitive Hollywood session scene by mastering the EWI [Electronic Wind Instrument], a MIDI version of his traditional instrument. Fred agreed to find time between wrapping up his band Timeline's album, *Edge of Time* on Artifex Records, and his regular gigs on the *Star Trek* and *Sea Quest* series (among many others), to share some insights and tips on working with the EWI, miking woodwinds, sweetening, and the art of the session. Here is Fred — in his own words:

As an EWI player, I'm always looking for weird instruments. I have so many instruments at home that I learned how to play well enough to get a good sound so I could sample them. A lot of times the validity of the EWI is that they can ask me to play all these weird sounds. For instance, there are two composers that do *Star Trek,* Dennis McCarthy and Jay Chataway. For Jay I am basically the oboe player in the session, but then I'll also play these weird spatial sounds on the EWI. We have certain names; one sound we use is called the Dataphon, from the episode where Data was exploring romantic feelings. So we have a sound that doesn't resemble anything. That's the fun part. I'd much rather play weird, inventive sounds than just imitating another instrument. The acoustic woodwind player in me still rebels that I can sound like an oboe player or a trumpet player. I'm still an acoustic woodwind player at heart. Unfortunately, the technology is that synthesizers obviously are replacing real musicians on scores. When you hear these scores back on some of the TV shows, when it's all MIDI and keyboards, there's a real coldness to most of them. That's another substantial validity to the EWI. It gets warmth by the simple fact

World Radio History

The RD-8. Now Performing At A Project Studio Near You.

Audio for Video Projects

Chris Taylor–Crossroads Studios

It can be sync'd to a 24-track for extra tracks; it can stand on its own for 8-track digital recording, as in our audio for video suite; it can be stacked with other RD-8s or ADATs™ for multitrack digital recording—and all without any extra hardware.

Post Production Projects

Brando Triantafillou–Editel, Chicago

We use it as the master machine with two ADATs for Post Scoring and Composition for commercial TV productions. I also like the fact that the Fostex RD-8 can act as a stand-alone digital recorder; it has the balanced time code inputs and outputs that I use with automation, and it has a really good layout of the front panel controls.

MIDI Projects

Frank Becker–Frank Becker Music

The computer sequencer and the RD-8 can be synchronized either by SMPTE with the RD-8 as master, or by MIDI Machine Control with the computer sequencer acting as master.

Location Projects

Paul Freeman–Audio by the Bay

We rolled twenty-eight 120 minute tapes of full field audio on the RD-8 in more dirt, more heat and more cows, for 18 days, with grime and a river, and the RD-8 never had a hiccup.

Composing Projects

Christopher Hoag–Composer

Personally, I believe the Fostex RD-8 is intelligently laid out, easy to use and, more importantly, it sounds good.

The RD-8 Digital Multitrack Recorder

Whether you're working on the next hit movie soundtrack or the next hit, the RD-8 is right at home. Save key settings and locate points in the Table of Contents. Then, when you re-load your tape—into any RD-8—you can begin working right away. And if you're using MIDI, no other MDM gives you the breadth and depth of control that you'll find in the RD-8. It's the fully professionally machine that knows how to rock.

FOSTEX

CIRCLE 90 ON FREE INFO CARD

World Radio History

that you're using your body and your mouth to make the sounds.

THE SCORE

There are times when a composer does 90 percent of the score in his project studio. They'll bring me in to play both woodwinds and EWI, and that's another real advantage. It's amazing on a synth score, what a flute solo will do — a real flute. It just puts that little extra life into it. Surprisingly it works the same way with the EWI. I can play the EWI with an incredible amount of feeling.

I can use the EWI to play an oboe part on *Star Trek* and literally not be able to tell the difference when I hear it back — because I've learned how to play it expressively; when I'm playing an oboe part, I'm thinking like an oboe player. With all the years I've spent next to great oboe players, I remember how they phrase. I push into a note with my diaphragm, like an oboe player, and that's what makes it so expressive. If I'm playing a trumpet part I even find my posture is different. I'm sitting up, I'm more macho. It's a different way of tonguing, it's a different breath support, and it's a different speed vibrato. I'll hold my fingers as if I'm thinking more like Miles Davis than I am a saxophone player, which means less notes — saxophone licks aren't going to work on a trumpet sound. It's more of a sparsity of the line, not methodical, just more trumpet-esque, for lack of a better word.

The sound itself dictates how it should be played. If it's a soft, wispy sound, I'm going to play it much more gently because it just fits; the emotions of the sound affect how I'm going to play that sound. If I'm playing a solo using a distorted guitar à la Jimi Hendrix, I find myself bending, playing notes all over the place, and there's this stream of notes coming out — it's so much fun for a woodwind player to be playing a guitar solo, you know? I can come in and do all the lead guitar work on the EWI, and put a whole horn section on. Yet if I'm playing a part, it's up to the composer, the producer, and whoever else is sitting in the booth how they want that phrase.

WORDS OF WISDOM

Here are some tips for the inexperienced woodwind/EWI player: Number one, allow a lot more time (in the studio) because it's a learning process. Every time someone goes in the studio you learn a little more. That's why I always advise students to tape themselves, because you do things that you don't know. This goes for vocalists, too. How many times does a guy sound great in a bar and then you get him behind a [studio] mic and he hears all these little things that he's doing that he was never aware of because everyone was yelling and screaming and clinking glasses? You don't get the scrutiny of a microphone. The microphone is your best friend and your worst enemy. As a learning tool the microphone is incredible. There's no better way than to tape an exercise, sit down and listen to it, pick it apart — don't let anything go by. That's what happens when you go in the studio. It's the same thing. You start hearing, "Oh, my intonation on this wasn't good," "I do this on this little note," "I'm rushing." You give any young player a solo in the studio, and the first thing he does is start rushing because all the adrenaline is happening. It takes many years of experience to learn to relax in front of the microphone and not let the adrenaline take you.

The producer of the project getting this inexperienced player has more of a job to do. You have to be able to communicate to the player exactly what you

EWI, EWI, OH: An Electronic Wind Instrument (EWI), like Akai's EWI3020 above, can introduce a variety of familiar and unique sounds to your recordings.

THE PROJECT STUDIO EXPERTS

CALL TODAY FOR A FREE CONSULTATION
203.442.9600

CARUSO MUSIC
all major brands • sales & service

20 Bank Street
New London, CT 06320
203.442.9600
203.442.0463 (FAX)

CIRCLE 13 ON FREE INFO CARD

DREAM METER

FRONT BACK

80% SMALLER MOVEMENT, 66% FEWER PARTS.

Core magnet design ▪ Dramatically reduced total volume ▪ Taut band suspension ▪ Accuracy to ±1.5% of full scale ▪ Four sizes ▪ AC and DC versions ▪ Standards conformance ▪ Custom Marking Services

SELCO ▲ ▼ SELCO

HANDSOME

COLLET KNOBS

Selco's collet knobs meet the highest standards of precision, durability, performance, and beauty. Solid brass hardware is permanently bonded to a matte-finish, 94V-2 nylon body. Black or gray, with snap-on caps in a wide selection of standard and special colors. Full range of sizes, types, and accessories. Attractive OEM prices.
Request full-color knob catalog today.

selco PRODUCTS CO.
7580 Stage Road, Buena Park, CA 90621
(714) 521-8673, or (800) 229-2332.
FAX (714) 739-1507

CIRCLE 66 ON FREE INFO CARD

World Radio History

World Radio History

want. You have to be able to tell him what isn't working and what is working. There's a real fine line between doing it nicely and not bruising someone's ego, and being a bastard. But the player has to learn to leave his ego outside in the garage when he parks the car. There are so many times on a session you've just played a gorgeous solo but it doesn't work for the scene or the project and the producer says, "No. Cancel the flute solo. Cancel the EWI solo." It's not, "Oh, I can do it better!" "No, let me try it again!" It's "NO." It has nothing to do with your personality, it hasn't anything to do with your ego, it hasn't anything to do with anything except that you are doing what is best for the project. And as a professional musician, that's what we're hired for — to do the project. If you're doing your own project, great! Get your own album, play and do whatever you want, and hopefully you'll sell it.

You have to be able to communicate to the player exactly what you want. The more you have written out, even if it's germs of ideas, the faster your project's going to go. If you have written down even a bare minimum, you're going to save yourself a humongous amount of time.

Hopefully the guy can read some music. Even if you have nothing else other than the chord sheet, you're at least able to put some markers on the page: "Play here," "Play here," and "Play here." If you can jot down just a little line that you're thinking, "OK, here's the germ. Play around that," you're so far ahead of the game. The more information you can communicate to the player, the faster it's going to go, the closer you're going to get to your own project, and the happier you will be not spending so much bread.

MIC PLACEMENT AND TECHNIQUES

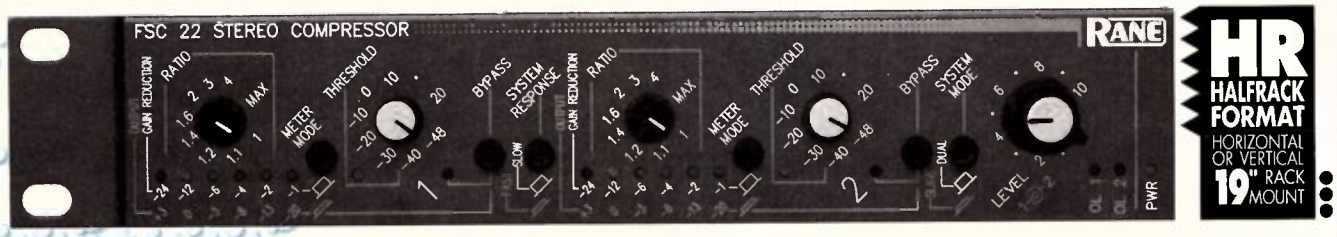
Where you put the mic obviously is extremely important. If you want a more breathy sound on a flute, you're obviously going to come closer. A lot of times I'll have headphones on so I'll be hearing what I'm doing and I'll be able to tell if I'm too close or not. If I have to punch in, or if my mic position has changed, all of the sudden I go, "Whoops! I leaned in too much. I got too close to the mic."

Soprano [saxophone] is a different kind of instrument. It's the only woodwind instrument that ideally needs two microphones because you have one distinct sound coming out of the bottom of the bell and another on top of the instrument. I think the very first person I saw do this was Wayne Shorter with Weather Report, and he actually had two microphones. I just saw an advertisement in some woodwind magazine where they actually sell a contraption that has two microphones that you can attach to the instrument itself and get the sound. What happens then is you get the reedy edge from the bottom and the mellowness from on top of the keys; you put the two together and it really is a nice effect.

In a studio you don't want to use an attachable mic unless it's a solo thing where you want the guy to be wailing and to be free. But in general, for parts and sweetening, you don't want to use an attachable mic because you're going to get noise. When you're live it's easier to have a mic attached

continued on page 140

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.

No job is too big or too small for this pint-sized wonder.

PURITY BY DESIGN

RANE

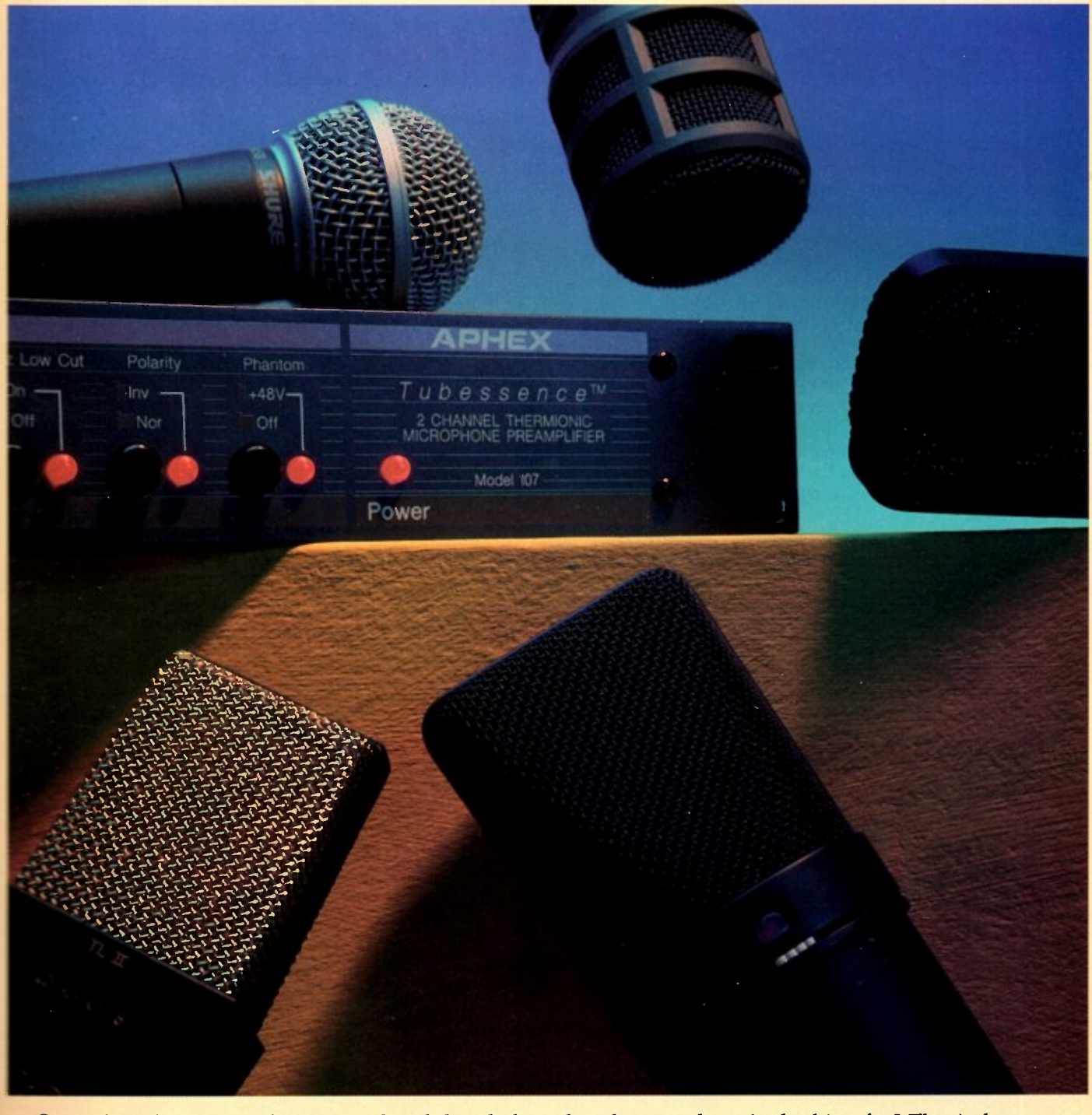
FSC 22 STEREO COMPRESSOR/LIMITER

RANE CORPORATION 10802-47th Ave.W., Mukilteo, WA 98275 (206) 355-6000

CIRCLE 60 ON FREE INFO CARD

World Radio History

Upgrade all your microphones



Smooth and intimate, dimensional and detailed...is that the sound you're looking for? The Aphex 107 Tubessence® Thermionic Microphone Preamplifier reveals the subtlety and power in both vintage condensers and popular dynamic mics. Qualities that are lost on your console's mic preamp.

Tubessence, for the long journey from microphone to CD.

The Aphex Model 107, tube mic pre - two channels of Tubessence for $595.00 MSRP (U.S.).
Call or fax for a dealer near you.

APHEX SYSTEMS

Improving the way the world soundsSM

11068 Randall Street, Sun Valley, CA 91352 • Tel: 818-767-2929, Fax: 818-767-2641

CIRCLE 08 ON FREE INFO CARD

World Radio History

The Demo Queen Takes a Meeting

Sometimes, setting up a meeting with anyone in the music business is a lot like being horse whipped. I'm more than willing to endure some torture if it brings me closer to my fantasy of sharing my music with a larger audience, but more than once I've had the blood sucked from my arteries via my ears by a Dracula-trained secretary.

"May I tell Mr. Bigwig who's calling?" Draculala intones. There's usually a dramatic pause when my name is not on her list of callers to put right through, but I quickly mention that Mr. Soandso is referring me to her boss. This name she does recognize, so I get, "Hold on, I'll see if he's in."

Three days of intensive detective work helped me to deduce exactly when Mr. Bigwig would indeed be in the office and not at lunch or a weekly singles meeting, or heading out the door on a Friday afternoon. My methods are confidential, but a good place for the novice caller to start is to find an unsuspecting receptionist who is bored at her desk and ready to yak.

While waiting, I cradle the phone far enough away to put some air between my thoughts and the song wafting out of the earpiece, which also happens to be the song a friend of mine wrote that is now a hit on the radio. I am, of course, thrilled for him, but my mood is deteriorating fast at being put on indefinite hold. I know if I were listening to my song playing on the radio, I'd be in a better humor.

Alas poor Yorrick and poor me, but eventually dear Draculala comes back with a, "Can you call back this time tomorrow?" I, in my nicest concealing-the-rising-anger-in-my-voice tone, reply, "Uh, sure." The bloodletting has just begun.

The call wasn't a total failure, because now I know I'll get him on the phone eventually. I've been told to call back and I will. I will continue to do so every day at the same time until I hear that Bigwig voice on the other end of my line. The next day Draculala, in her cute little caustic way, intones, "Mr. Bigwig is out with the flu and probably won't be back till next week, sucker."

Well OK, she didn't exactly say "sucker," but I thought she was thinking it. Being a part-time card-carrying optimist, I'm willing to concede that I probably only imagined the icy chill in my veins when she spoke. Seven days later, I did manage to pin Bigwig down and he agreed to see me after I made much ado about my referral from Mr. Soandso.

Whether it be a publisher, producer, artist, music attorney, manager, or my friend who just got the hit song and is suddenly unavailable on the phone because every writer in town wants to write with him, including myself, getting anyone to agree to listen to anything is becoming a fine art in itself.

Hanging out with songwriters you hear things such as "Yeah, I had a great meeting last week and got a maybe on a hold on this killer ballad I wrote with such and such for Joe Tastybuns who is cutting tracks next month. And this is a good shot cause his last album went ballistic up the charts."

I chuckle to myself with self-righteous knowledge. A "cut" is a big deal, and a "single cut" a bigger deal. A

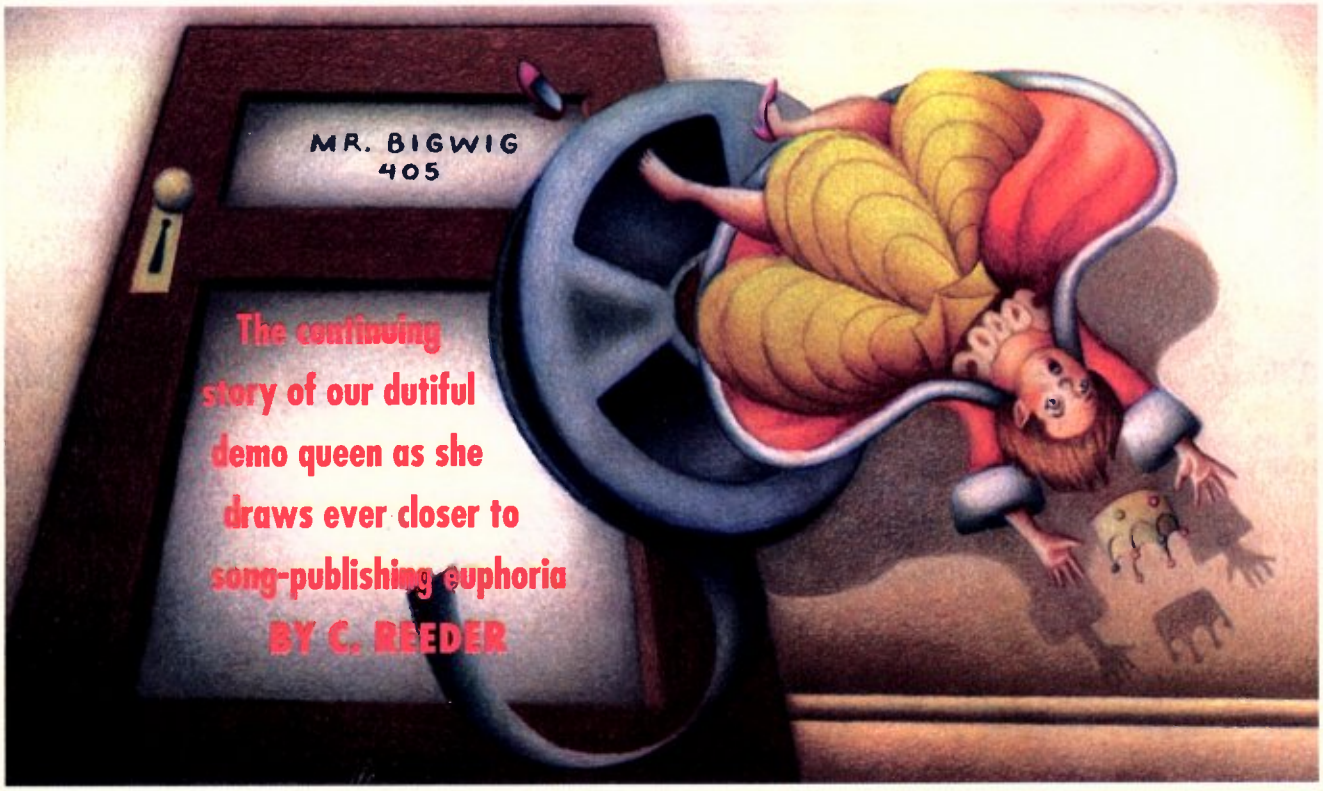


Illustration by Amy Hill

World Radio History

3M DIGITAL AUDIO

Do your ears have a vision?

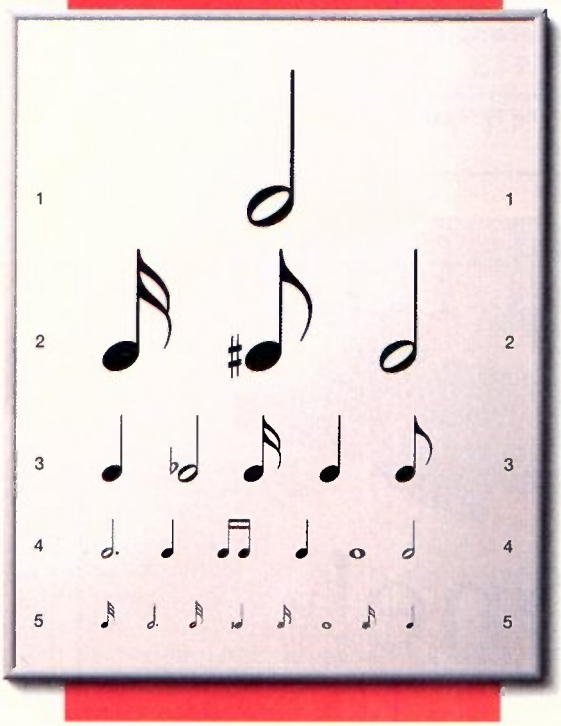
In the audio industry, success depends upon vision. It's vision that gives our ears not just the ability to hear, but to create. It's what makes an innovator an innovator and others mere spectators.

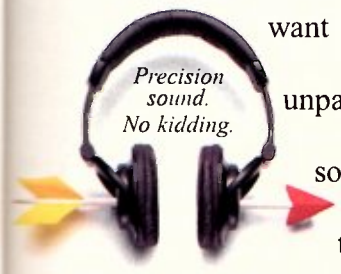
A few years back, 3M had a vision. We set out to produce the fullest line of digital recording media for audio professionals. The result can be summed up in two words: mission accomplished.

First, there's 3M™ 275LE – an open-reel, digital tape which delivers clear, clean sound for the most critical music mastering. Next in line are 3M ASD (for studios that want to hear unparalleled sound from their ADAT® recorders) and 3M AHD (for incomparable sound from audio Hi-8 recorders). Where others might stop, our list keeps going with 3M DAT, 3M Audio U-matic Digital (AUD), and for professionals who are after the latest in digital recording, there's 3M CD-Recordable and Magneto-Optical Disks. Finally, 3M 8mm and 4mm Data Tapes are perfect for back-up and archiving.

3M Digital Audio Media

Our analog tapes have built a reputation for performance and reliability. Our digital line lives up to that high standard in every respect. So it comes as no surprise that 3M digital audio recording products have consistently low error rates throughout.





Picasso had his paint and canvas. Shakespeare had his pen and paper. You have your ears and 3M Digital Audio. So what's your vision? For more information on our full line of professional digital audio products call 1-800-752-0732.

©1994 3M Audio and Video Products Division, St. Paul, MN 55144-1000

3M *Reliability*

CIRCLE 01 ON FREE INFO CARD

World Radio History

WEST L.A. MUSIC
GUARANTEED LOWEST PRICES!

Every Major Brand

Digital Multi-track Recording • Analog Recording
Hard Disc Recording • Mixing Consoles
Power Amps • Microphones • Speakers • Computers
Software • Keyboards • Guitars • Amps • Drums

"Where The Pros Shop"

Jackson Browne
with Don Griffin - West L.A. Music

Glen Campbell
with Glenn Noyes - Drum Manager

Ian Anderson - Jethro Tull
with Sandy Sobel - Adv. Dir.

We Will Beat Any Deal! Call Now!

All Credit Cards Accepted. Financing and Leasing Available. We Ship *Everywhere.*

WEST L.A. MUSIC
11345 Santa Monica Blvd.
Los Angeles, California 90025
(310) 477-1945 Fax: (310) 477-2476

CIRCLE 77 ON FREE INFO CARD

AC Hum

Gone!

The Hum Eliminator™ from Ebtech stops the 60Hz buzz that's caused by groundloops, quick and easy. Just plug it into the signal lines between offending pieces of equipment and you're done.

And since it's not a filter or gate, it won't change your sound.

- Works with balanced or unbalanced signals at either end.
- Breaks groundloops safely while leaving all equipment grounds intact.
- Also available in Line Level Shifter™ version for converting back and forth between -10dBV and +4dBu.
- Two channels for $69.95 retail. Eight channels for $279.95 retail.

EBTECH
the experts in great sound

Call now for a dealer near you. tel. (619)679-6510, fax (619)679-2802

CIRCLE 28 ON FREE INFO CARD

"hold," though, means if you're lucky someone might call you back and say, "Sorry, we pass on this one." Of course, you'll figure that out nine months later anyway, after the CD is in the stores and your killer ballad is not on it.

Besides, my source said Joe was really looking for an up-tempo tune with an R&B feel, á la The Drifters; but I keep this to myself, making a mental note to remind myself to track down J. T. and pitch him my song. It's an ugly war out there in the songwriting trenches, but the Queen will demo on down to the front line.

The day of the meeting finally arrives. My morning has gone fairly well. My older daughter undid her dreadlocks and removed most of the purple dye from her hair; my laser printer still worked after a small person accidentally spilled a drink on it, so I was able to print up my lyric sheets (my hair dryer comes in handy on these occasions), and I set up a writing session with the friend who has the number one smash in heavy rotation. He eventually returned my call and said he would love to work me into his newly demanding schedule after he gets back from St. Kitts next month.

I pull into the parking lot, careful not to park in a space marked STAFF, and present myself to the receptionist whose voice I recognize from my earlier spy work. She points me in the right direction, and as I walk down the long gold-and-platinum-record lined corridor to the office of Mr. Bigwig, a mega-mogul who is personally overseeing the careers of several current hit acts, I check my reflection in the glass covering the hit album by Joe Tastybuns. My hair looks OK, but then I allow my eyes to focus on the song titles and the last names of about seven songwriters.

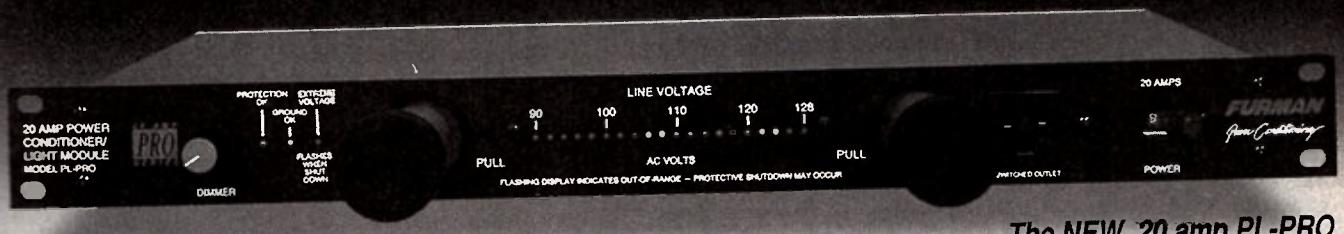
Well, if they can do it so can I, because I am still the Queen of the Daily Demo. Getting the meeting is half the battle, I muse to myself as I slide quickly past Draculala before her frigid stare deadens my high spirits. With my head held high I croon, "Hullo Mr. Bigwig. Thanks for seeing me. And by the way, nice secretary." Hey ho... EQ

EQ will continue to periodically check in with our songwriting Demo Queen as she pursues the elusive record deal.

World Radio History

Can you afford not to get the best?

The next generation of pro audio Power Conditioners has arrived!



The NEW, 20 amp PL-PRO

Can you afford the cost and hassle of replacing your equipment if it gets damaged by a power problem? A new Furman **PRO Series Professional Power Conditioner** is the best insurance policy you can have. What sets the PRO Series apart is the comprehensive protection they offer — protection you can't afford to be without. No other power conditioners come close. Compare these features:

■ ***20 Amp/2400 Watt rating***: Enough protection capacity for all your preamps, signal processors, mixers, keyboards, and computers, plus a hefty power amp or three.

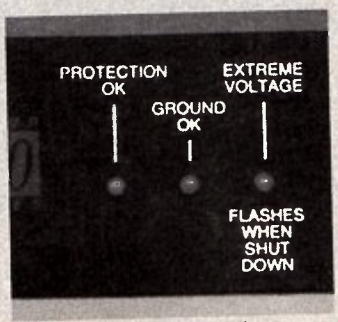
■ ***Extreme Voltage Shutdown:*** This will save you when a rookie accidentally plugs your rack into 220 volts. If the warning LED comes on, just re-connect to 120 volts and everything works fine. No damage done! This feature alone is worth the full purchase price — and is unavailable elsewhere.

Only the PRO series uses all these protection components

■ ***MORE and BETTER spike protection:*** The PL-PRO has *six* high-capacity MOV's symmetrically placed around a 3-line filter. Spikes, even big ones, originating on any of the three AC wires are harmlessly absorbed. Any remnants are safely dissipated in a gas-discharge tube unique to the PRO Series.

■ ***More effective RFI/EMI filtering:*** High frequency noise from dimmers, fluorescent lights, or passing taxicabs can ruin an audio signal. The PRO Series uses a sealed, shielded, high-attenuation filter built with high-voltage chokes and capacitors to effectively screen RF interference and keep your audio pure.

■ ***Critical status indicators:*** If you take a really major hit, like a nearby lightning strike, the PRO will go into "suicide mode," sustaining minor, repairable damage but protecting the rest of your equipment. A "Protection OK" indicator alerts you if your protection has been compromised. Similarly, if there is anything wrong with your grounding (which could cause a shock hazard), the PRO will let you know.



All systems go!

■ ***Microprocessor-controlled monitoring:*** An all-new design monitors all functions and gives the voltmeter unparalleled accuracy and stability, and an attention-getting extra: Any voltage high enough to "pin" the meter or too low to register on the normal scale will make the LED's blink in special patterns — so you can't miss knowing you've got a power problem.

Here's what real-world users said about Furman Power Conditioners:

"...it once saved the entire studio I worked at." — *Joe Griffin, Des Plaines, IL*

"Great! Saved my equipment." — *David Wimprine, Jr., Cisco, TX*

"It saved at least $20,000 worth of equipment." — *Greg Smyer, Winfield, KS*

The PM-PRO and PS-PRO

■ ***Three Models:*** There's a PRO for every need. The PL-PRO has Furman's famous precision-machined rack lights with dimmer, and an AC voltmeter. The lights turn off automatically when pushed in. The PM-PRO has no lights, but adds an RMS-reading AC ammeter. The PS-PRO has outlet groups that turn on and off in a timed sequence. All models have widely-spaced rear outlets to accommodate "wall warts" and 10 foot long, heavy duty 12 gauge line cords.

Furman makes a complete line of power conditioning, voltage regulation, and power distribution products especially for audio applications. Contact us for a catalog.

FURMAN

NUMBER ONE IN POWER CONDITIONING!

Furman Sound, Inc.
30 Rich Street • Greenbrae, CA 94904 USA
Phone: (415) 927-1225 • Fax: (415) 927-4548

Furman products are made in the U.S.A.

CIRCLE 50 ON FREE INFO CARD

World Radio History

THE UNTOLD STORY

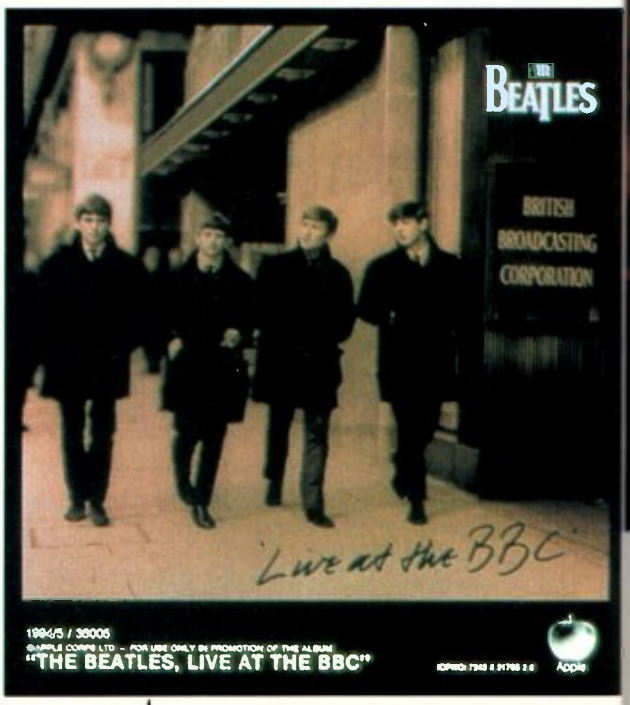
THE BA

Well, not really exposed and untold, but, hey, this story's from the tabloid capital of the world: London...

Mastering engineer Peter Mew tells all about remastering the Beatles' forgotten radio sessions.

By Zenon Schoepe

And this story's about the Beatles during their mythical wonder years. Besides, the truth of the matter is, the release of *The Beatles Live at the BBC* did stir up a bit of controversy on this side of the pond when it was learned that, in fact, several cuts off last December's mega-reissue were actually pulled from off-the-air recordings rather than from the genuine radio masters. The originals had been erased by Beeb engineers who thought the tape itself was more valuable than the music that had been recorded on it. Anyway...



The Beatles Live at the BBC was recorded between 1963 and 1965 by and at the BBC as part of radio specials and show appearances at a time when the Fab Four were rising on a wave of immense popularity and critical acclaim. While there are no real gems of "Sgt. Pepper" proportions hidden among the total of more than 250 tracks that were recorded, they do provide an invaluable insight into the state of the early gigging group. There are a surprising number of cover versions that were never recorded for EMI as the group paid tribute to its influences and drew on its live set. It also reminds us that the Lennon/McCartney songwriting partnership was not yet up to full steam.

The Beatles' BBC sessions fell foul of one of the unfortunate and underpublicized facts of early broadcasting working practice — not all live broadcasts or recordings were stored and archived for posterity. While it is almost incomprehensible to entertain such a thought, it's a fact that many historically important broadcast recordings were degaussed over the years through error or, even worse, purely for the price of the reusable media itself. Consequently there are many normally "formative years artist" recordings made for broadcast that have been lost as original masters and some of the Beatles' BBC sessions are among these.

Thus, when it came to piecing together the best of the boys at the Beeb, several tracks were actually

World Radio History

BEATLES EXPOSED

ENGLAND SWINGS: The tapes provide an invaluable insight into the state of the early gigging group, as the band drew heavily on its live set.

taken from listeners' off-radio recordings or transcription discs.

This state of affairs was originally denied by the BBC but has now been acknowledged as fact, although precisely which tracks are which has never been released. Actually, those gleaned from AM-radio recordings are fairly easy to identify.

The business of cleaning up tracks for release on EMI was handed to Peter Mew, senior mastering engineer at Abbey Road Studios, who specializes in restoration work. Mew started as a recording engineer at Abbey Road in 1965, and over the last 20 years has worked with most of the acts that came through the studio including Pink Floyd and Cliff Richard; he even sat in on a Beatles session when the regular engineer was ill. He then moved across into mastering and for the last five years has been operating the Sonic Solutions digital audio workstation with the NoNoise sound restoration package that was also used for the Beatles album.

"When you were an engineer in the 1960s and 70s, an album used to take a week or two, but by the time we

World Radio History

THE UNTOLD STORY

LAUGHTRACKS: The Beatles joke with Kevin Howlett, senior producer BBC Radio 1FM.

got to the 1980s, it would take three to six months," says Mew of the move from recording to mastering. "You get to an age where you think 'No more! I can't take it!' There are also fairly limited opportunities to do what engineers of my era think of as real engineering — real orchestras — so you have to decide whether you just want to plod along or change direction, and mastering is a good option, especially if it's something interesting, which the Beatles tapes were. You also get to work with a lot of stuff that you otherwise wouldn't get the chance to."

Over the years, Mew has cleaned up the Beatles' *Red* and *Blue* albums and has accounted for around 10 percent of EMI releases. "It's normally the big sellers because this is a fairly expensive process," he says.

Live at the BBC contains 56 songs in mono that have never been available before as authorized releases, compiled by Beatles producer George Martin with the cooperation and agreement of Apple and the BBC.

Most of the tracks arrived at the studios on 1/4-inch analog and were dubbed onto Sony 1630 digital for direct digital input into the Sonic Solutions DAW where all the processing was conducted. The finished product was dumped out to 1630 for PQ coding and CD production, and Mew states there were no cut downs or edits between different performances — what you hear is what was there. He believes the result is the definitive article, although he admits to not hav-

World Radio History

ULL METER BRIDGE OPTION AVAILABLE SOON!

Studiomaster

P7

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

- An 8 buss console providing 40 equalised inputs and 16 track capability in its basic 16 channel format.
- 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 normalled 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.

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

Is it any wonder that STUDIOMASTER 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 years?

Studiomaster
3941 MIRA OMA
ANAHEIM CA 92807
FAX 714•524•5096
PHONE 714•524•2227

CIRCLE X1 ON FREE INFO CARD

World Radio History

THE UNTOLD STORY

ing listened to the album much since completing extensive work on it four months ago — "You tend not to," he laughs.

"I think 90 percent of it is very good and the rest is really quite acceptable, certainly given what it was like originally," he observes. "It is also quite an achievement because it has almost been like dragging things back from the grave," he says.

Fortunately, he likes the Beatles. "It does help from the point of view of liking what you're doing and also because you can understand some of the background to it," he explains. "If somebody mentions a track, you know what they're talking about and probably which album it came from."

He rates the task high on the scale of clean up jobs. "It's among the most difficult I've done, chiefly because the songs came from a variety of sources — they weren't all original BBC archive tapes."

Why does that make the job difficult?
Because each track has to be treated on its own. Normally, when you get an LP to work on, the source is usually the same, so you can approach all the tracks in a similar way. A lot of these came from lots of different sources recorded at lots of different times.

What sort of condition were they in?
The tapes that we received were mostly from a series of radio broadcasts that (BBC radio producer) Kevin Howlett did in the mid 1980s called "The Lost Beatles Tapes." He had done a lot of research to find out where the material was, and our sources were chiefly the same as his, except that he didn't have the ability to clean them up in the way that we have now.

So how did the whole process start?
George Martin chose the tracks based on what would be good artistically, what would be interesting historically, and what was technically viable because not all of them were in as good a state as others. He based his original choice on that. I did an initial clean up and tweak and he had another listen and decided to ditch some and use different ones.

I worked on it over a period of two and half years and it went through several incarnations and changes. Originally, there was no speech in it and then later on some was added. Tracks were removed and added as the thing developed until it came to what we have now.

The ORIGINAL REVOLUTION

Equitek E-200

Servo-Condenser Multi-Pattern Microphones

- Introduced in 1989, as the Equitek II, the first microphone under $1000.00 featuring;
- State of the art servo head amplifier, eliminating coupling capacitors phase anomalies and feedthrough distortion.
- High SPL capabilities(148dB), providing tremendous ballistic integrity
- Non capacitive 20dB pad
- Proprietary H-frame internal shock mount, isolating capsules from most vibrations
- High fidelity audio reproduction

.....CAD created a revolution in the microphone industry by redefining high end performance and great value. With continual enhancements the E-200 has established a bench mark which remains to be equaled or excelled.

Every hour of every day, in thousands of project and world class studios around the world, CAD Equitek servo-condenser microphones continue to provide a unique level of performance, with an unparalleled return on investment.

E-200 Shown with optional ZM-1 Shock Mount

...also available in matched pairs.

Join the Revolution !

For a CAD dealer near you call: 1-800-762-9266

Conneaut Audio Devices
a division of CTI Audio, Inc. 341 Harbor St. Conneaut, OH. 44030
Phone (216)-593-1111 FAX (216)-593-5395

CIRCLE 20 ON FREE INFO CARD
SEE US AT NAMM BOOTH # 979

World Radio History

40 BALANCED LINE INPUTS.* 16 STEREO CHANNELS. 2 MIC PREAMPS. NOW SHIPPING.

Introducing the ultimate line/keyboard mixer. The LM-3204 is everything you've come to expect from Mackie Designs: Ultra-quiet. Packed with features but easy to use. Built like a tank. Embarassingly late into production...

As with our 8•Bus Console series, the LM-3204 is one of those mixers that *we've* always wanted to have around. Mackie Designs abounds with keyboard nuts, sequencing fanatics and other Line Level Input Challenged types. Thus we boldly set out to create a line mixer that could handle more hot stereo inputs than nature ever intended. Complete with dedicated control room outputs and tape monitoring features.

But we also wanted to satisfy the Official Musician's Minimum Daily Requirements for microphone inputs. For sampling. For vocals. For live single and duo club acts.

So we supplemented the LM-3204 with two of our highly-regarded mic preamps. They have the same very impressive specs, can't-bust-'em headroom and switchable phantom power as our 8•Bus, CR-1604 and MS1202 mic preamps. Each can be patched to any of the LM-3204's 16 stereo channels.

If you currently have more inputs than channels to put them in, call us toll-free today. We'll send you detailed information on the mixer that packs the most inputs into the least space ever.

The LM-3204 from the rain forest fanatics at Mackie Designs.

NEW & NIFTY! Source Alt 3/4 switch routes Alt 3/4 bus to AUX 3 returns, creating 2 submix buses for remixing back into the main L/R buses.

Sealed rotary controls. All-metal chassis.

4 AUX sends per ch. *accessed via two knobs & SHIFT button. AUX 1 & 3 are true stereo; 2 & 4 are mono.*

5 RACK SPACES

LM-3204

Hypersensitive –20 dB Signal Present LED.

Solo level control *and conspicuous, Rude Solo LED*

Aux Return to Control Room *switch routes AUX 4 returns to separate Control Room/Headphone bus so you can "wet monitor" (listening with effects without applying them to the main L/R outputs) or play along with a cue track without having it go to tape.*

Elaborate monitoring: *Separate Control Room & Headphone outputs w/level controls. Source from main L/R buses, tape output (when Tape Monitor button is pushed) or stereo In-Place Solo bus when any solo button is pushed.*

Built-in power supply *(no hum-inducing, outlet-eating wall wart) uses standard IEC cord.*

Channel inserts *on Channels 1 thru 4.*

3-band EQ *(80Hz, 2.5kHz & 12kHz like our CR-1604).*

MUTE ALT 3/4 *doesn't just mute...it assigns the channel to a separate stereo bus. Especially handy when multitracking.*

Stereo In-Place Solo *monitors channel without affecting main or AUX outputs. It also lets you read channel operating levels via the LM-3204's 13-segment LED meters.*

Forgiving UnityPlus *gain structure, adds headroom, cuts noise & gives you 30dB more gain above Unity.*

Studio-quality, high-headroom, low-noise balanced mic preamps *with –129.5dBm E.I.N. Complete with trim controls and switchable phantom power, they're assignable to any LM-3204 stereo channel via 1/4" TS Mic Out jacks.*

Not shown but extremely important in terms of noise & headroom: Professional +4dBu internal operating levels *throughout (versus wimpy, hobbyist –10dBV levels found in many competitive line mixers).*

Both 1/4" & RCA-type Tape Inputs *and* Tape Outputs.

Main L/R Inserts

Control Room outputs *so you don't have to tie up your headphone output to drive a monitor amp.*

Expandability! *Need even more inputs? You can add another 16 stereo inputs by plugging in our* LM-3204E *expander here. It looks just like an LM-3204 except that it doesn't have a master section over the right side. You can "daisy chain" multiple LM-3204Es for almost unlimited inputs. Note: Aux sends are separate on each expander.*

*32 individual inputs plus 8 AUX inputs.

$995.00 Suggested retail price. Slightly higher in Canada and uncharted regions of Cygnus X1.

CIRCLE 46 ON FREE INFO CARD

MACKIE.

16220 Wood-Red Road • Woodinville • WA • 98072 • 800/898-3211 • FAX 206/487-4337
Outside the US, call 206/487-4333 • Represented in Canada by S.F. Marketing • 800/363-8855

World Radio History

Microphones
Signal Processors
Digital Multitrack
Mixing Consoles
MIDI Gear
Monitors

grandma's music & sound

800-444-5252

Price Quotes & Information
505-292-0341
Fax 505-293-6184

800 S-T Juan Tabo Blvd NE
Albuquerque, NM 87123

CIRCLE 39 ON FREE INFO CARD

PROJECT PATCH™
Studio Wiring and Patching System

Project Patch™ brings the quality of a custom installation within reach of the project studio budget. Interchangeable cables and our new patchbay let you plug-in-today and reconfigure tomorrow.

DCE
DAVID CARROLL ELECTRONICS, INC
• tel: 510.528.8054 •

audio accessories
audio-line
• tel: 603.446.3335 •

CIRCLE 21 ON FREE INFO CARD

How do you start to work on material that is this variable in quality?
The first process is normally to try and get rid of or reduce the hiss, as well as getting rid of any crackles and clicks. This you do normally in conjunction with listening to some EQ'ing that you might do to interact.

Having decided pretty much what you want to do, you do it and then go through and attempt to repair any flaws such as drop outs and that kind of thing. It's a bit like restoring a painting — you gradually clean off the layers of dirt and when you find imperfections and damage you attempt to repair it using the original materials.

Did you find you used similar EQ curves across the tracks?
No. They were very, very different and that's one of the problems when the tracks don't all originate from the same source.

Were there any particular problems with lack of top end and tape hiss?
No. You name it and they had it. Either some or all of the tracks had all of the problems you could imagine.

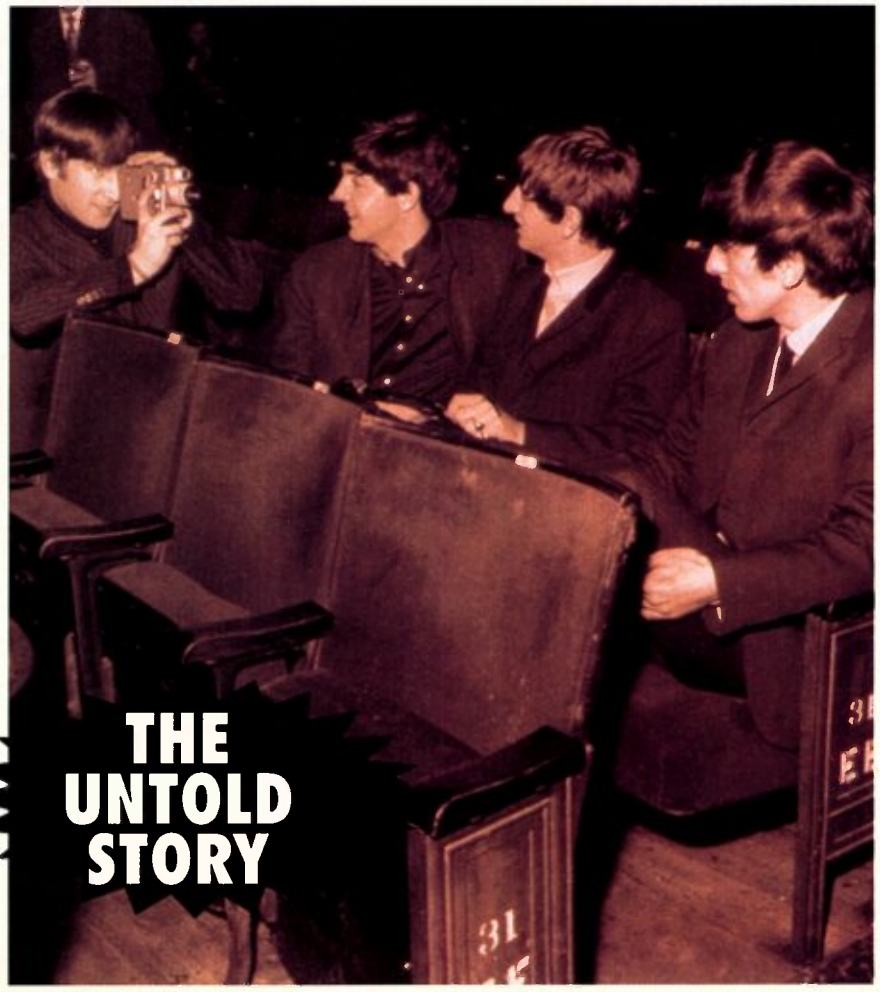
How did you fix an analog drop out?
You attempt to take little slithers of sound from elsewhere in the song if you can find some that matches. Computer workstations enable you to do that and edit them in.

Did you refer back to the original unprocessed signal as a reference for your processing?
No, because by this time you've gone far beyond what the song sounded like originally and you're aiming at something that you have in your head based on experience.

When you first listen to something you pretty well know what you'll be able to aim at, and the more time you have, the higher you can set your sights — within limits. It's not magic, it's technology and technology has a limit. From experience, you know what you think you can screw out of it and that's your target.

Of the songs that aren't on the album, are many retrievable?

The songs that didn't get on probably didn't because they weren't technically viable in a commercial sense. This wasn't a record for the avid collector, this was a record for the general public. The remainder are retrievable but retrievable is a relative term — it depends what you're prepared to listen to technically. EQ



World Radio History

"Can I trust my masters to DAT?"

Over the years, Apogee has focused its efforts on one goal: making digital audio better. The **Apogee DAT** carries on the tradition. It addresses all your concerns about using the DAT format in the professional world. Consistency. Minimal errors. Reliability. And above all, longevity.

We collaborated with major Japanese surface technology specialists KAO to improve their already impressive DAT specification, adding features critical to the needs of the pro-audio industry. Every element has been re-engineered: from the tape surface to the shell itself.

Our tests indicate that the Apogee DAT has an archive life of over 30 years – the longest in the industry – thanks to proprietary passivated metal particles that, quite simply, won't rust away. The graded magnetic coating yields vanishingly small error rates, yet makes the tape more durable. Output levels are as much as 10% higher than other DAT tapes. The heat-resistant housing minimizes static electricity problems and significantly improves tape handling. The special hubs minimize end-of-tape damage. The Apogee DAT exceeds even the tough DDS (Digital Data Standard) criteria, which require less than one error in 360,000 flux transitions—five times better than required by the IEC60A audio standard.

The result is a truly professional DAT tape: a tape that sets a new standard in DAT mastering. Now you can sleep at nights, knowing your masters are safe – and not slowly rusting away.

Trust your masters to Apogee DAT and you'll be in good hands. Our tape will deliver when you need it... for a long, long time.

APOGEE

Digital audio unveiled.

"Yes."

APOGEE ELECTRONICS CORPORATION

Sales & Marketing: *3435 Ocean Park Boulevard #211, Santa Monica, CA 90405. Tel: 310-314 1700. Fax: 310-452 4343*

Business & Engineering: *3145 Donald Douglas Loop South, Santa Monica, CA 90405. Tel: 310-915 1000. Fax: 310-391 6262*

CIRCLE 06 ON FREE INFO CARD

World Radio History

Giving a producer's studio a state-

World Radio History

BRINGING UP BABYFACE

tate-the-art "Babyface-lift" By David Hampton

Over the last 12 years, I have worked for many musicians, artists, and producers in the entertainment business, from technical support to studio consultant. Recently, Babyface and his wife Tracey were considering moving into a previously existing studio that was in dire need of technical, as well as cosmetic, attention. There was a need for a large production facility to house both Babyface's needs as well as Tracey's Yab Yum Entertainment activities. They needed someone who could coordinate the total renovation of the facility in keeping

Photo by David E

World Radio History

with their financial and creative vision and also maintain the confidentiality required when working with a high visibility personality such as Babyface. They contacted me around April of '94 to meet with them at the facility for the purpose of discussing my involvement in this project. After viewing the studios and discussing their goals, we agreed that I would coordinate the project.

The studio was originally ABC/Dunhill back in the '70s; then it became Lion's Share, Cherokee, and finally Winsonic Technologies. Babyface renamed it The Tracken Place. It is a multiroom complex with plenty of space and excellent isolation from outside noise. Plus, the control rooms (which had been designed by Lakeside Associates) sounded good. The studio also had more than a little history to it: it was one of the places where "We Are the World" was recorded. Some other artists who have recorded here in past years include Chaka Khan, Lionel Richie, Kenny Rogers, and Barbra Streisand.

EQUIPMENT LIST

MIDI Suite 'A'

Console: Alesis X2
Tape Machines: Alesis ADAT [2], Panasonic DAT
Speakers: Yamaha NS-10M, JBL 4430, Auratones
Effect processors: Yamaha SPX-90II, Ensoniq DP/4, Alesis Midiverb III, Digitech Vocalist II
Dynamic Processors: Alesis 3630 comp/limiter, Drawmer 241 comp/limiter
Synths: Digital Music Corp MX-8 MIDI patcher (x2), Akai MPC-60, Fender Rhodes, Alesis D4, E-mu Procussion, E-mu Proteus/1, E-mu Proteus/2, E-mu Vintage Keys (x2), Korg Wavestation SR, Korg M1R, Roland JV-880, Roland U110, Roland U220, Yamaha TX-7, Minimoog

MIDI Suite 'B'

Console: Alesis X2
Tape Machines: Alesis ADAT [2] with BRC, Panasonic DAT
Speakers: Yamaha NS-10M, JBL 4430
Effect processors: Yamaha Rev 7 (x2), Roland SDE-1000
Dynamics processors: Drawmer DS201, Behringer compressor/limiter, dbx 160XT, dbx 900 modular rack with 902 de-esser, 903 compressor, 904 noise gate
Synths: Akai MPC-60 Mk II, Ensoniq ASR-10, Alesis Quadrasynth, Digital Music Corp. MX-8 MIDI patcher, Roland JV-80, Roland D-10, Roland JV-880, Roland JV-1080, Korg M1R, Korg Wavestation SR, Korg 01R/W, Alesis D4, E-mu Proteus.

Studio 'B'

Console: CAD Maxcon II (56 input) custom modified
Tape machines: Studer and MCI 2" 24-track, Alesis ADAT (x3), Panasonic DAT, Sony cassette deck
Speakers: Custom-designed mains using TAD components, Yamaha NS-10M, Genelec 550
Effect processors: Eventide H3000, Lexicon PCM-70, Ensoniq DP/4, Yamaha Rev 5 (x2) Yamaha SPX-90, Yamaha SPX-900, Roland SDE-1000.
Dynamic processors: Behringer compressor/limiter, dbx 160XT (x2) Drawmer DS201, Teletronix LA-2A, UREI 1178, BBE Sonic Maximizer, Behringer mic preamp, Jensen mic preamp
Synths: Digital Music Corp. MX-8, Akai S1100, Ensoniq ASR-10, Roland JV-880, Roland U220, Korg 01R/W, E-mu Vintage Keys

GETTING STARTED

Before we made any renovation plans, I located all the blueprints that existed and found several different versions. We discovered that once you get down to it and open up (for example) the ceiling, the final result is not always what it says on paper.

I could see that the original construction was top-quality (albeit unmaintained) and worth keeping. The people who originally built the facility were very good carpenters. The walls are all built on staggered studs and floated on neoprene rubber. Isolation between rooms is excellent. The finished materials (such as the marble and wood accents) used in the control rooms were kept because of their high-quality workmanship. The previous tenant's "renovations" included dark green carpeting, low-level lighting, and full-length mirrors throughout the entire facility. Needless to say, while working there, I fully expected Super-Fly to come pimpin' through the halls at any given moment.

Restoring a studio is a lot like producing a record — calling the right people for the session sure helps. My next step then was to assemble a tech-

Photo by David E

X-MEN: Both MIDI rooms at the facility revolve around their Alesis X-2 consoles and ADATs.

World Radio History

the control
esigned by
l good. The
ittle history
where "We
Some other
ere in past
onel Richie,
eisand.

tion plans,
hat existed
t versions.
u get down
ample) the
not always

iginal con-
ty (albeit
n keeping.
y built the
enters. The
gered studs
ober. Isola-
ellent. The
the marble
the control
their high-
e previous
luded dark
el lighting,
ughout the
say, while
cted Super-
gh the halls

lot like pro-
g the right
e helps. My
nble a tech-

Photo by David E

acility revolve
and ADATs.

The Truth Is Out

Alesis Monitor One™
1994 TEC Award Winner
Studio Monitor Technology

SUPERZONE™

1994 TEC AWARDS | TECHNICAL EXCELLENCE & CREATIVITY OUTSTANDING TECHNICAL ACHIEVEMENT STUDIO MONITOR TECHNOLOGY *Alesis Monitor One* | PRESENTED BY MIX FOUNDATION

Every time you mix,
you've got to hear the truth.
Trust the speakers the pros trust.
The Alesis Monitor One
Studio Reference Monitor.

Alesis Monitor One is a trademark of Alesis Corporation.
TEC Awards are presented by the Mix Foundation for Excellence in Audio

Alesis Corporation 3630 Holdrege Avenue Los Angeles CA 90016 1-800-5-ALESIS ALECORP@Alesis1.usa.com

ALESIS STUDIO ELECTRONICS

CIRCLE 04 ON FREE INFO CARD

World Radio History

Factory Direct...
Best Value!

EUROPADISK, LTD.

All Manufacturing
In Our Plant!

• **Compact Discs**
New, Low-Cost Packages!

• **Cassettes**
Finest European Equipment

• **DMM® Vinyl**
Mastering & Pressing
Cleanest, Hottest 12" Vinyl!

• **Graphics**
Printing with
Free Custom Layout!

• **Mastering Studios**
Neve Digital EQ, Sony Digital Editing. Major Label Mastering.

SPECIALS - *"With This Ad Only"*

500 - Promo CD's - $995
Delivery in 15 Business Days!
Promotional Package includes:
CD-R Reference, One Color CD Label with Layout, Typesetting & Film
(to 25 Min.)

500 - Color CD's - $1,995
(1,000 CD's - $2,265)
Retail-Ready: *FULL COLOR* Front & Tray Card, free CD-R Reference, 2-Color CD Label, Graphics Layout & Film, Jewel Case & Shrink-Wrap (to 58 Min.)

500 - Cassettes - $715
(1,000 Cassettes - $1,025)
Retail-Ready: *FULL COLOR* J-Card, Test Cassette, Graphics Layout, Typesetting & Film, Cassette Label, Norelco Box & Shrink-Wrap (to 50 Min.)

500 - 12" Vinyl - $1,075
(1,000 12" Singles - $1,450)
Retail Ready: *12" Single Package*
Direct Metal Mastering, 5 Test Pressings, Label Layout & Printing, Plastic Sleeve, Black or White Die-Cut Jacket Shrink-Wrap (to 14 Min. per side)

Call For Our **Complete Catalog**

EUROPADISK, LTD.
75 Varick Street, New York, NY 10013
☎ (212) 226-4401 FAX (212) 966-0456

CIRCLE 32 ON FREE INFO CARD

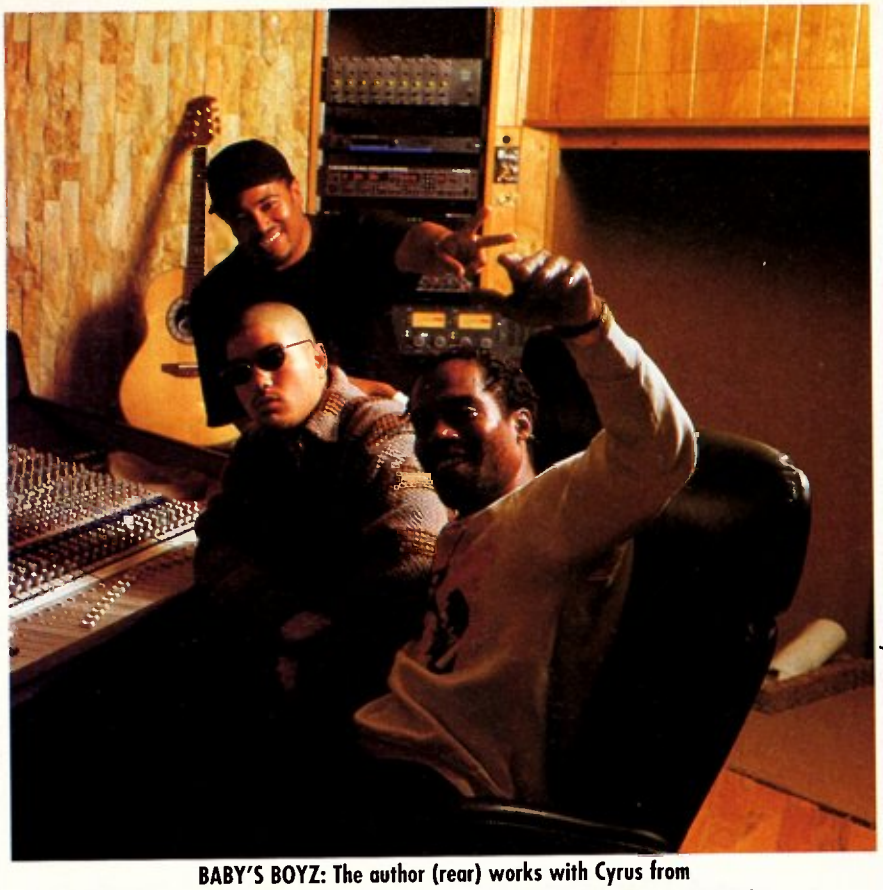


Photo by David E

BABY'S BOYZ: The author (rear) works with Cyrus from Yab Yum Entertainment Group Wesside (left) and engineer Nyabingi Al Singleton.

nical translation team with each person responsible for an area. The team consisted of Nathaniel White Jr, general contractor; Ralph Lawson, chief electrician; Theresea McFaddin, project coordinator; and Mitch Robertson, senior technical engineer.

In a facility that has seen so many occupants, the term "pre-existing condition" was meaningless. The electrical system in all the studios was totally redone. Ralph and Mitch worked closely together to facilitate any potential systems-interfacing problems that might arise. The equipment was checked for phase and noise as it was installed in each studio. As you can imagine, over the years Babyface has amassed quite a trainload of equipment.

ROOM ROUNDUP

There are three studios at the complex: A, B, and C. All of these rooms have good acoustical properties. The A room is primarily a live tracking room. We've set it up so that we can have a drummer and a vocalist each in their own booths and then have a piano player and a guitar player baffled and miked with major isolation. This control room will truly be our "A" room. We are installing a modified E Series SSL with G Series automation and EQs, a Sony 3348 digital multitrack, and two Studer 2-inch 24-track machines. The monitors are custom-designed using TAD components and, of course, there will be a full complement of outboard gear.

Control room B is our multipurpose room, containing a CAD console, Studer and MCI 2-inch machines, 24 tracks of Alesis ADAT (which is an important consideration since our MIDI production rooms also have the ADAT system), a custom synth rig, and a good-sounding live tracking room. Room B has everything needed with the exception of automation, which we plan on upgrading in the future.

The designs on room C have not been finalized and no work has been done as of now. We will proceed with C when time allows.

The building (which used to be an apartment building) is actually built over a swimming pool. You can go down to the basement and see that the contractors did not bother to fill in the pool. They just sank girders right through the bottom of it so there is this great live chamber sitting underneath the building. At some point we will probably activate it as a live echo chamber.

Along with the three main studios, we decided to build two MIDI rooms that are designed around the preproduction needs of the facility. Both rooms contain ADAT machines and an Alesis X-2 console. We felt that it made

World Radio History

Photo by David E

leton.

AD compo-
will be a full
ear.
r multipur-
AD console,
achines, 24
hich is an
since our
so have the
nth rig, and
king room.
eeded with
tion, which
e future.
C have not
rk has been
roceed with

ed to be an
tually built
can go down
nat the con-
in the pool.
through the
is great live
h the build-
robably acti-
er.
ain studios,
MIDI rooms
the prepro-
cility. Both
ines and an
that it made

HEAR THE FUTURE

DIC'S NEW 8MM DIGITAL AUDIO CASSETTE IS DESIGNED FOR DIGITAL AUDIO MULTI-TRACK RECORDING!

Split personality?..Not this cassette!

It bridges the gap for Tascam DA-88 users who require a true digital audio cassette designed to deliver the highest levels of performance possible. Today's tape based digital 8 track recorders incorporate technology originally designed for video but that's where the similarity ends. Video technology compensates for the drop outs inherent in video cassettes but Digital Audio Multi-track Recorders require drop out free performance. **That's what DIC's new 8mm Digital Audio Cassette is all about... Digital Audio Multi-track Recording! No identity crisis here!**

DROP OUT FREE TECHNOLOGY: DIC's premium professional grade metal particle tape.100% certified for critical applications where drop out free performance and high speed shuttling are required.

SPECIAL BACKCOATING: Specifically engineered for audio recording (totally different than mass produced video tape) engineers can shuttle the tape in during editing with confidence that the backcoating will not be shattered.

REALTIME LENGTHS: In realtime lengths of 15, 30, 60 and 120 minutes unlike a 120 video cassette that actually provides only 108 minutes of recording time.

Additional Audio/ Video Products :
DAT cassettes • DAT drive cleaner. • Optical discs. • Recordable CD's
• 4mm & 8mm data cartridges. • 8mm video cassettes. • SP Beta Products.• plus more!

MADE IN USA

TM

DIC///DIGITAL

You'll hear the future..today!

CIRCLE 18 ON FREE INFO CARD

Glenpointe Centre West, 500 Frank Burr Blvd., Teaneck, NJ 07666.
Phone: 201-692-7700 or 1-800-328-1342, Fax: 201-692-7757

World Radio History

sense to standardize some of the gear in order to maintain consistent quality levels. Each room has the same patch-bay layout and processing gear so that Yab Yum's songwriters can comfortably work in one room or in the other. Since we have three ADATs in Studio B, tracks can easily be recorded in the MIDI rooms and then brought to B to be transferred to another format. We are installing a third MIDI room with a VCR, disco mixers, turntables, and CD players to enable alternative productions to take place. People who come from a DJ background, for example, don't necessarily know much about MIDI, so we designed our rooms to help them understand what it's all about.

Photo by David E

TALES FROM THE CRIB: A true production facility should give songwriters a chance to create.

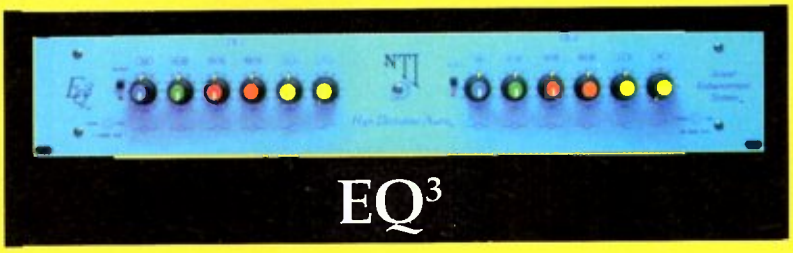
THE CREATIVE EDGE

Tracey and the Yab Yum staff have selected writers and artists that have totally different musical ideas in which everything they're doing has their own musical stamp. A true production facility should give songwriters a chance to work on their songs, exchange ideas, and have access to equipment, as well as the guidance of creative people working in the industry.

As studio owners, Babyface and Tracey have also been able to establish an internship program in conjunction with the Long Beach City College Commercial Music Program. It provides experience to those who desire a career in the music business. EQ

At present David Hampton is working with artist/producer Marcus Miller and producer Dave "The Cat" Ward in Los Angeles and NBA Basketball great Terry Cummings in San Antonio. Some other artists that Hampton has worked with include Peabo Bryson, Whitney Houston, Eddie Murphy, Larry Graham, and Sinbad.

The Most Perfect Sound You'll Ever Hear.



"This may sound a bit arrogant, but once you experience EQ³ High Definition Audio, you will never use any other sound enhancement system". - *Harris Allied*

We're that confident about NTI's EQ³, the only air band equalizer in the world. There is no real competition. Using patented audio circuitry, the EQ³ equalizer produces sound that's virtually free from hiss, noise, distortion and phase shift. The more you use it, the more applications you'll find for it.

"This instrument does it all. The EQ³ is the 1st equalizer I've used that gets the non-traditional sound I need. And for traditional use, it often surpasses my 'old classics'. My only complaint is that I don't have 24 channels. That's the truth, and if people don't believe that, they don't need an honest EQ." - *Dave Pensado, Grammy Award winning engineer.*

Proud new owners:

- Mastering Lab, Doug Sax, Hollywood,CA
- Dave Reitzas, Grammy winning engineer
- Southern Tracks Studio, Rosewell, GA
- Master Disc, mastering lab, New York

Hear the "Magic in the AIR" on NTI's new Super-Fi demo CD. Specially recorded in A-B fashion to show you just what the EQ³ can do.

The cost is $1.00 plus .50 cents S & H. To order, call 800-375-9289, or send check or money order to:

NTI
1680 West 820 North,
Provo, Utah 84601
Fax 801 375-9286

CIRCLE 49 ON FREE INFO CARD

World Radio History

help them
ut.

have select-
e totally dif-
n everything
wn musical
cility should
work on their
ave access to
dance of cre-
ndustry.
byface and
to establish
conjunction
ity College
am. It pro-
who desire a
ss. EQ

*npton is
roducer
roducer
d in Los
sketball
s in San
artists
ked with
Whitney
y, Larry*

ar.

the AIR"
er-Fi
ially
now you

ts S & H.
r send

GLOBAL WARMING

The Only Analog Tape Saturation Processor For Digital Recording.

While we at RSP Technologies can't take all the blame for recent warming trends, we will accept our share, thanks to our new Saturator™. The world's first product designed to provide tube warmth for digital recording, the Saturator brings the analog tape "saturation" process to the digital domain, warming up digital tracks and putting an end to "brittle" audio. Nothing works like the Saturator's patent pending process to recreate the classic saturation curves of hotter signal level analog recording, while allowing you to retain the benefits of the digital medium. Select the required saturation, from just a hint to soften digital high end, to the massive amounts typical to needle-pinned rock and roll, and yet maintain the clarity and detail of your original digital recording. Get ready to saturate, and don't say we didn't warm you. You'll find the Saturator at your RSP Technologies dealer; it's the store with the bright glow coming from the windows.

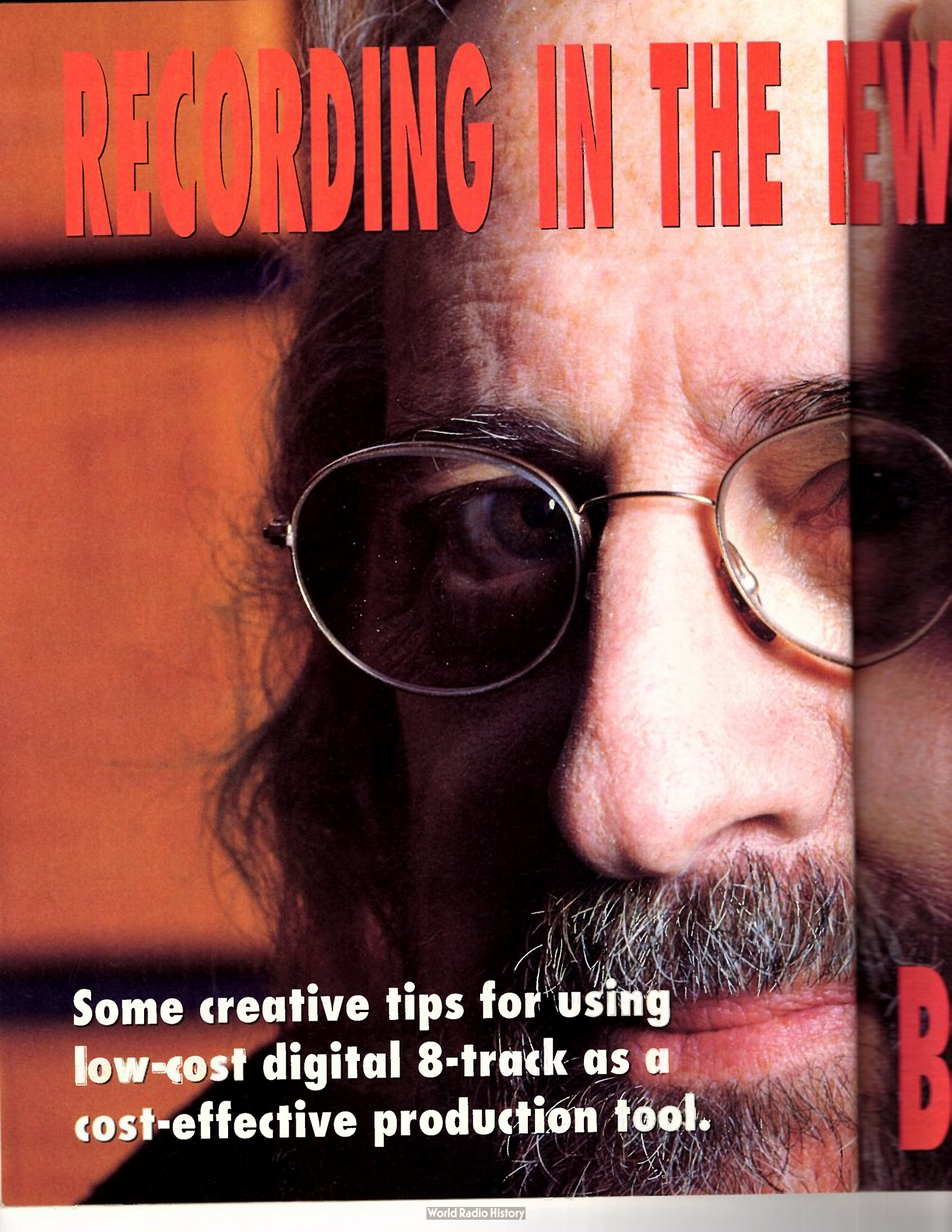
RSP Technologies

2870 Technology Drive · Rochester Hills, Michigan 48309 · 810 / 853 · 3055

CIRCLE 64 ON FREE INFO CARD

World Radio History

RECORDING IN THE NEW

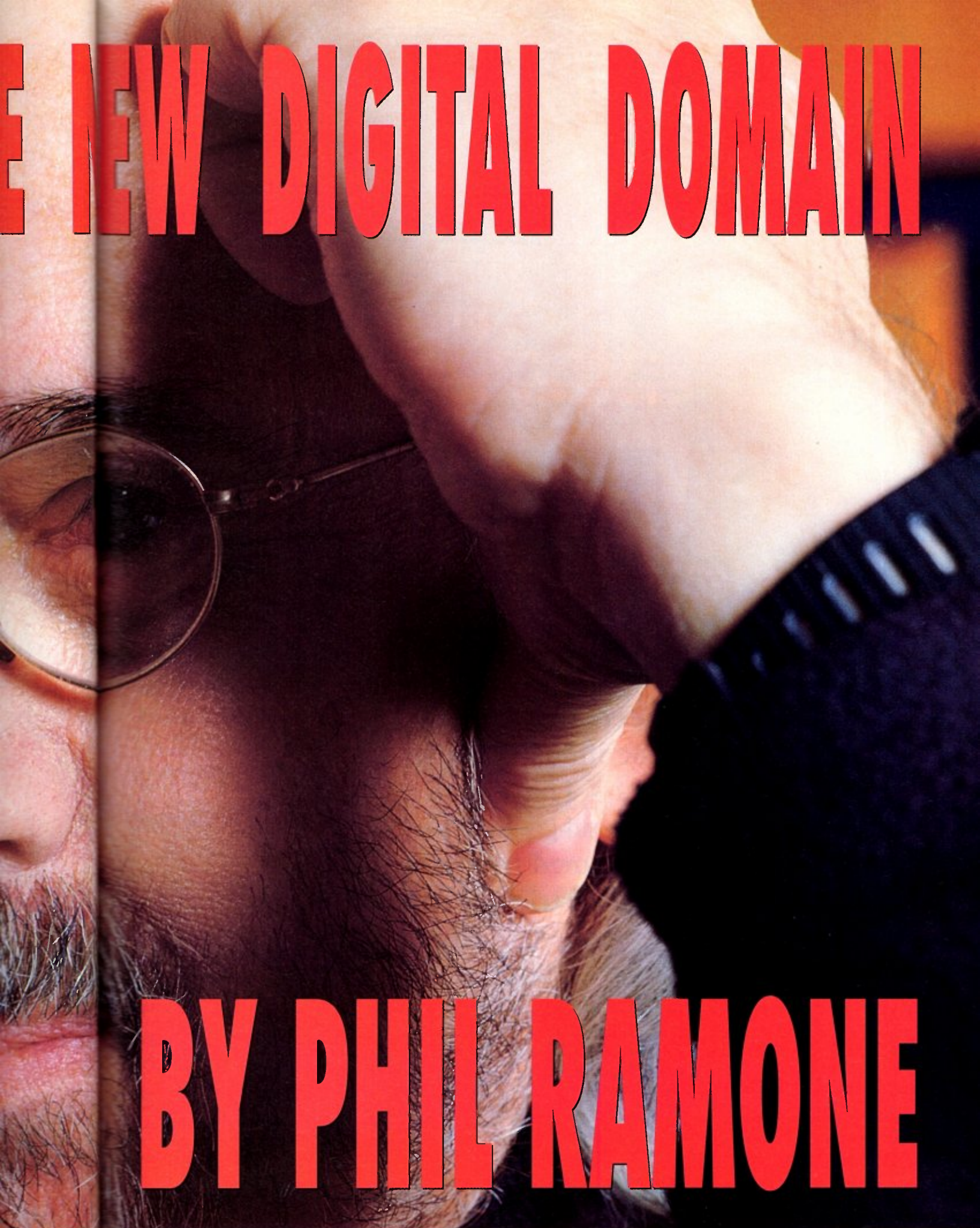


Some creative tips for using low-cost digital 8-track as a cost-effective production tool.

B

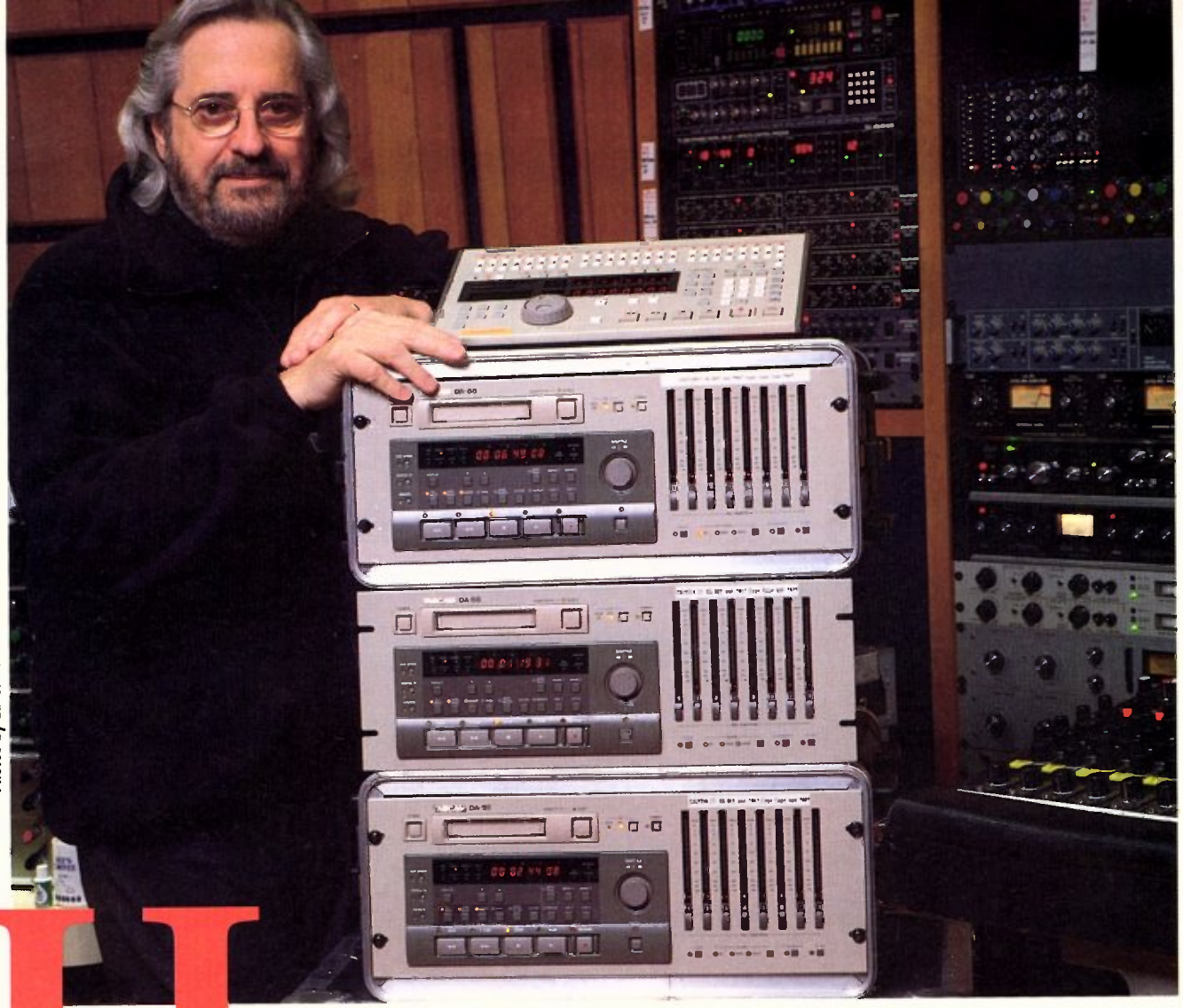
World Radio History

E NEW DIGITAL DOMAIN



BY PHIL RAMONE

World Radio History



Photos by Ed Colver

Having been involved in the music industry for so many years, I have seen a lot of technology come and go. Some of that technology was doomed from the start (like the 8-track cartridge) and some of it was not accepted because it was ahead of its time (like quadraphonic sound). Aside from the development of multitrack recording, most of the technological changes haven't radically altered the manner in which I make records.

But the proliferation of affordable digital multitrack tape machines has forever changed the way many producers (including myself) go about recording a project. For the most part, that change benefits not only the producer but the artist and record company as well.

THE LOWDOWN ON MIXDOWN

I have begun to treat audio mixing like film mixing — working in stereo pairs. As we proceed with the mix, the drums, keyboards, horns, strings, backing vocals, and (sometimes) lead vocals are mixed into stereo pairs, and then I store the pairs. In the past I used a Sony 3324 24-track digital machine to store the pairs, but now I am using the TASCAM DA-88. The DA-88 is a good-sounding machine with a quick, reliable transport and is affordable enough to rent or own.

As John Patterson, my engineer, and I mix down, we print the instrument (or grouping of instruments, like horns) *and* the effects into stereo pairs onto the DA-88's. Since I like to spread

World Radio History

CAN YOUR ACOUSTIC GUITAR AMP PASS THIS ORAL EXAM?

The Fishman Acoustic Performer Pro. You've Never Heard Anything Like It.

Sing? Through a guitar amp? That's right.

You see, there's one thing the human ear is critically tuned to recognize. The human voice. So if your voice, through an amp, sounds unnatural or colored in any way, you'll know it. And if it sounds clean, smooth and tonally correct, you'll know something else. You're singing through the new Acoustic Performer Pro from Fishman.

But don't stop there. Plug in your acoustic guitar and you'll be doubly impressed. The Pro was designed from scratch to deliver pure, clean acoustic sound with surprising kick. More than you'd expect from a guitar amp. But the Acoustic Performer Pro is more than just a guitar amp. It's the beginning of a new category in performance amplification.

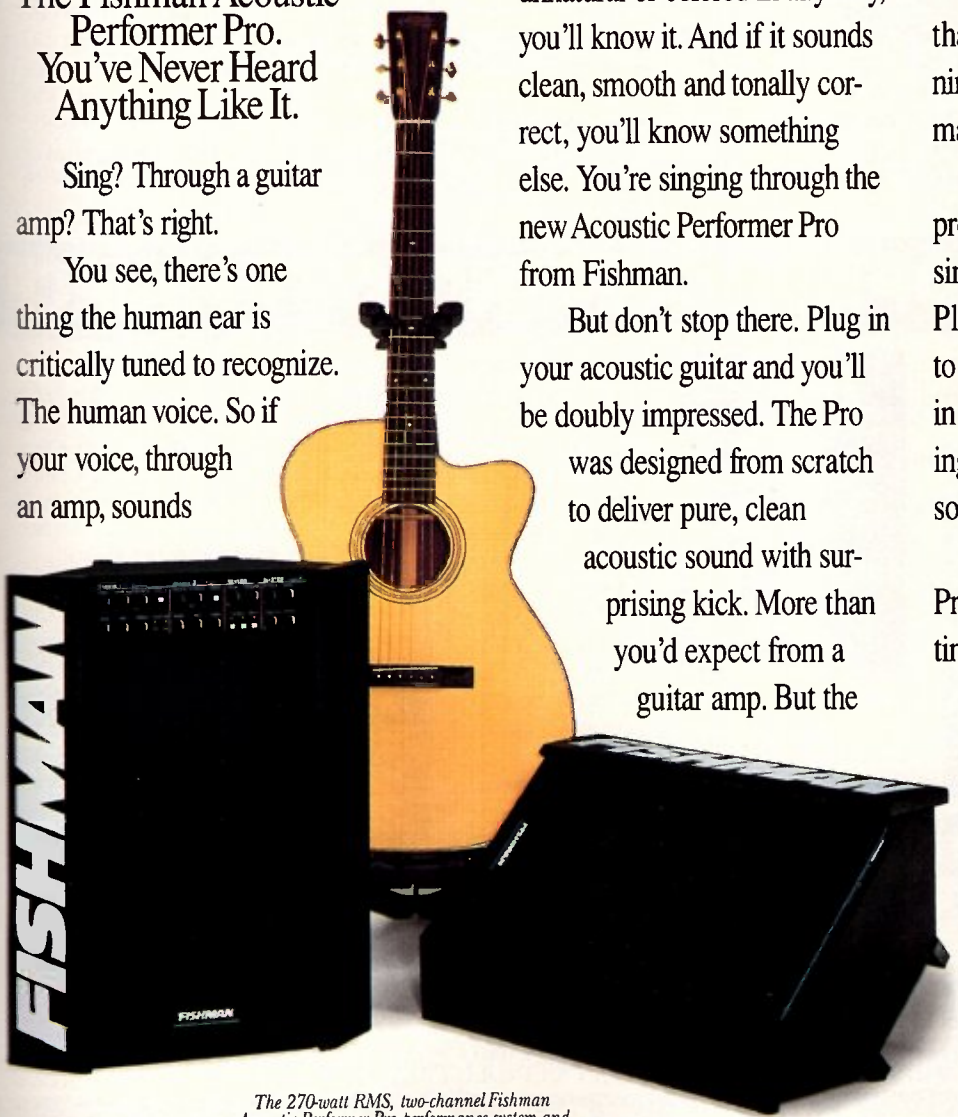
A studio-quality system, the Pro provides all the power you'll need to sing and play to a club of 100 or so. Plus the inputs and outputs needed to use the Pro as a personal monitor in a larger venue. And all of the mixing and effect options to get your sound just right for a studio set-up.

In fact, the Acoustic Performer Pro out-plays systems two or three times its size. And twice its price.

There's more. Unfortunately, there isn't more space here to tell you about it. To get the complete story and a list of dealers, call (508) 988-9199, extension 101.

This concludes the written portion of the exam.

FISHMAN®



The 270-watt RMS, two-channel Fishman Acoustic Performer Pro performance system and optional Acoustic Monitor Pro extension monitor/amplifier.

CIRCLE 35 ON FREE INFO CARD

World Radio History

things out, we usually use three of the TASCAM units for a total of 24 tracks, and at times we print the effects separately from the dry instrument sound. In the event that we need to do a remix, I have the song premixed in these pairs and each section of instruments has its respective effects either mixed in or stored to another pair of tracks. Making a small adjustment (like pushing the lead vocal a bit louder) is now easy. We don't have to waste time and money doing a recall and we don't have to worry about whether or not we can book a particular room in order to obtain a specific sound. In fact, if we print the return from the echo chamber at Capitol onto a separate pair of stereo tracks, I virtually have the room with me on tape, no matter where I might execute the remix.

When we are ready to remix, we come out of the DA-88's and go into Digidesign's Pro Tools where we can assemble or refine a mix that may need only small changes. Also, if I am out of town I can send tapes back to John at our studio/headquarters in New York (The Shire), where he can reassemble or re-edit the song using Pro Tools.

We are finding that anywhere we go, the TASCAM machines are easily accessible and many studios are happy to have them around — even when there's already a digital multitrack in-house. It's a lot safer for us to print the sounds in pairs of tracks, and we don't feel that there is any loss in printing those pairs to digital tracks on the DA-88.

DA-88 USER TIPS

- Although the TASCAM DA-88 machines can format a Hi8 tape while simultaneously recording audio, most users find that sessions run more smoothly when using tapes that have been preformatted.
- When striping SMPTE onto a DA-88 from an external source, be sure that the frame rate on the DA-88 matches the frame rate of that source (refer to the SY-88 manual for this procedure). Failure to do so might cause problems locking to other machines later on. Remember, 30 fps, nondrop-frame timecode is the generally accepted standard for audio.
- When attempting to make a digital clone from one DA-88 to another DA-88, make sure that all direct analog connections between the two machines have been broken. If an audio cable is directly patched between two DA-88's, it can corrupt the digital data stream during the transfer from one unit to the next.
- If you are running a system with multiple DA-88's, consider disconnecting the sync cables (used to lock the machines together) during the format process. Even though the machines are set to internal clock, there might possibly be problems formatting tapes if the sync ports remain interconnected.
- The balanced input and output connectors on the rear of the DA-88 use DB-25 connectors for the interface. Some manufacturers of DB-25 connectors are using screws that are rather soft and can be easily stripped when the connector is secured to the rear panel. Use caution when inserting or removing these screws to avoid stripping out the heads.

—Steve La Cerra

THE PRODUCTION DEAL

Earlier this year, John and I worked on a record by an English act called EG (pronounced "egg"). The DA-88's were used throughout the project, but not in the way you might think. The basic tracks were recorded on 2-inch analog tape (24-track) running at 15 ips with

YOUR ONE-STOP MUSIC TECHNOLOGY SOURCE

For over 12 years, Sweetwater Sound has been dedicated to providing musicians with the very latest technological breakthroughs at affordable prices. From synths and samplers to multitrack recorders and mixing consoles, Sweetwater has everything you need to make your dream MIDI system or home recording studio a reality. Isn't it about time you found out why musicians and engineers around the world have come to depend on Sweetwater for all their equipment needs?

KORG Roland E-MU digidesign KURZWEIL Music Systems TASCAM

Whether you're a first-time buyer or a seasoned pro looking to upgrade your gear, Sweetwater sells products from over 80 of the best names in the business and our prices are so low, you won't have to take a second job just to start making music! With a sales staff that's the most knowledgeable in the industry and a factory authorized service center on premises, you have to ask yourself: why go anywhere else?

Opcode • Mark of the Unicorn • AKAI • Sony Digidesign • Ramsa • Passport • TOA • AKG Panasonic • Digitech • InVision • Nakamichi • JBL Mackie • BBE • Lexicon • Carver • Coda • Rane Fostex Recording • JLCooper • Dynatek • Stewart Soundcraft • TAC Amek • KAT • Crown • Anatek Furman • Oberheim • Tannoy • Juice Goose Tech 21 • 3M, Ampex & Denon Tape Macintosh and IBM MIDI software & interfaces

OTHER MAJOR BRANDS TOO! HUGE IN-STORE INVENTORY!

Our exclusive guarantee: "If you don't like it, we'll take it back — with no hassles!"

NO SALES TAX (except IN)
VISA • MasterCard • Discover
AMEX • COD • Trades

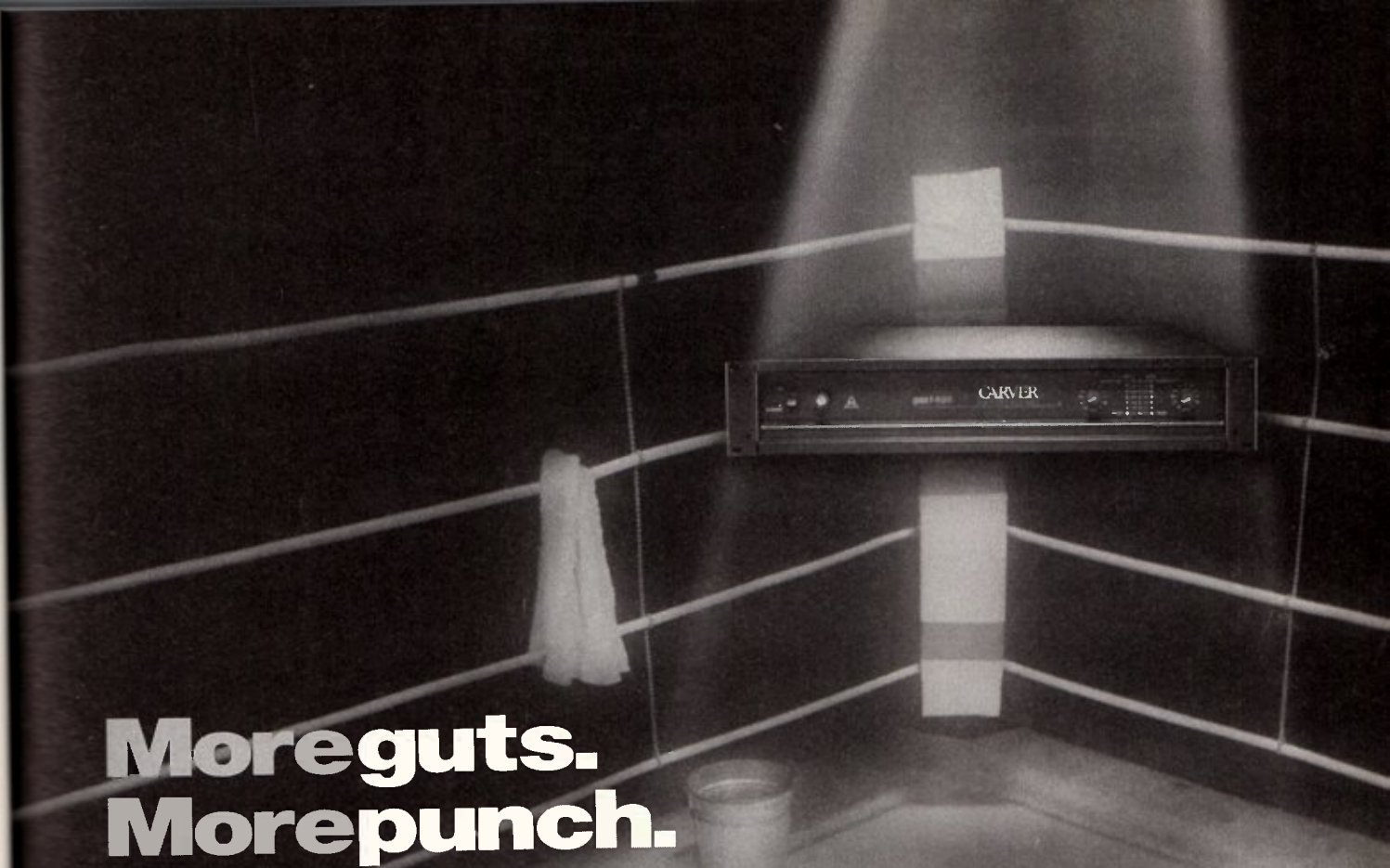
Sweetwater SOUND INC.®

CONFUSED? WHAT ARE YOU WAITING FOR? CALL US FOR FRIENDLY FREE ADVICE AND GREAT PRICES!

5335 BASS ROAD • FT. WAYNE, IN 46808 (219) 432-8176 FAX (219) 432-1758

CIRCLE 72 ON FREE INFO CARD

World Radio History



More guts. More punch.

In this corner... **PM SERIES II** from Carver Professional. • **ALL-NEW** power amplifiers with the guts it takes to go the distance. Night after night, year after year. • PM Series II amplifiers are **MADE IN THE USA** from the highest quality components available. • Tested under the **TOUGHEST QUALITY CONTROL** standards in the industry. • Cooled by an innovative **NEW INTERNAL AIRFLOW** system driven by an ultra-quiet 2-speed fan. • Guarded by **FIVE PROTECTION CIRCUITS**. • And backed by a **FULL FIVE YEAR WARRANTY**. • When low end is high priority, PM Series II delivers **MORE BASS PUNCH**, thanks to redesigned power supply transformers and more capacitor storage. • New, dual two step (class H) power supplies make them **MORE EFFICIENT** at peak power. • If you need **TOUGHNESS AND BRAINS**, plug in an optional **POWERLINK™** module for remote computer control of six functions and monitoring of nine key parameters (including output current) using **MEDIALINK™** protocols. • Only PM Series II amps come standard with **POWER-UP SEQUENCING** and a front-panel **POWER CONNECTED INDICATOR**. • Finally, when it's time for road work, you'll be glad to know that Carver Professional amplifiers remain **LIGHT HEAVYWEIGHT CHAMPIONS**—smaller and lighter than most comparable models. So, when you want your music delivered with maximum impact, count on Carver for a **KNOCKOUT BLOW**.

- XLR and 1/4" TRS inputs (balanced or unbalanced)
- 11-detent level control (defeatable)
- Mode switch for stereo, dual mono, bridged mono
- Internal jumpers for true parallel mono, input polarity reversal, and input sensitivity
- Optional plug-in crossovers and input transformers

Power per channel into 4Ω, both channels driven, less than 0.1% THD

PM700: 350W **PM950:** 475W **PM1400:** 700W

5 YEAR WARRANTY **USA Built.**

PowerLink™ is a registered trademark of Carver Corporation.
MediaLink™ is a registered trademark of Lone Wolf Corporation.

CARVER PROFESSIONAL

20121 48th Avenue West, P.O. Box 1237, Lynnwood, WA 98046 Phon 206 775.1202 Fax 206.778.9453

CIRCLE 15 ON FREE INFO CARD

World Radio History

Dolby SR. We like to run analog tape at 15 ips because the low end is much more punchy, and by using Dolby SR on the tracks, noise is not a factor at the slower speed. As the project moved into the overdub stage, we had a need to put down more keyboard parts, so we formatted a Hi8 tape the night before the session and then put it into a DA-88 machine that had a TASCAM SY-88 sync card installed. We striped SMPTE code onto the tape, using TASCAM's internal timecode track as well as an audio track for redundancy. Now we could record the various keyboards without worrying about whether specific tracks were changing from piano to synth or organ from song to song. We had clean real estate to work with.

At this point in the life of a project, John and I usually get into making work reels that are used to record lead vocal and solo takes that will later be "comped" (composited) down to a smaller number of tracks. Most people would normally get a second analog machine to make the work reels, but renting a second machine and a second SR rack can really bust a budget. Our solution was to get a second DA-88, also with a sync card, and use it to record a work mix of the 2-inch analog tracks and the DA-88 keyboard tracks. This work mix (which now existed on a Hi8 tape) was then transferred back to a fresh reel of 2-inch analog tape onto which we would record vocals. The DA-88 gave us the luxury of doing overdubs on 2-inch tape with Dolby SR without the added expense of renting a second 2-inch machine and a second Dolby rack. We were afforded all the advantages of having that machine while *still* having all the advantages of being able to decide whether we wanted to record a particular sound in digital or analog. It seems to me that people have forgotten how unforgiving analog 24-track can be in the long run. The drum tracks start to deteriorate no matter what you do or what anybody tells you, and the truth is that you want to run the master tape as little as possible.

THE MECHANICS

I have become quite spoiled, having used Sony 3348's, 3324's, and Studer machines for so long. With these machines there is very little mechanical failure, and the 3348 may be the

AN ENGINEER'S TALE

John Patterson, Phil's engineer, tells how the DA-88's were used on two projects.

The EG Man

On the EG project, the basic tracks were recorded to 2-inch analog tape, 24-track at 15 ips with Dolby SR. As a means of providing extra tracks to accommodate the first keyboard overdubs, a DA-88 with an SY-88 sync card was locked to the 24-track master. Meanwhile a second machine — also with a sync card — became available and was used to make the work reels. The 24-track master tape (with Dolby SR) plus the DA-88 keyboard overdub tape were submixed to 8 tracks of the second TASCAM deck to serve temporarily as the work tape. The 2-inch master tape was taken off the analog machine and a fresh reel of tape (striped with SMPTE code) was put on. The second DA-88 tape (with the submixes) was locked to the analog multitrack machine, and then the digital tracks were bounced over to the 2-inch work reel. This negated the need to rent a second analog machine with another Dolby SR rack. Later on, the second DA-88 was used to make a safety of the overdub keyboard tape.

Back at The Shire (Phil's production studio), the DA-88 machines were used to make safeties of the overdubs from the analog work tape — just in case something accidentally got erased (nothing did). We also used the DA-88 to comp the lead vocal (without losing a generation the way we would using analog tape) and to fly in background vocals. The comped lead vocal, now on digital tape, would later be bounced back to the analog work reel for reference purposes only. Because we had safeties of the analog overdubs, we always had the option of going back to an older "precomp-track" performance of a vocal, guitar solo, etc.

During the mix sessions at Ambient Recording, we used a total of five DA-88's. Three of the machines (24 tracks total) chase-locked via SMPTE to the original 2-inch master tape to make a 48-track mix session. Those DA-88's had bounces from the analog work tape, the original keyboard overdubs, and digital bounces from the lead vocal 8-track tape. To facilitate remixes or future revisions of songs, mix "stems" (the stereo pairs that Phil referred to) were recorded on the other two DA-88 machines. The tapes with the stereo pairs were used later to accomplish an edit request for one of the songs. Again, safety/clone tapes were done immediately after the mixes, using the machines at hand.

The Chair Man

For Sinatra's *Duets II*, DA-88 tapes were the medium by which The Shire, Crescent Moon (Gloria and Emilio Estefan's Miami-based studio), and arranger Patrick Williams were able to exchange tracks or orchestral arrangements. Using the IF-88AE digital interface, single or multiple tracks of information from a Hi8 tape can be isolated and transported without having to ship a 3348 master or rent a 48-track machine. Also, most of the duet arrangement demos were done on a DA-88 at The Shire. We format tapes in the DA-88's at night before we leave the studio and they're ready in the morning. Although in some instances it is possible to record and format a tape simultaneously, I highly recommend that you preformat tapes to ensure smooth operation of the machines.

We are considering a way to take advantage of the long length of the tapes (upwards of 1:48:00) by using the tapes for archival purposes. In theory, you could save or backup well over seven hours of stereo information on a single 8-track tape, which would save both money and storage space. —*John Patterson.*

PHIL FINDER: *EQ* finally managed to track down the author/producer for a photo session when he recently stopped in to do a session at Conway Recording in Los Angeles.

World Radio History

projects.

e, 24-
accom-
was
th a
The 24-
ne were
as the
nd a
A-88
and then
ed the
er on,
tape.
used to
some-
omp the
ape) and
, would
ly.
ion of
olo, etc.
e DA-
the
8's had
nd digi-
ure revi-
recorded
used
clone
nd.

Crescent
rick
the IF-
tape can
a 48-
duet
n a DA-
in the
the studio
Although
record
I highly
pes to
achines.
take
he tapes
he tapes
you could
hours of
track
ney and
Patterson.

TUBE TECHNOLOGY

Give your recordings the smooth, warm tone of **Tube Technology**, a series of Valve based mixers and signal processors from TL Audio....

$4,495

TL Audio 8:2 Tube Mixer
4 Band valve equalisation, balanced busses, valve mix amps, balanced outputs. Link facility providing 16, 24, 32 etc. channels.

$595

Dual Tube Mic Pre-amp/DI
Mic & instrument inputs, peak LED, +48v phantom power, switchable sensitivity, variable gain control, rack ears included.

$1,595

Dual Pentode Tube Pre-amp
Transformer coupled mic input, +48v phantom power, input/output gain controls, front panel instrument input, Phase reverse switch, Filters.

$1,395

TL Audio Tube EQ
2 channels x 4 band valve EQ, balanced mic & lines, +48v phantom power, front panel AUX input, bypass switch.

$1,595

TL Audio Tube Compressor
Pre-amp valve compressor, balanced mic & line inputs, +48v phantom power, 2 AUX inputs, variable 'soft knee' compression.

TL Audio In-Line 8 Buss Tube Mixer
4 Band valve equalisation, balanced busses, valve mix amps, balanced outputs. Modular expandable in 8 channel sections to 56 inputs. (Module left)

TL Audio Classic Console: IC, Transistor or Tube modules
The NEW Modular expandable in-line/split, recall ready, multitrack studio console. All three technologies can be mixed within the console. Custom film version made to order. (8 channel section left)

SASCOM MARKETING GROUP
Canada & USA:
Sascom Marketing Group
Tel: +905 - 420 3946
Fax: +905 - 420 0718

TL Audio
Worldwide Distribution
Tony Larking
Professional Sales Ltd.
Letchworth, SG6 1AN (UK).
Tel: +44 (0)462 490600
Fax: +44 (0)462 490700

Distributor enquiries for other territories welcome

CHOICE 54 ON FREE INFO CARD

World Radio History

COOL STUFF, GREAT PRICE!

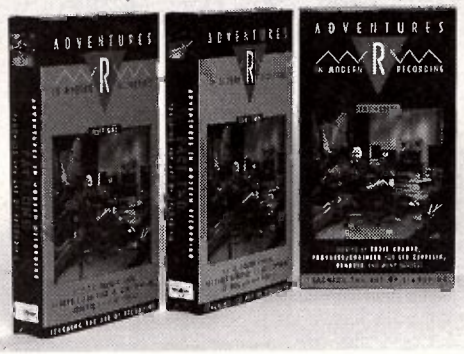
CM AUTOmation manufacturers powerful tools for audio control. Check out the MX-16 automated level controller, MX-28 automated stereo mixer, PM-216 audio router/ patchbay, FX-100 control console and MIDIcam 2.0, our automation software for Macintosh®.

CM AUTOmation

Distributed by KENgineering
512 LaVerne Ave. Hillside, Illinois 60162 708/449-7269 • FAX 708/449-5560
AUDIO ANIMATION FOR THE 90'S

CIRCLE 16 ON FREE INFO CARD

ADVENTURES IN MODERN RECORDING



"I COULD HAVE LEARNED MORE ABOUT RECORDING FROM WATCHING THIS VIDEO SERIES THAN I DID IN THE FIRST FIVE OR MORE YEARS OF MY PROFESSIONAL CAREER."
—JIMMY WALDO (ALCATRAZZ/QUIET RIOT)

FOR THE FIRST TIME ON VIDEO!

Learn the Art of Recording from the creators of dozens of gold and platinum records.

Engineers for Led Zeppelin, Mariah Carey, Jimi Hendrix, Rolling Stones, Michael Bolton, the Beatles, among many others, shows you how to make studio quality recordings at home, covering everything from portastudios to the latest 24 track digital home recorders.

Part One: Essential elements of recording! 2 hrs. **$49.95***
Part Two: Follow a band through the complete Recording Process! 90 mins. **$49.95***

Order now and receive the entire 3.5 hr. series for only **$69.95***
The series, starring Eddie Kramer, includes a visit with Les Paul himself!!!

CALL **1-800-995-9664** TODAY!
*Plus shipping and handling.

SEND CHECK OR MONEY ORDER TO:
PREMIUM ENTERTAINMENT
1025 SANSOME STREET
SAN FRANCISCO, CA 94111

OR

CONTACT YOUR LOCAL MUSIC STORE.

CIRCLE 58 ON FREE INFO CARD

best musical tank known to man. It's a workhorse, but it's just not always affordable in the budget. John and I did a session where we recorded drums to the DA-88's, as well as to analog tape, to see if the DA-88's could play back all of those transients — and the DA-88's sounded great. If we want to, we can even use the TASCAM IF-88AE interface to connect Apogee converters to the digital input of the DA-88. From the engineer's point of view, I appreciate the reliability and fast lockup that the units provide. The machines are consistent, whether we are using the ones we own, rentals, or in-house studio machines. Lockup is not a problem, whether the DA-88's are chasing a 48-track digital machine or a 2-inch analog machine running at 15 ips.

BALANCING THE BUDGET

I recently had a meeting with a particular record company whose artist was both quite creative and very comfortable in the home environment. I explained that it was *very* reasonable for the company to get the artist a Mackie board and a couple of DA-88's to use at home. My biggest recommendation, whether for a young artist or a veteran, is that there be an ability to record vocals at home. Bring in an engineer, sit that engineer down wherever he or she is comfortable (most people have a room that is sensibly quiet), and go to work.

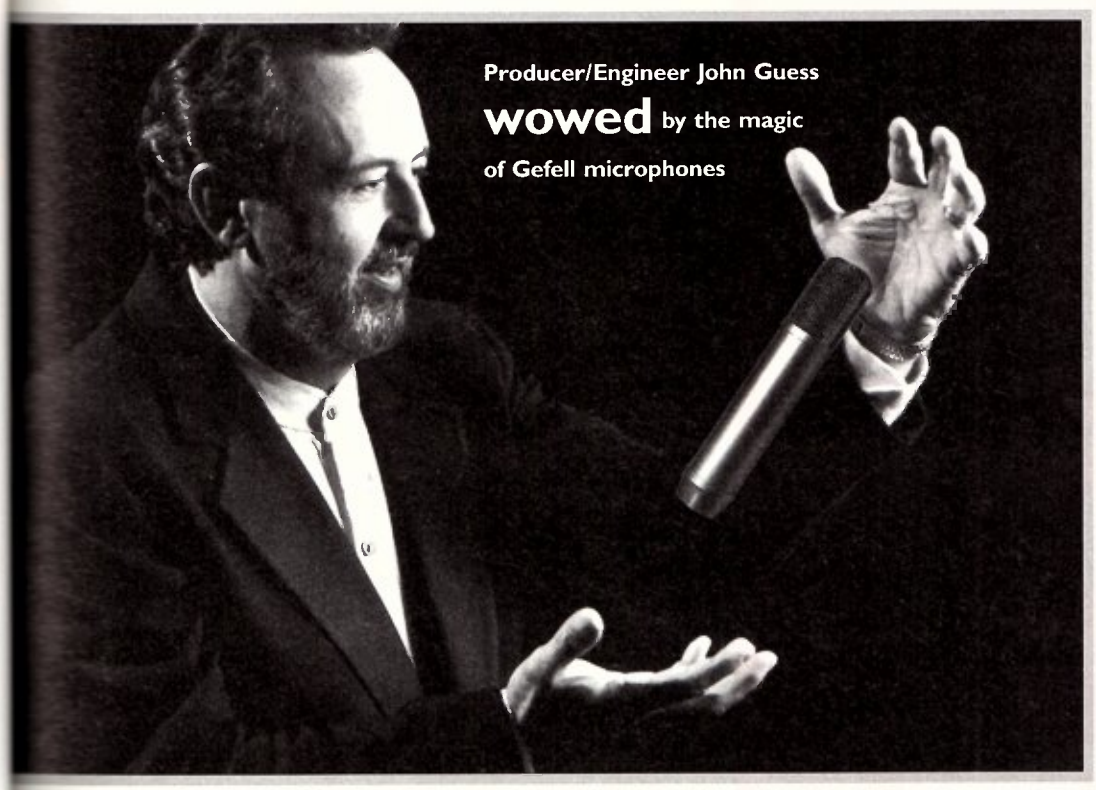
Through my years of working as a producer, I have heard many great performances that were recorded on home tape machines and had to be reperformed because of poor sound quality. There have been far too many bass parts that I've loved and wished I didn't have to redo. If the artist has a quality recording machine in the house, you are on the road to incredible music. You can now edit, comp, or overdub, and before you know it you have good material — *without* the pressure of the clock.

THE FINAL TRACK

The TASCAM DA-88's have proven to be reliable, durable machines that happen to be affordable and use tape that is easily accessible. Adding tracks to our productions is as easy as adding another machine (providing the first one has the sync card) and backing up both the original tracks and our mixdowns is quite cost-effective. In our business, time is money, and by reducing the amount of money required to achieve quality recording, the DA-88 leaves more time for making music — and that is the bottom line. EQ

World Radio History

Why do they call it Gefell?



The only microphones in the world made with the legendary M-7 capsule

For decades the ultimate quality standard for studio microphones was embodied in the name of one man—Georg Neumann. Then the company that bore his name was bought by a multinational firm that changed the production methods. Would that unique sound be lost forever? Yes, but...

Magically, in a remote village in the former East Germany, G Prime discovered that the manufacturer of these extraordinary mikes had been divided after World War II. The originator continues to hand-build the same pristine designs to the same microscopic tolerances, incorporating them into current models, and branding them with the name that was once hidden behind the Iron Curtain: **Microtech Gefell.**

G PRIME

TEL 212 765-3415 FAX 212 581-8938

CIRCLE 51 ON FREE INFO CARD

World Radio History

"For the past ten years, I've used Hafler amplifiers here at Capitol's "Tower Mastering." I'm more than pleased with the sound quality and dependability they provide. The many artists I've mastered know they can rely on our monitors when they're powered by Hafler."

WALLY TRAUGOTT
TOWER MASTERING • CAPITOL RECORDS

"IT'S RIDICULOUS! Excellent bass control, great harmonic detail, the 9505 Trans•nova is another level up in overall performance."

TOM JUNG
DMP RECORDS

"...Once in a while a product comes along that is an incomparable value. Hafler power amps fit squarely into that category: pure abundant transparent power amplification, no gimmicks, and no high price tag. If only all equipment decisions were so easy..."

PAT SCHOLES
DIRECTOR OF ENGINEERING
ARDENT STUDIOS

"I mixed my new album, 'Music From Here' on Hafler. It was an exhilarating experience! While other amplifiers make claims of punch as well as transparency, Hafler delivers the goods consistently. NO OTHER AMP COMES CLOSE! End of story."

RONNIE MONTROSE
RECORDING ARTIST/PRODUCER

"Clean unleashed unmasked raw power at its best . Hafler amplifiers are the bitchenest amplifiers on the planet."

PATRICK WEBER
RECORD PLANT, MCA RECORDS, CAPITOL RECORDS,
PATRICK WEBER ENGINEERING

Hafler's new Trans•nova reference amplifiers!
"Finally there's an amp I can really cheer for!"

PAUL HOLDGATE
LEAD SINGER OF SMG'S, THE FEAR
"AS FAR AS THE EYE CAN SEE"

Hafler®

THE SONS OF trans•nova ARE BORN IN THE USA !!!

"While I am not a full-time audio production professional, I do take my home studio projects very seriously. Armed with a computer and affordable hardware and software, I believe that a small studio like mine does have the necessary cutting edge tools to produce professional results. However, the one area where I believe that most studios fall short is in their choice of studio referencing equipment. Today's high-end, yet affordable, digital goodies demand equally affordable, pro quality outboard gear to bring out the best that these production tools have to offer. Face it, your PA amp with its noisy fan may be great at live gigs, and your cheap watt-per-dollar "unbalanced studio" amp may sound okay driving your stereo speakers, but they just don't cut it under studio monitoring conditions.

Hafler amps, however, deliver in both respects. The soundstage and depth that I get out of my "balanced" Hafler trans•nova is unbelievable, particularly when you consider the cost of this amazing amplifier. And my Hafler's crystal clear imaging creates a perfect mixing environment for my small studio which rivals those big budget mixing rooms downtown."

BILL REYNOLDS: SR. VP - SUTRO & CO. INC.
OWNER-BEAR LEFT STUDIOS, HOLLYWOOD, CA

9303/9505 7 yr. warranty $1300/$2200

P-3000 5 yr. warranty $799

P-1500 5 yr. warranty $549

Hafler introduces four brand new amplifiers, all with Jim Strickland's award winning and patented Trans•nova circuitry. Ultra high-end reference amplifiers at an amazing price.

MADE IN THE USA

Hafler Trans•nova Technology... A NEW STANDARD

HAFLER PROFESSIONAL, A DIVISION OF ROCKFORD CORPORATION
TEMPE, ARIZONA 85281 USA
1-800-366-1619 • INTERNATIONAL FAX 602-967-8132

CIRCLE 63 ON FREE INFO CARD

World Radio History

EQ LIVE

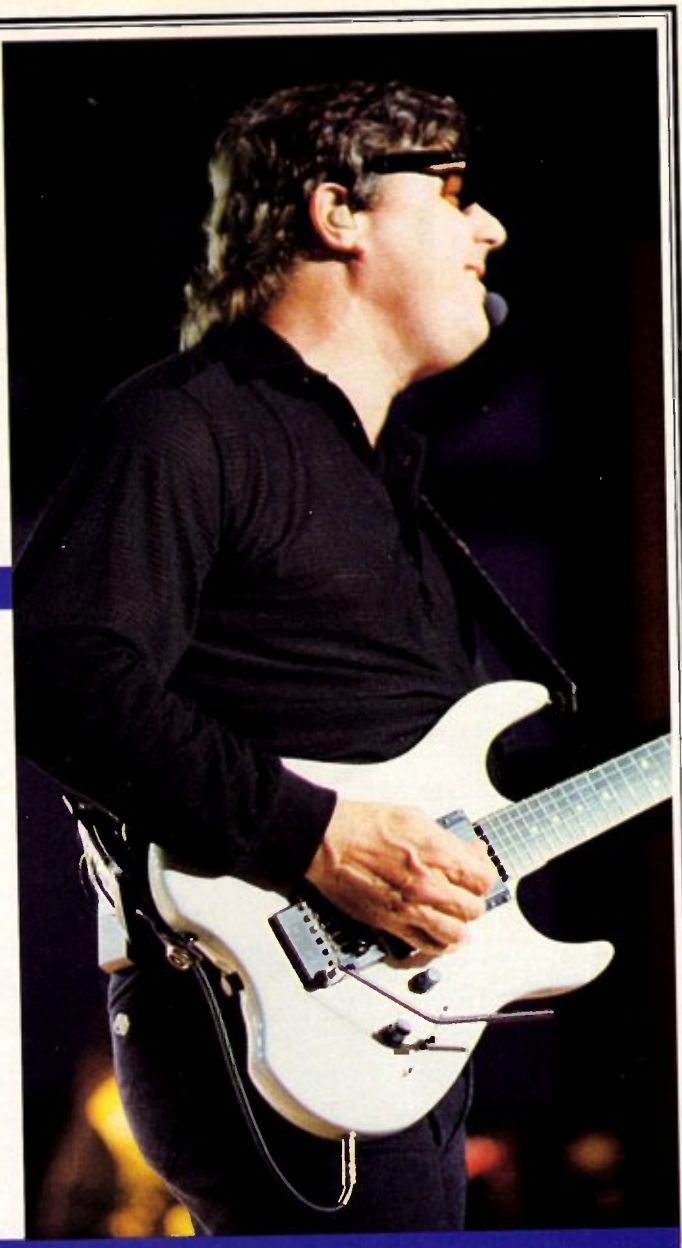


Photo by John Popplewell

In Your Ear Pt 2: Steve Miller

How the Space Cowboy uses in-ear monitors on tour to protect his hearing and obtain the absolute sound-on-stage

By Steve La Cerra

LAST ISSUE, we discussed the cost-effective in-ear options that are available to gigging bands. This issue, we take a look at an artist who has been using in-ear monitors since their beginning: Steve Miller.

Why did you make the change to in-ear monitors?

I had stopped touring early in 1983 and when I went back out on the road in 1987 I discovered that PA and monitor systems had become really powerful. I would be on stage trying to perform with the monitor engineer sending 120 dB SPL to my stage monitor. I have always taken very good care of my hearing and every time we went out on tour I would be saying, "You've got to stop turning this monitor system up." We had PA engineers who kept turning the PA up and we were caught in a Catch-22 that went like this We had amplification

CIRCLE 17 ON FREE INFO CARD

World Radio History

on the stage that had to be loud and powerful enough to give us the sound we wanted on any given stage. The PA system had to be loud to overcome the amplification on stage. Then we had this monitor system that was aimed at the band and it was like having a second PA right in front of us. The monitors were beginning to make my ears ring. I was having arguments with people who were really not my employees (just people I hired that year) because they were going to make everyone in the band deaf and I'd be the first.

Photo by John Popplewell

AN EAR FOR MUSIC: Miller's entire band and crew wear in-ear monitors.

At this point were you carrying your own monitor rig?

No, I was hiring monitor rigs. My production manager arranged what was considered the state of the art in monitors. But both the monitor people and the front-of-house people did not understand what they were doing to the musicians on stage. The whole system was way too loud and I had to do something, so I started looking into some options. I found a guy that built a system for Stevie Wonder. Every now and then I'd see Stevie on TV and he'd be wearing those little ear pieces.

Was Stevie the first one you had seen using them?

Yes. I found the guy who designed that system and he explained that it was a little stereo FM radio transmitter/receiver. I liked the idea and asked him to build me seven of them. So we went out on tour without the conventional monitor system. Instead, everyone had custom-made ear monitors using this very funky FM broadcasting system.

We were one of the first bands to have everybody using ear monitors — I started to develop the idea along with Blake Suib, Frank Farrell, monitor systems engineer Steve McCale, and Marty Garcia from Future Sonics. I wanted hard scientific data. I wanted to know what we

TAKING A SOUNDPROOF SYSTEMS APPROACH TO STAGE MONITORING

As owner of Soundproof Enterprises, Inc., Steve McCale has worked as the monitor systems engineer with U2, Barbra Streisand, and Kitaro, as well as with The Steve Miller Band. *EQ* recently spoke to Steve to get the dope on the in-ear system that Miller's band is using.

Each member of the band is using a Future Sonics in-ear monitor system, and everyone is wireless except for the sax and bass players. All the mixes are handled by the band's two monitor engineers — Blake Suib and Frank Farrell — except for the mix going to drummer Gordy Knudson. Gordy has a Mackie CR-1604 that receives a set of instrumental submixes he can adjust for himself during the show.

Both Suib and Farrell listen through their own ear monitors during the show and McCale has built a custom remote-control switching matrix that allows the MEs to cue any mix to their ear pieces, much like a conventional monitor system. But the similarity ends there. All mixes pass through an Aphex Dominator set for brick-wall limiting as a means of protecting the users' ears as well as the ear monitors. Each wireless mix is broadcast to a specific performer and McCale stresses how important it is that the MEs are listening to the *broadcast,* not to the signal being sent *to* the transmitter. The broadcast signal will be post-Dominator and thus more accurately indicate what is actually reaching the musician's ears.

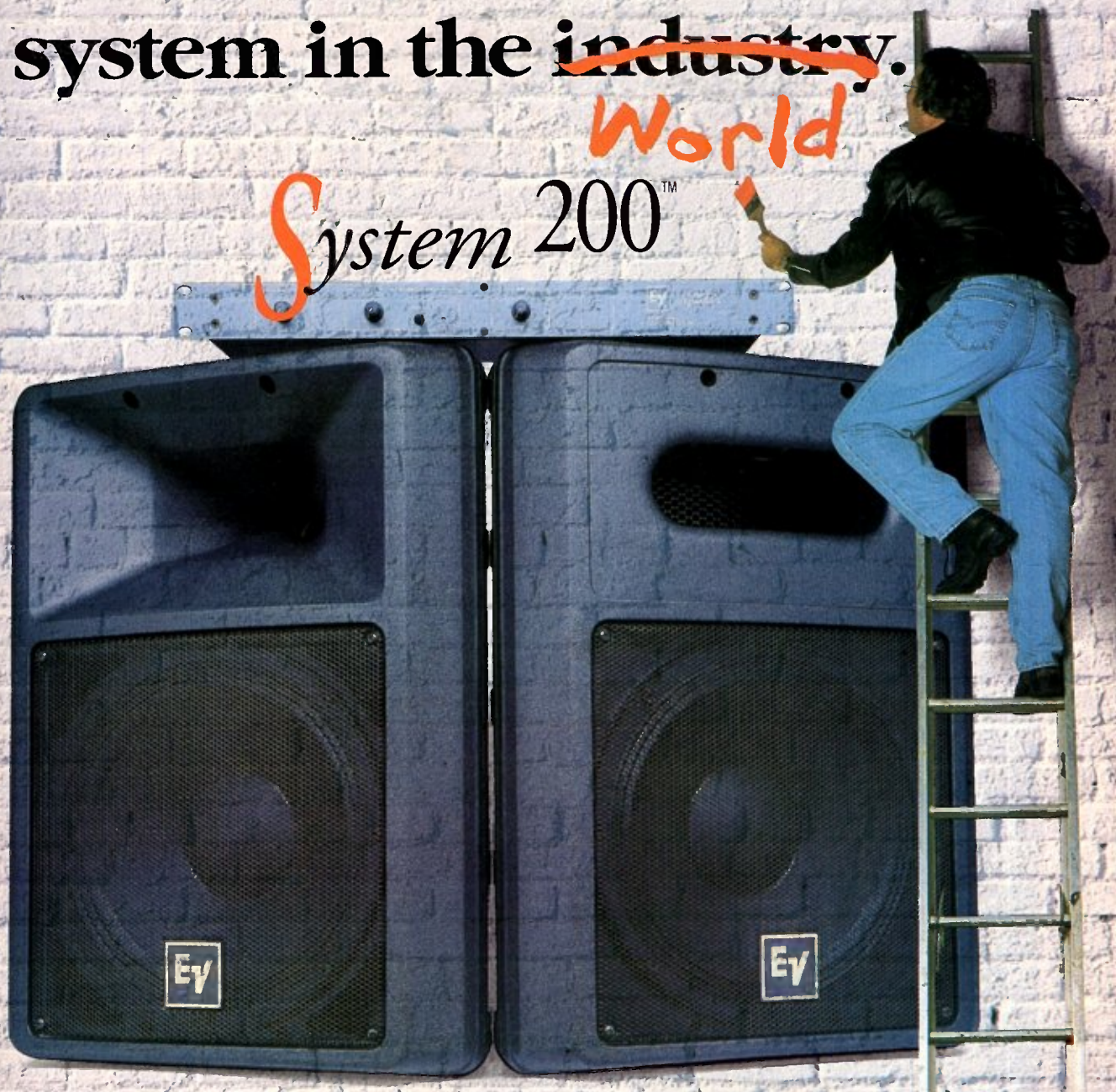
The Future Sonics Radio Station transmitters are operating in the UHF band (high 400–500 MHz range), where McCale notes that interference has not been a problem. There are three backup systems (one wireless, two wired) and any mix can instantly be re assigned to any of the backup monitors in the event of a failure. The matrix can also allow Suib or Farrell to monitor the cue output of either monitor console for purposes of soloing.

McCale is adamant about a band's commitment to doing it right. He explains that in-ear monitors do not excel when used in addition to conventional monitors. The output of the ear pieces maxes out somewhere between 100 and110 dB, and the roughly 115 to 120 dB output of a wedge can negate the acoustic seal of the ear piece. McCale also points out that using a wedge and ear pieces will result in a time alignment problem: the wedge sound will be late at the user's ears. Since the backline can overcome the seal of the ear piece, it too should be eliminated. A band really must make the effort to eliminate as much stage amplification as possible and not fall back on conventional monitors.

McCale's final comments concern the peripheral equipment involved in the system. "Most people don't realize that with an in-ear system, they will be able to hear the difference between processors such as reverbs and compressors. With conventional monitors, having top-shelf processing isn't always necessary because you really won't hear it. But the in-ear system is capable of tremendous subtlety when used properly. A band cannot buy this gear off the shelf and expect to be able to go out and use it without working out the details."

World Radio History

We think it's the best sound system in the ~~industry~~ World.



You want rich, dynamic sound that will reach everyone, even in the noisiest rooms...and chest-pounding bass that'll get your blood pumping...all in a lightweight, stackable, mountable and arrayable enclosure that won't break your back. Now, you can have it.

System 200™ Modular Pro Audio will radically alter your view of what's possible in a compact sound reinforcement system.

The Sx200 trapezoidal 300-watt, two-way provides ultrahigh sensitivity–more than 126 dB SPL continuous. So sound is rich, clean and more powerful than anything you've heard before.

The Sb120a powered bass module weighs just 34 lbs., yet features an integral 400-watt amplifier that pounds out the deep bass previously available only in much larger subwoofers.

The Xp200A controller perfects the package–it can extend the overall bass output by up to 12 dB, without compromising sound quality.

Our customers think we're too modest.

Sound too good to be true? Our customers think so.

Call 800/234-6831 or your EV dealer for a demo of the ~~industry's~~ world's finest.

EV

Electro-Voice, Inc. a MARK IV company 600 Cecil St. Buchanan, Michigan 49107 616/695-6831 **800/234-6831** In Canada: 613/382-2141

CIRCLE 30 ON FREE INFO CARD

World Radio History

ON THE GO: Steve Miller's touring rack.

were being exposed to and, in addition to having everyone's hearing tested, we called in scientists who were interested in what we were doing. They brought test dummies to rehearsals, put them on stage with earphones, and measured the SPL.

How did all this change your onstage setup?

Well, when you go to see a rock and roll concert with a lead guitar player who is using two Marshall stacks and he turns it up to 10 1/2 to make it sound the way he wants it to sound, he is competing with the PA. The FOH engineer can't mix like that and I was determined to change it. After a year or two we took all the speaker cabinets off the stage. Everything is now isolated in tuned cases. My guitar is wireless and the cabinet is offstage in a tuned case. My bass and keyboard players go direct. The only instruments that are actually live onstage are the sax, the drums, the harmonica, and our voices. Everything is under control and we hear it as though we were in the studio with a stereo mix.

We have two monitor consoles, and the two monitor engineers, Blake and Frank, handle mixes for all seven of us. Each band member gets his own custom tailored mix. I don't hear my instrument on stage — I hear it through the earphones. The FOH engineer hears almost nothing coming off the stage. It is his PA system being heard throughout the building and the difference is like the difference between analog and digital. The sound is about 50 percent cleaner on the bottom and you can hear the vocals much better. All of a sudden everything is cleaned up and the sound is fabulous. We are really using the PA system instead of competing with it through a loud monitor system and our amps are not blowing out at the audience and the FOH engineer. Every year we test the crew's hearing and I'm glad to report that out of 46 people, I have the third best hearing.

And you don't feel beat up at the end of the night?

Oh no. I can sing to 25,000 people and use my voice just the way I am using it now, talking to you. When I play

A Dozen Projects, One Microphone!

Vocals, acoustic and electric guitar, piano, tom toms, snare, cymbals and oh yes . . .even kick drum. This uniquely designed condenser microphone features a servo head amplifier delivering unparalleled transparency and sonic performance, allowing you a level of flexibility not available from any other microphone.

. . . and all this flexible performance can be yours at a price making owning a dozen a wonderful possibility.

Also available in matched pairs.

The incredible Equitek E-100 Microphone from CAD.....Who Else!

For an authorized CAD dealer near you call !
1 800 762 9266

CAD
Conneaut Audio Devices
a division of CTI Audio, Inc. 341 Harbor St. Conneaut [illegible] 4030

CIRCLE 19 ON FREE INFO CARD

SEE US AT NAMM BOOTH # 979

World Radio History

Imagine Getting Slammed In The Chest With A Sledgehammer.

Now that you know what kind of low end these amps have, let's talk about why. Crown amplifiers are engineered with a damping factor in excess of 1000 (10 Hz to 200 Hz) while most amps are lucky to manage 50 to 100 over the same frequency range. The result of this high damping factor is incredible speaker control for some of the tightest, bone-rattling bass you've ever felt.

Low end isn't the only reason to love these amps. Listen to the other end of the spectrum and you'll hear highs that are crystal clear, revealing every nuance of your music. In other words, sonic purity, with no coloration—as heard only through a Crown.

No other amplifier is as faithful to live and recorded sound as Crown. That's why we're found in the racks of the largest tours and the hottest recording studios worldwide. But don't take our word for it. Compare the sound of a Crown amp head to head with the competition and hear it for yourself.

For complete information on Crown amplifiers, including a free copy of our informative brochure *Amplifier Specifications—Facts & Fiction*, see your Crown Dealer or call us toll-free at 1-800-342-6939 ext. 11.

crown
Guaranteed Excellence

P.O. Box 1000 • Elkhart, IN 46515 • (219) 294-8000 • Fax (219) 294-8329

CIRCLE 79 ON FREE INFO CARD

World Radio History

IN-EAR MONITOR EDUCATION 101

By Jon Lee and Marty Garcia of Future Sonics

Musicians' Ear Plugs: While we very much support the use of custom earplugs, musicians should be aware of the natural tendency to increase their onstage SPL. This can be detrimental to people onstage as well as offstage.

Equipment Pricing: Audio quality is everything. A full-bandwidth signal with plenty of headroom is imperative with an At Ear Monitor (AEM) system. If frequencies are weak or missing, users tend to turn up the volume in an attempt to feed the brain the audio information it is listening for. This increase in level can be harmful to the ear. Also, be advised that a good set of AEM instruments will flag any deficient piece of upstream equipment. Simply put, when you weigh quality against price, remember that it is your hearing that is under consideration.

Feedback: A high-quality AEM system is a closed audio loop and is virtually incapable of feedback. However, the audio signal produced by feedback from another source can be delivered to the AEM system through the user's mic. This situation is a strong argument for the use of limiting on the signal feeding the AEMs.

Limiting: We cannot overemphasize the importance of a high-quality peak limiter (preferably multiband) on AEM systems. In an advanced AEM system the operator uses a limiter to define the maximum comfortable listening level to be delivered to the AEM instruments. The limiter is also used to control the peak overshoots throughout the course of the program. A high-quality limiter circuit will transparently eliminate these overshoots.

lead guitar, the guitar sounds big and fat and has the right sauce on it, but it's at about 80 dB — not 110 dB. Anybody that does this kind of work should have an in-ear system. Some people think, "I'm not gonna put that stuff in my ears," but that is just ignorance. Between Steve, Marty, Frank, and Blake we have developed a system that is very easy to use and goes up really fast. There is nothing technically complicated about it, and once you go through the learning curve, it gets really easy.

Are the monitor engineers also wearing ear pieces?

Yes.

Have they had to have any special training to run the in-ear systems?

When Blake and I started this, the first people we dealt with made it sound very technical. After the system was built, we sat down and looked at it and said, "OK this is easy — there is nothing to this." It is like running a baby radio station — transmitter and receiver. We kept making refinements and when we ran into Marty we were able to stop having to develop it ourselves. He understood what we wanted to do and realized that it starts with the musician's comfort level: Marty always made the best ear pieces.

Does the whole process make for a more lengthy soundcheck?

No. We're pretty unusual in that we start our soundcheck at about 3 o'clock and the whole band does vocal exercises for about 40 minutes. That gives you an idea of the level of excellence we work toward. But sometimes

weiss engineering ltd. digital audio, Florastrasse 10, 8610 Uster, Switzerland, Tel. +41 1 940 20 06
Fax +41 1 940 22 14

conversion kit

«The SFC1 is a great addition to our compliment of state-of-the-art gear. Good sounding sample frequency converter, the ability to re-sync digital signals, digital re-dithering and a great format converter box make the SFC1 an excellent value.»

Bob Ludwig
Gateway Mastering Studios, Inc.

Weiss Gambit Series SFC1 – the ultimate Sampling Frequency Converter and Advanced Noiseshaping Redither.

weiss

☐ Please send detailed information to:

Company: Name:

Address: Country:

weiss engineering ltd. digital audio Florastrasse 10 8610 Uster Switzerland

CIRCLE 91 ON FREE INFO CARD

WANT TO RECORD SOUND LIKE A PRO? OF COURSE YOU DO

That s why you need the award winning **SHAPING YOUR SOUND** video series.

Over 6 ½ hours of high quality, easy to understand demonstrations, tips and techniques on 5 videotapes. You'll learn every facet of modern recording, including MICS, REVERB & DELAY, MIXERS & MIXING, EQUALIZERS, COMPRESSORS & GATES and MULTITRACK RECORDING.

132 chapters cover everything from *AMPS* to *ZERO* level. Miking guitars, busses, miking vocals, delay time, the signal path, mixing in layers, attack & release time, bouncing tracks & overdubbing and MUCH MUCH MORE!!

SHAPING YOUR SOUND includes hundreds of demos, animated sequences and live music examples in HI-FI stereo. There has never been a more complete and comprehensive series. **SHAPING YOUR SOUND** received the only 11 rating in the history of **MIX** magazine. In use in hundreds of recording schools worldwide.

YOU'VE SPENT THOUSANDS OF DOLLARS ON YOUR HARDWARE
NOW LEARN HOW TO USE IT!
FOR ONLY

$99.95

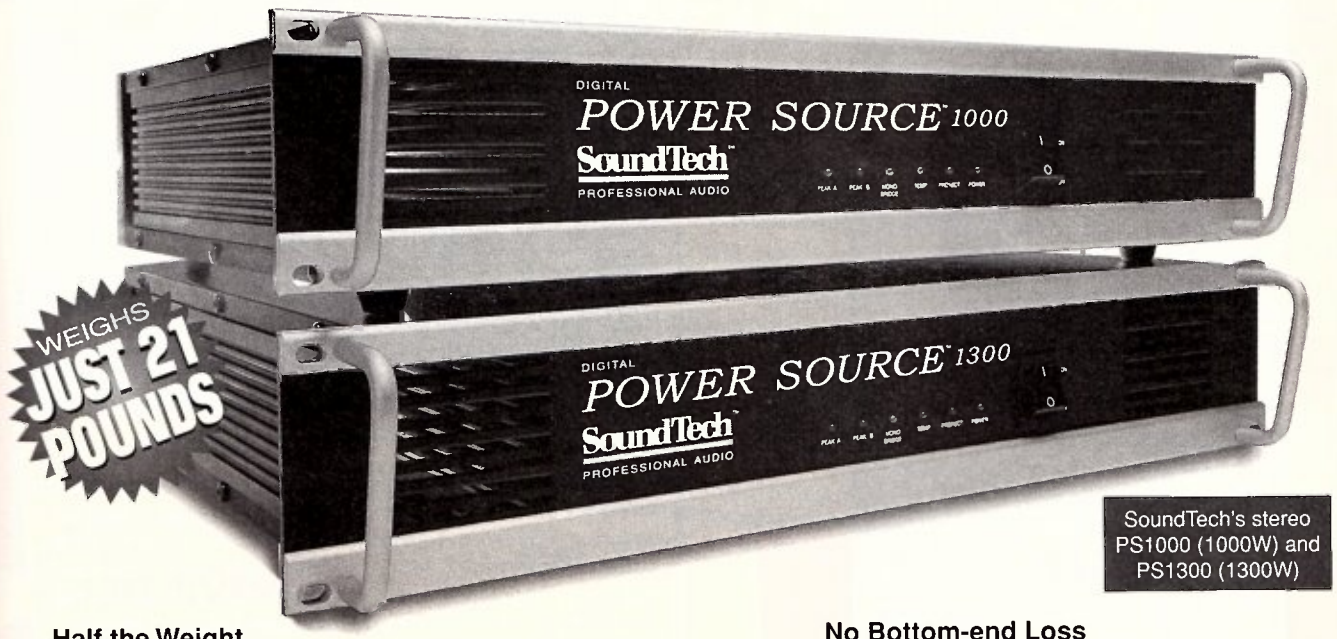
CALL 1-800-777-1576 TO ORDER NOW
FIRST LIGHT VIDEO PUBLISHING DEALER INQUIRES WELCOME

CIRCLE 34 ON FREE INFO CARD

World Radio History

LOSE THE FAT, KEEP THE MUSCLE

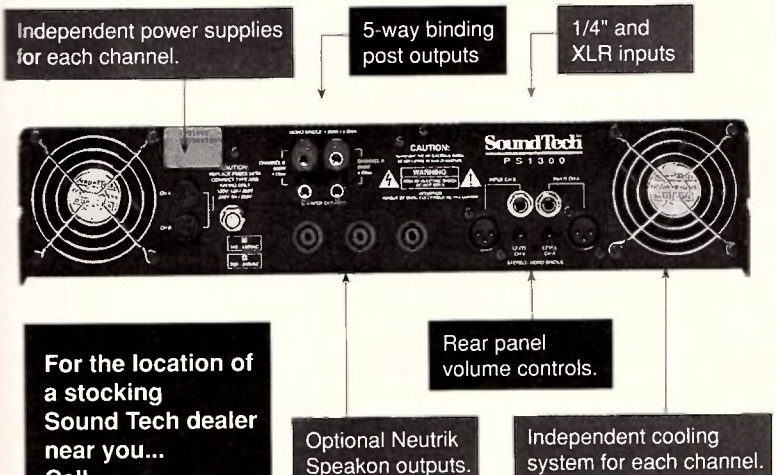
Heavyweight Digital Power, Lightweight Package



SoundTech's stereo PS1000 (1000W) and PS1300 (1300W)

Half the Weight

If transporting your gear rack reminds you of moving a *refrigerator*, we have some good news for you. The new SoundTech Power Source™ power amplifiers deliver all the power you'll ever need and weigh *less than half* as much as conventional power amplifiers (*and light on your budget, too*).



For the location of a stocking Sound Tech dealer near you... Call 1-800-US-SOUND, ext. 131 / 132

No Bottom-end Loss

The rumors are true. With *other* manufacturers' digital power amps, there's a noticable loss of low end. But the Power Source gives you *tons of bass response* with plenty of headroom for crisp, clear mids and highs.

Complete Rear Panel Control

All controls and connections are professionally located on the rear panel. Quarter inch and XLR inputs plus binding posts and Neutrik Speakon™ outputs make the Power Source amplifiers compatible with *all* pro audio equipment.

Trim the Fat

Lighten up your rig with a PS1300 or PS1000 power amplifier. At only twenty-one pounds with all these features, we definitely have the competition *out-muscled*.

SoundTech™

PROFESSIONAL AUDIO

255 Corporate Woods Parkway
Vernon Hills, IL 60061-3109 USA (708) 913-5511

CIRCLE 88 ON FREE INFO CARD

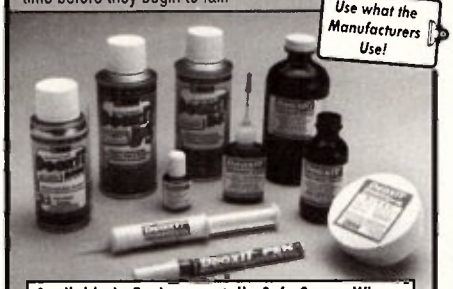
World Radio History

CONTACT CLEANERS ARE NOT CREATED EQUAL

DeoxIT™

- Improves Conductivity
- Reduces Noise & Distortion
- Deoxidizes, Cleans & Protects
- Reduces Intermittents
- Reduces RFI, Wear & Abrasion

Even the finest equipment cannot guarantee noise-free operation. One "dirty" connection anywhere in the signal path can cause unwanted noise, distortion and signal loss. Considering the hundreds (if not thousands) of connections in electronic equipment today, it's only a matter of time before they begin to fail.



Available in Environmentally-Safe Spray, Wipes, Pen, Precision Dispensers & Bulk Containers

Some film deposits are effectively removed with "wash-type" cleaners such as contact/tuner cleaners, degreasers, alcohols and other solvents. Oxides and sulfides, however, become an integral part of the contact surface and cannot be removed by ordinary contact cleaners.

DeoxIT dissolves oxides and sulfides that form on metal surfaces, removing these sources of resistance. This restores the contact's integrity and leaves a thin (organic) layer that coats and protects the metal.

DeoxIT's advanced formula contains deoxidizers, preservatives, conductivity enhancers, arcing and RFI inhibitors and anti-tarnishing compounds that significantly increase the performance and reliability of electrical components and equipment.

DeoxIT provides long-lasting (1-10 years) protection, reducing the expense of repeated cleaning with expensive and aggressive ozone-depleting solvents.

DeoxIT outperforms & outlasts all other contact cleaners. Non-flammable, Safe on Plastics & Environmentally-safe.

CAIG PRODUCTS . . . USED BY THOSE WHO DEMAND THE BEST!

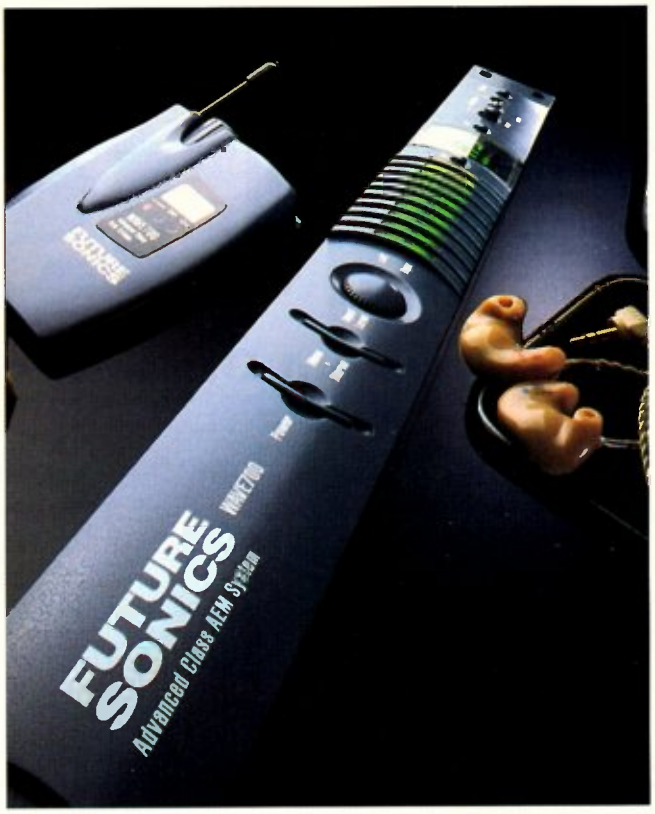
Ampex	Federal Express	Honeywell	Switchcraft
Boeing	General Electric	McIntosh Labs	Tektronix
Diebold Inc.	John Fluke Mfg.	Motorola	Texas Inst.
Dolby Lab.	Hewlett Packard	Nakamichi	Xerox Corp.

CAIG LABORATORIES, INC.
16744 West Bernardo Drive,
San Diego, CA 92127-1904
TEL: (619) 451-1799,
FAX: (619) 451-2799

1-800-CAIG-123

CIRCLE 12 ON FREE INFO CARD

EQ LIVE



EAR FOR YOU: Future Sonics' new at-ear system.

we open for a very self-centered act and our soundchecks get overrun. In those kinds of situations I can go out, do a show without a soundcheck, and have almost perfect sound.

Do you do anything to isolate the drum kit, or is that no longer necessary?

We don't have to isolate the drum kit at all. We used to have this big Plexiglas cage for Gordy and it would drive me nuts. If I'm standing really close to the drums I don't need as much in the ear monitors as when I'm standing far away. We all have wireless mics on our headsets, so sometimes if we turn around and look at the drummer the headset might pick up more of the drums — that's how subtle the system is.

How has in-ear monitors affected your performances?

There's no stress. One of the most frustrating things a musician can experience is: "Last night I was so good and tonight I can't hear a thing." That has been eliminated and I'll tell you what it does for me. It doesn't matter if I'm playing in the Cotton Bowl, a small club, a shed, or a big cement box. I get pretty much the same sound every night. For the first time in my life as a performing artist I have lost all stress about whether or not I can perform. It has saved my ears and my voice. I can't wait to hit the stage to sing and play and be as good as I can be. It is just remarkable what an extension to my voice this has become and how much better the band plays. The first night or two it was rough — it sounded a little different and we weren't sure how to react, but I think that the band improved 100 percent because ear monitors eliminated all those acoustic problems — the timing problems, the slap-back — all the things that makes you play a little sloppier. The band is so comfortable that we are giving the best performances we've ever given in our lives. EQ

World Radio History

The Best Music Equipment Catalog In The Business

FREE

Musician's Friend Gives You...

GREAT VALUE, SERVICE AND SELECTION

- All orders now shipped 2-DAY DELIVERY at no extra charge
- 45-day money-back guarantee
- Toll-free ordering 7 DAYS A WEEK
- Full technical support and customer service
- Customer satisfaction
- Immediate up-to-the-minute inventory and price information
- Major credit cards accepted

MONEY BACK 100% GUARANTEED 45 DAY SATISFACTION

FULL COLOR CATALOG FEATURING...

- Detailed product descriptions
- In-depth reviews of new products
- Informative product articles
- A huge selection of quality brand name equipment including *guitars, basses, amps, keyboards & MIDI, software, effects processors, recording equipment, PA gear, books, videos and tons more...*

Zoom · ART · DigiTech · Ibanez · Marshall · Roland · BOSS · E-MU · DiMarzio · Seymour Duncan Pickups · FURMAN · Lexicon · SAMSON · NADY Systems · ESP Custom Guitars · Jackson · Gibson USA Strings & Accessories · Charvel by Jackson Charvel · DOD · WASHBURN · KORG · EV · Epiphone · FOSTEX · ADA · TASCAM · ROCKTRON · crown · AKG

CIRCLE 65 ON FREE INFO CARD

For all of your music equipment needs call 1-503-772-5173 and ask for your FREE Catalog

Our Pledge
The best values, shipped to your door

❒ YES! Please rush me the next 3 editions of Musician's Friend totally FREE of charge!

Now's your chance to join hundreds of thousands of satisfied musicians in receiving the #1 catalog, absolutely free!
Call 503-772-5173, or mail in this coupon to Musician's Friend, P.O. Box 4520 • Dept. 114 • Medford, OR 97501.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

World Radio History

NAMM Gear For Your Next Gig

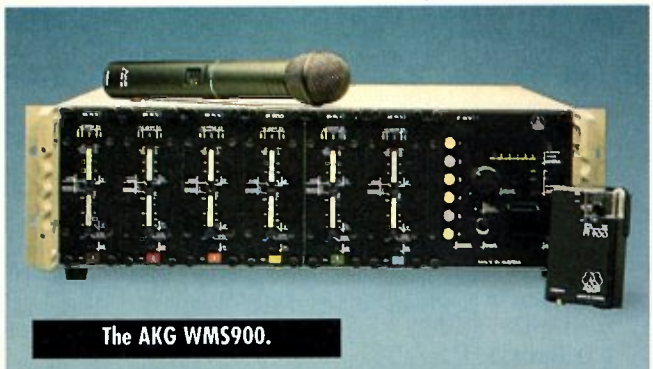
House Speaker

SoundTech has introduced the LS5HC 15-inch, two-way speaker system into its Live Series of speaker enclosures. Rated at 340 watts RMS and able to handle peaks of up to 6dB, the LS5HC can be used by the traveling musician as well as in discos. SoundTech's own STS cast-frame woofer is featured in the new speaker. The enclosure is vented at the rear in an effort to keep the overall physical size as compact as possible. The high-frequency horn is a 90 x 90-degree dual axis radial with SoundTech's STS150 one-inch driver behind it. The LS5HC offers a SPL of 102 dB and retails at $499. For more info, contact SoundTech, 255 Corporate Woods Parkway, Vernon Hills, IL 60061. Tel: 708-913-5511. Circle EQ free lit. #131.

SoundTech's LS5HC Speaker.

Channel Surfer

The WMS900 wireless mic system from AKG is now available. The system operates on 12 subchannels of a single UHF TV channel. Transmitter subchannel modules are switchable for system customization. An Antennaverter system allows remote placement of antennas without booster amps, a feature that keeps noise to a minimum. The body-pack transmitter is compatible with most of AKG's popular head-worn and lavaliere mics. For more information, contact AKG Acoustics, 8500 Balboa Blvd., Northridge, CA 91329. Tel: 818-893-8411. Circle EQ free lit. #137.



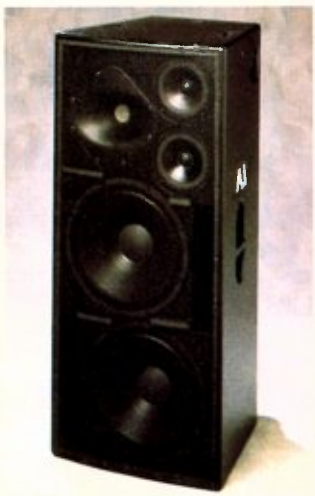
The AKG WMS900.

Case Closed

Calzone Case Company has released the Executive Rock & Roll Attache Series. The cases are made with patented double angle extrusions and the weight comes in at just under 6 pounds. The lightweight Attache Series come in three different laminates: gray pearl, white pearl, and midnight black embraced by black aluminum hardware. Each case includes a black-velvet, double-pocket file; a black-velvet lining; floppy disk holder; and an optional shoulder strap and/or combination lock. For the inside word, contact Calzone Case Company, 225 Black Rock Ave., Bridgeport, CT 06605. Tel: 800-243-5152. Circle EQ free lit. #133.

In the Works

Eastern Acoustic Works has announced its new LA325 Linear Activation System. The system has been specifically engineered for nearfield applications such as band PA, keyboard, drum and side-fill monitoring, and high-level audio-for-video playback. The three-way design incorporates two 15-inch low-frequency cone drivers in a vented enclosure. Dual direct-radiating 6.5-inch midrange cones are housed in a separate subenclosure to minimize interaction and distortion. The higher octaves are handled by a



EAW's LA325 System.

THE LATEST IN LIVE SOUND FROM THE NAMM CONVENTION

World Radio History

proprietary two-inch compression driver on an elliptic/conical waveguide device. Other features on the LA325 include a trapezoidal shape that reduces standing waves inside the enclosure; a computer-optimized crossover network with asymmetrically sloped fourth-order filters; parametric equalization, and driver protection. The speaker can be switched from full-range passive to biamped operation via a switch on the rear panel. For complete details, contact EAW, One Main Street, Whitinsville, MA 01588. Tel: 508-234-6158. Circle EQ free lit. #134.

Pro Processor

dbx has released its 290 digital stereo reverb that features 24 bits of signal processing resolution and an 18-bit digital-to-analog converter. The dbx 290 features pushbutton selection of reverb type, room size, and color, with LEDs to indicate the selected settings. Reverb types include room, hall, cathedral, plate, and several gated reverbs. Decay time is set by adjusting a rotary knob. Other controls and indicators include input/output level controls, wet/dry mix and stereo, and four-segment input level indicators. The user can control reverb settings via a MIDI input port or with an optional footswitch. For information, contact dbx Corporation, 8760 South Sandy Pkwy., Sandy, Utah 84070. Tel: 801-568-7660. Circle EQ free lit. #135.

dbx's 290 Digital Stereo Reverb.

Analog Lives!

Peavey has introduced the Spectrum Analog Filter in response to the resurgence of analog monophonic synthesis. The filter is designed to work with any MIDI sound module. It consists of a three-channel input mixer, followed by an American voltage-controlled filter, then by a VCA. With the exception of the oscillators, these three elements comprise an analog monophonic synth. The user can apply any sampler or sound module to drive the Spectrum with a variety of waveforms or samples. The unit is also fully programmable, which makes it ideal for live applications. Another feature of the Spectrum is an analog signal trigger input that allows non-MIDI instruments to drive it. One hundred programmable presets are standard. For details, contact Peavey Electronics, 711 A Street, Meridian, MS 39301. Tel: 601-483-5365. Circle EQ free lit. #136.

The Peavey Spectrum Analog Filter.

ARMed With ART

A.R.T. has introduced its latest reverb unit, the MR-1. The sound of the RXR Elite digital reverb is the basis for the new unit, which is housed in a palm-sized chassis. Input/output level, bypass switches, 16-bit performance, mix controls, and a 16-position preset selector are all standard features in the MR-1. The reverb algorithms are based on the proprietary ARM (Acoustic Room Modeling) technology that was also developed by A.R.T. For details, contact Applied Research and Technology, Inc., 215 Tremont Street, Rochester, NY 14608. Tel: 716-436-2720. Circle EQ free lit. #137.

The Audio Technica AT873R Condenser Microphone.

Quick Change

Audio-Technica has introduced the AT873R, a wide-range condenser microphone supplied with a hypercardioid polar pattern. The microphone's electric charge is located on the fixed back plate, instead of on the moving element, allowing a gold-vaporized diaphragm only two microns thick to be used. Interchangeable elements are available allowing the addition of a variety of pick-up patterns ranging from cardioid to omnidirectional. These may be screwed on after removing the grille and internal foam windscreen. The AT 873R features a three-pin XLRM-type output connector and provides a balanced, low-impedance output. An external 48-volt DC source is required to power the unit. Its frequency response is 70 Hz to 20 kHz and has a dynamic range of 113 dB SPL. The signal-to-noise ratio is 67 dB and impedance is set at 100 ohms. For details, contact Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224. Tel: 216-686-2600. Circle EQ free lit. #138.

Mighty Mixer

Allen & Heath has released the GR1 three-bus, multi-input zone mixer designed to meet the sound distribution requirements of clubs, bars, theaters, etc. The GR1 is housed in a single-rack-space unit. It provides six channels of mixing for three adjustable and assignable output zones, fed by a combination of 24 inputs. Each channel on the front panel has its own level and pan controls, an input source select switch, and a peak-reading LED indicator. The first three channels are switchable to a mono line input source, while the last three have dual selectable stereo line input sources. Also featured on the GR1 are global- and individual-channel phantom powering options, a compressor/limiter, a headphone output, and more. The GR1 offers a frequency response of 20 Hz to 30 kHz (±1 dB), and a THD better than .04 percent. Internal headroom is +23 dB and the maximum output level is +26 dBu. For more details, contact Allen & Heath, 8760 South Sandy Pkwy., Sandy, Utah 84070. Tel: 801-568-7660. Circle EQ free lit. #139.

The Allen & Heath GR-1.

World Radio History

MULTIMEDIA IN THE REAL WORLD, V.2

LIVE FROM ALBERTA: Ohama's multimedia vision comes together.

LAST ISSUE, we discussed how I, a tried-and-true audio guy, created the video to go with an audio presentation of mine scheduled to be given at the Alberta Science Centre (ASC). If you haven't read part 1 yet, do so now and meet us back here. For those of you who have read it, here is how I added animation and put the whole thing together:

ENTER THE 3D DIMENSION

My animations started with Ray Dream Designer, which is reasonably priced, produces great results, and is easy to learn. But it is just not an animation program. So my next try was a software bundle from Macromedia, consisting of MacroModel (which makes objects) and Three-D (animation and rendering software). It quickly became apparent that serious work requires either a lot of computers or a lot of time, which ended my visions of doing things like flying through complex landscapes.

MacroModel is a very powerful modeler, but for me, a novice animator, it was somewhat excessive. Instead, I concentrated on Three-D and used the basic objects that it supplies (sphere, torus, cylinder, etc.).

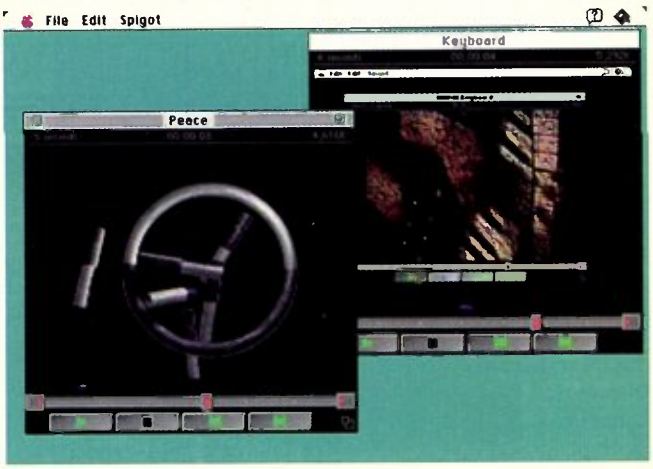
By far the most difficult part of 3-D work is lighting and texture mapping, which can be unpredictable even for the experienced. The computer goes through a process called rendering (which involves lots of number crunching) when it creates images. Some renders showed a completely black screen; other times the poor lighting made the animation look more 2-D than 3-D.

I assumed that a 1.2 GB drive would let me create animations of any length. That might have been true for frame-by-frame transfer to videotape, but for real-time animation transfers, it was a wrong assumption.

Every day for two months, I would set up an animation in Three-D. It would take anywhere from 15 minutes to 2 hours to set up, and then the computer would render all evening. The renderings had to be readable from all angles, be full screen size, and look 3-D. Since I was going to NTSC, they could be slightly smaller than the Mac full screen, but still had to be very large. Each morning I would excitedly get to the studio and see what had been rendered overnight.

The first animation was a donut spinning over a flat plane. It was about 30 frames long and the size was 1/4 that of full screen. It ran very fast with Macromedia Accelerator (the manufacturer claims speeds up to 60 fps); I assumed there would be no problem running my animations to videotape in real time.

My first complex animation was 240 frames long and rendered as a PICS file at full screen. After rendering all 240 frames over a weekend, I played back the file; it would only play about 100 frames, then stop. Macromedia tech support was very helpful, and I found out the PICS file size limit is 16 MB. Since Three-D does final rendering in



SHOW TIME: QuickTime movies comprised a strong element of the show.

MULTIMEDIA MAESTRO: Ohama at the board during the concert.

MORE ON PUTTING TOGETHER A LIVE, INTERACTIVE AUDIO/VIDEO CONCERT
BY TONA OHAMA

World Radio History

DUAL PROCESSING?
BELIEVE IT!

The rules have changed! Dual Processing℠ means both inputs on the FXR are processed separately. Need delay/chorus on a guitar and gated reverb on a snare? Easy! Run the guitar through one input and the snare through the other. It's that simple! Need a lush, fat stereo reverb for the vocals? No problem. Both processors can work together to create stunning effects. Simultaneous Dual Processing in one multi-effects unit!

cool presets

presets + programmability

Both the FXR and FXR Elite feature ART's new ASIC, one of the most powerful audio chips ever. It provides an astounding level of quality and sophistication at a small studio price.

The FXR is a quick set-up, plug in and play processor. Dial up any of the 255 presets and go. The FXR Elite adds MIDI real-time control, MIDI mapping and the ability to edit parameters and store your changes.

HALL REVERBS
ROOM REVERBS
CHAMBER REVERBS
PLATE REVERBS
DELAY
MULTI-TAP DELAY

FULL BANDWIDTH FIDELITY
16 BIT PROCESSING THROUGHOUT
NEW HIGH SPEED DIGITAL V.L.S.I. SUPERCHIP
2 DISCRETE CHANNELS
SEPARATE INPUT, OUTPUT AND MIX CONTROLS
DESIGNED & MANUFACTURED IN THE U.S.A.

STEREO CHORUS
STEREO FLANGE
GATED REVERB
REVERSE REVERB
STEREO PANNING
OVER 250 PRESETS!

THE PRICE? YOU WON'T BELIEVE IT!

Check out an FXR at your local dealer and hear the cutting edge of digital effects processing.

FXR SUGGESTED RETAIL
$249

FXR ELITE SUGGESTED RETAIL
$329

ART
THE SOUND OF PERFECTION

Applied Research and Technology
215 Tremont Street, Rochester, New York 14608 • Phone 716-436-2720 • Fax 716-436-3942

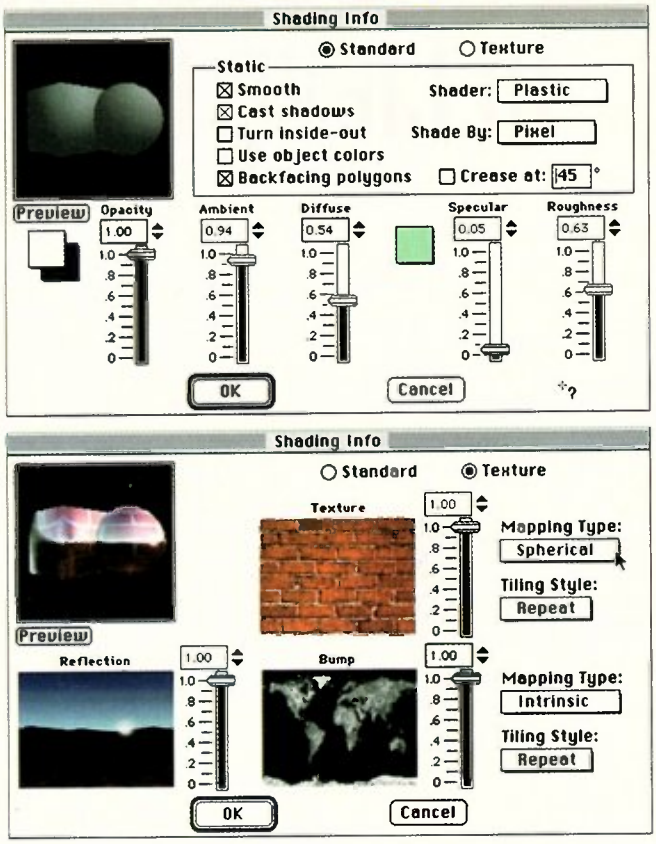
For A.R.T.'s full color catalog (and to be put on our mailing list) please send $2.00, along with your name and address to: A.R.T. Catalog Dept., 215 Tremont Street, Rochester, NY 14608. Be sure to tell us what magazine you saw this ad in, and its cover date.

CIRCLE 07 ON FREE INFO CARD

World Radio History

32-bit color, 16 MB fills up quickly, especially since I had to use large screens. Therefore, full-screen 32-bit color animations would be limited to about 60–100 frames. Even a 1.2 GB drive didn't mean a lot.

Next came looping the animations. I had planned on rendering 60 frames, looping them, then running them at 10 fps to create a 6-second animation; if it repeated three or four times, I'd have plenty for a certain part in a song. But these 32-bit color animations played at about 2 fps on my Quadra. I thought Macromedia Accelerator would fix that, but Accelerator can only smoothly play what fits into RAM! So in a way, the 16 MB PICS limitation was a blessing: I was able to take every 60-frame clip, accelerate it, and play it from RAM. Larger animations have to be paused in order to be read from the hard drive, which is unacceptable.



GET REAL: Macromedia's Three-D helped create realistic images.

EIGHT IS ENOUGH (OR IS IT?)

Going to 8-bit color would have reduced the size of the PICS files, but Macromedia Three-D won't render in 8-bit color mode. The popular CD-ROM game *Myst* has some spectacular 8-bit images; the creators said they had accomplished this by using adaptive palettes for each image. I tried converting 32-bit color images to 8-bit through Ray Dream's JAG II, but this took hours to do and the images were poor compared to the 32-bit ones. (Note: Since first documenting this experience I have learned by accident that Macromedia Three-D will render 8-bit color. In fact, it will render to any depth to which you can set your monitor. The results are still poor compared to 32-bit color, but it is possible.)

Converting the animations to QuickTime with JAG II was also very disappointing. The 32-bit "realistic" renderings came out looking like cartoons. I began to feel I should have done all my animations solely in Director.

Tech support at Macromedia gave some suggestions for 32-to-8-bit conversion. One was to render the animations as PICT files, open each frame up in Photoshop, convert them to 8-bit color, then reassemble them into PICS files. The other was to save the animations as PICT files, open the first PICT in Macromedia Director with the screen resolution set to 8-bit color, save the palette, and then open each PICT with that palette. The third suggestion was to buy DeBabelizer, a file translation program.

The bottom line is that computer graphics programmers exploit a lot of clever tricks (the use of 8-bit color or 8-bit gray scale, small animations framed by interesting objects, color cycling, etc.) to get around computer speed limitations; full-screen animations in 32-bit color are out of the question.

GOING TO NTSC

I purchased TVator Pro, a relatively low-cost (under $400) hardware device by Antec Incorporated that converts VGA signals to NTSC, but everything came out looking green and white instead of black and white. I tried different monitors and other approaches, but nothing worked. MacZone (the supplier) replaced it immediately, but there was no improvement. Antec said that TVator Pro "probably wasn't compatible with my Quadra." (To its credit, MacZone refunded all my money except shipping.)

Next I tried the Radius VideoVision card (around $1800). It worked superbly, and its upgrade option to VideoVision Studio was a plus. It uses convolution (a type of blurring) to prevent single pixel lines or colors beyond the NTSC limits. NTSC is interlaced, so only odd and then even lines are scanned. Also, the color bandwidth of NTSC is less than computer RGB, but the card did an excellent job of translating what I saw on my Mac to the Sony monitor.

It's kind of awkward going from Mac to TV, but it was crucial to see the work on television as I created it — the borders are different, and I had to create images that were as large as possible. There were also instances where colors were totally different. In addition, text is unreadable unless you use extremely large point sizes.

GO LIVE IF YOU WANT TO

Now it was finally time to go live. I performed all lead vocals live. And even though I use a lot of layering and effects on my music tracks, I like to record my voice "naked," so the live vocals sound the way they do on the CD.

It was a problem to light my face, since shining even a little light can wash out the planetarium's dome and unfortunately create a feeling of separation between audience and performer. (One reviewer said, "The audience are not even expected to look at Ohama," but that wasn't intentional, just the way it had to be.)

Two shows began with the audio "caught in a loop" for unknown reasons. On both occasions it was when Mark of the Unicorn's Digital Performer was slaved to external sync, and left in play mode for about half an hour before the show. For subsequent shows I didn't put it into play until five minutes before the show's start and the problem didn't happen again. I don't know if there's a connection.

World Radio History

TO MAKE A GREAT RECORD, YOU NEED A GREAT CONSOLE.

For years, we've designed and built boards for some of the world's most influential musicians and producers. And while they may be drawn to Soundtracs based on smart features, logical design and high quality, the reason they choose our consoles is *sound*. From our top-end Jade production console to the new Topaz 24.

A versatile dual-input inline design with either 24 or 32 channels, Topaz is immediately distinguished by our noticeably warmer and smoother EQ (full 4-band with dual swept mids) coupled with exceptional transparency throughout. You can actually *hear* the difference a Topaz can make on your recordings — something you can't do with other consoles.

We also included features of critical importance when it comes to focusing on what truly matters in recording and mixdown. Dedicated EQ on all tape returns without compromising your primary equalization. SOLO and MUTE functions on all tape and monitor inputs to let you cut through the mix and isolate problems quickly and easily.

Our unique "floating bus" design allows you to route the 8 group outputs to all 24 or 32 inputs of your tape machine(s) without any prepatching. An optional meter bridge keeps track of your input signal.

And when it's time to automate, you've got the option of Soundtracs' proprietary high-resolution VCA/Mute automation, already proven in our large consoles.

So if making great records is part of your future, *listen* to Topaz. You'll hear why we've developed such a track record for making great consoles.

For an exhaustively detailed and lavishly illustrated 8-page, full-color brochure with every single detail about the remarkable new Topaz, please CALL (516) 932-3810, FAX (516) 932-3815 or WRITE Samson Technologies Corp., P.O. Box 9068, Hicksville, NY 11802-9068.

TOPAZ
SOUNDTRACS PLC
Surbiton, Surrey, England

CIRCLE 69 ON FREE INFO CARD

Suggested list price for Topaz 24-channel, $3,995; Topaz 32-channel, $4,995. Soundtracs is exclusively distributed in the U.S. by Samson Technologies Corp.

PUT YOUR HEAD WHERE YOUR HEART IS...

Come to New York City

the center of the recording industry. Learn recording engineering at the

INSTITUTE OF AUDIO RESEARCH

Our 9 month Recording Engineering and Production Program includes: Multitrack Recording, Mixdown Techniques, MIDI, Digital Audio & more. + a diploma from a world renowned school.

Call 800-544-2501
212-777-8550
(NY, CT & NJ)

Your focus is music, our focus is you.

INSTITUTE OF AUDIO RESEARCH
64 University Place
New York, NY 10003

CIRCLE 41 ON FREE INFO CARD

EQ LIVE

Was it worth it? Well, the audience thought so, and that's the bottom line. But it's clear that this type of production really pushes today's technology to the limits. If you're into doing multimedia live, expect a lot of compromises (unless you're independently wealthy, have way too much time on your hands, and have relatives in the tech-support departments of all major software companies).

Nonetheless, there's a lot possible now that explores new frontiers and that is doable if you're sufficiently motivated. What's really tantalizing is what will become feasible as computers get faster and memory becomes more plentiful. Remember, multimedia means a lot more than CD-ROMs playing through Sound Blasters — and computers can be an important part of translating the multimedia experience to the stage, which, ironically enough, is where multimedia started in the first place. EQ

MULTIMEDIA SOURCES

Adobe Systems Inc.,
P.O. Box 7900
Mountain View, CA 94039-7900
1-800-833-6687
Adobe Premiere, Photoshop

Alberta Science Center Planetarium
Box 2100 Stn. M #73
Calgary, Alberta, Canada T2P 2M5
403-221-3717

Aldus Corporation
411 First Avenue South
Seattle, WA 98104-2871
206-628-2320
Aldus Gallery Effects

Apple Computer, Inc.
20525 Mariani Ave.
Cupertino, CA 95014
1-800-776-2333
Quadra 700, QuickTime

Diaquest
1440 San Pablo Avenue
Berkeley, CA 94702
415-526-7167
DQ-Animaq

Macromedia, Inc.
600 Townsend Street, Suite 310W
San Francisco, CA 94103
415-252-2000/1-800-288-4797
Director, Three-D, Macro-Model, Accelerator

Mark of the Unicorn, Inc.
1280 Massachusetts Avenue
Cambridge, MA 02138
617-576-2760
Digital Performer

Miles Canada, Inc
77 Belfield Road
Etobicoke, Ontario, Canada M9W 1G6
416-240-7312 Att: Paul Marshall
AGFA II film recorder

Ray Dream, Inc.
1804 N. Shoreline Blvd.
Mountain View, CA 94043
415-960-0765/1-800-646-0111
Ray Dream Designer and JAG II

Radius, Inc.
1710 Fortune Drive
San Jose, CA 95131
408-424-1010
VideoVision

SuperMacTechnology
215 Moffet Park Drive
Sunnyvale, CA 94089-1374
408-541-6100
Video Spigot Nubus and ScreenPlay

World Radio History

Don't get a studio HEADACHE just because you can't find the current issue of EQ

...realize that it's finally time to subscribe.

It's sold out at the newsstand. Somebody swiped the copy from your studio. You can't live without all those practical tips and techniques you get every month in EQ. What should you do?

Subscribe already. You'll save big money. You'll guarantee that you get your own copy. You'll save gas money. You'll become a smarter, better, more creative recordist.

You can't afford to miss the next issue of EQ.

Take two minutes to fill out the card and call us in the morning...

THE SUBSCRIPTION LADY HAS GOT YOUR CURE!

SAVE OVER 50% OFF NEWSSTAND PRICE!

☐ **YES,** I'd like to receive EQ ten times a year at a rate of...

☐ 1 yr = $24.95 (10 ish)
☐ 2 yrs = $39.95 (20 ish)
☐ 3 yrs = $59.95 (30 ish)

PAYMENT METHOD

☐ Bill me ☐ Check/Money Order ☐ Visa ☐ MC ☐ Amex

Card# _____ Expiration Date _____

Signature _____

Name _____

Address _____

City _____ State/Prov ____ Zip/PC _____

Prices good in US only. Canada add $10.00 per year for surface; other countries add $15.00 per year for surface; all add $30.00 per year for international air mail subscriptions. All non-US orders payable in US dollars by Visa, MC or Amex or international money order only. Allow 4-6 weeks for delivery of first issue. EQ2/95

Mail to: EQ Subscriptions, PSN Publications, 2 Park Avenue, New York, NY 10016

World Radio History

EQ LIVE

THIS MAMA KIN ROCK

AEROSMITH GIVES BACK TO GIGGING BANDS BY BUILDING A CLUB FOR THEM

BY STEVE LA CERRA

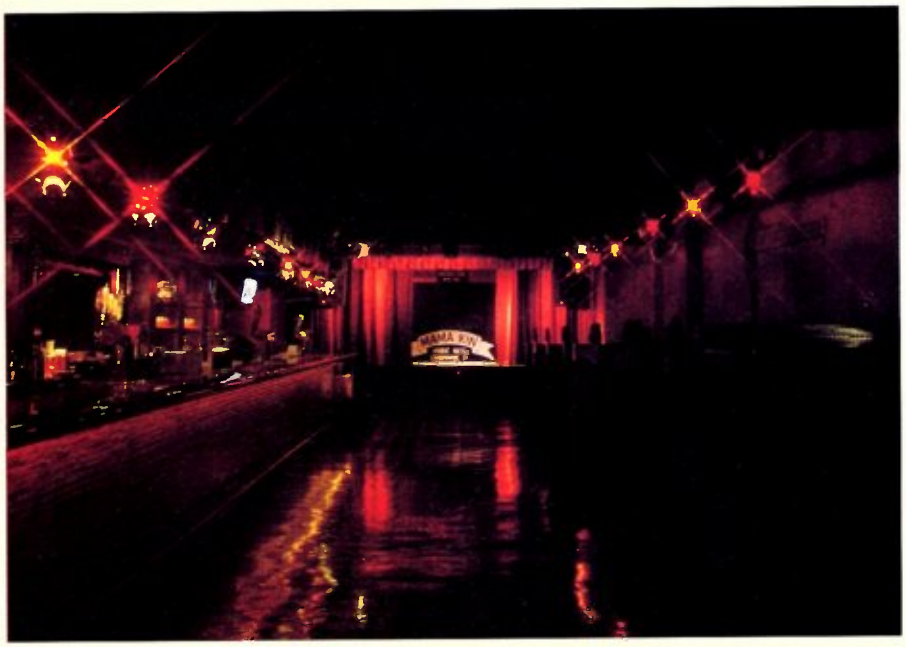
AS THE RESIDENTS of the area can attest, Boston is one of those towns that give birth to a lot of great rock 'n' roll music. One of the most successful bands to rise out of Boston is Aerosmith, whose worldwide popularity has made the band a household name. Despite its huge success, Aerosmith has not forgotten where it came from. Working in a partnership with John and Patrick Lyons of The Lyons Group (MA) the band recently decided to give a little help to the multitude of struggling musicians (and music fans) in Boston who are tired of small clubs with lousy facilities. This little help is in the form of a club the band co-owns, called Mama Kin.

On the surface, Mama Kin looks like "just another club" with a capacity of around 300 people. It's the type of room that unsigned or smaller bands that are on their way up the music-industry ladder would play. But as designer/co-owner/operator John Lyons explains, the purpose was "to create a facility that, although small, had a lot of the things a band would expect to find in a larger club or even a small theater."

BREAKING AWAY

The Lyons Group owns and operates more than 22 clubs around the United States. As president of The Group, John handles all sound and lighting design himself, staying on the cutting edge of technology. John also supervises the installs at each of these clubs.

Lyons explains the philosophy at Mama Kin: "We thought that since we were building this room from scratch, we should offer all the features that make larger rooms and theaters a good experience for a band. There are a lot of things bands give up when playing in smaller clubs, but we built them into Mama Kin. The dressing rooms are large enough to comfortably accommodate eight or nine people, and each one has a bathroom and a shower. They also offer direct access to the stage. The club even has catering facilities. We designed the room to be a good live-experience room."



YO MAMA: Mama Kin features a PA system that is heavy on JBL gear.

The PA system is where Mama Kin particularly excels. Lyons decided that instead of putting a system together piecemeal with spit and duct tape (as is done in some rooms of this size), he would install a brand-new system that was sized and spec'd perfectly for the room. "Even though this is a small room, a band can really *want* to play here rather than *having* to play here because it is the only room in town. Likewise, from a customer's point of view, we wanted it to be a place music fans really *want* to go see a band, as opposed to one they *have* to go to because that is where their favorite band happens to be playing."

Mama Kin occupies a two-story building. The club area is set on the first level. The room has a long rectangular shape (90 feet long by 25 feet wide) with the stage at the back end. A 70-foot bar runs along the left side of the club and booths are set up along the right. The PA system is set up facing into the long part of the rectangle, in a traditional fashion. The mix position is at the opposite end of the rectangle, near the back of the booth area.

The PA system consists of two JBL subwoofer cabinets (each with two 18-inch drivers) on the floor near the stage and two JBL mid packs (each with two 12-inch speakers and a horn) flown above the stage. To help distribute sound into the rear areas of the room, Lyons has set up a rather unique PA distribution. One-third of the way into the room is a pair of biamped JBL SR 4722A loudspeakers that are time-aligned to the main PA system. But this fill pair was not enough to cover the entire room, so two-thirds of the way into the room is a second pair of biamped SR 4722's. These are also time-aligned to the main PA system and thus on a different delay time from that of the first fill pair. All loudspeakers/enclosures, amplifiers, and processors are stock units from JBL.

The mixing console is a Soundcraft Delta with 24 channels of the Theatre version input modules. The Theatre module allows all six of the available auxiliary sends to be switched between pre/post equalization or pre/post fader for a maximum of flexibility (for a more complete equipment listing, see sidebar). An unusual feature for a venue of this size is the patchbay at the console. This will allow visiting engineers to easily patch their

World Radio History

Vestax

Where music lives™

you don't need a separate computer
you don't need a separate mixer [there's a digital one in there]
you don't need a separate hard drive [there's one in there]
you don't need separate EQ [there's three in there]
you plug right in to it, just like a tape deck
you're up and running in ten minutes
there's no software to learn
it records everything you can sing or play at CD quality
you can sell your tape multitrack to help pay for it
there's no rewinding to wait for
you can sync it to your sequencer [if you use one]
your sequencer can sync to it, and control the mixer via MIDI
there's no hiss, even after bouncing ten times
you can add tracks by plugging more HDRs into the back
you can cut and paste choruses, verses, licks, tracks and songs
you can punch in and out with pinpoint accuracy
it has pan, 4 aux sends, and 4 stereo aux returns
it has digital ins and outs and a jog/shuttle wheel
it takes your recordings straight up to the pro level
and it costs less than its competitors.

the HDR.6 and HDR.4 digital hard disk recorders
new from Vestax where music lives.

brochures going fast: 707 427 1920

VESTAX CORPORATION 2870 Cordelia Road, Suite 100, Fairfield, CA 94585
Phone (707) 427-1920 Fax: (707) 427-2023

© Vestax Corporation 1994 "Where music lives" is a trademark of the Vestax Corporation.

CIRCLE 89 ON FREE INFO CARD

World Radio History

outboard gear into the Delta without disturbing normal signal flow to the console.

To keep production costs down, the stage monitor mixes are run from the FOH board. Lyons explains that a separate console would require a second engineer, driving up the cost of producing a show at the venue. He says, "We wanted to remain true to a small-room philosophy and keep Mama Kin accessible to smaller bands that don't generate the money necessary to pay a large crew. Given that, I also wanted have the monitor mix better than most when done in this manner. That is why I opted for the Theatre version of the Delta."

Of the six auxiliaries on the Soundcraft console, four are used for monitor mixes and the other two for effect sends. There are four discrete mixes on wedges at the front of the stage and an extra monitor next to the drummer. Lyons recognizes that some bands might be able to afford a monitor rig, and he can arrange for one to be brought into Mama Kin. "We have a lot of gear in-house, so if we need to have onstage monitor mixing, we can easily bring it in."

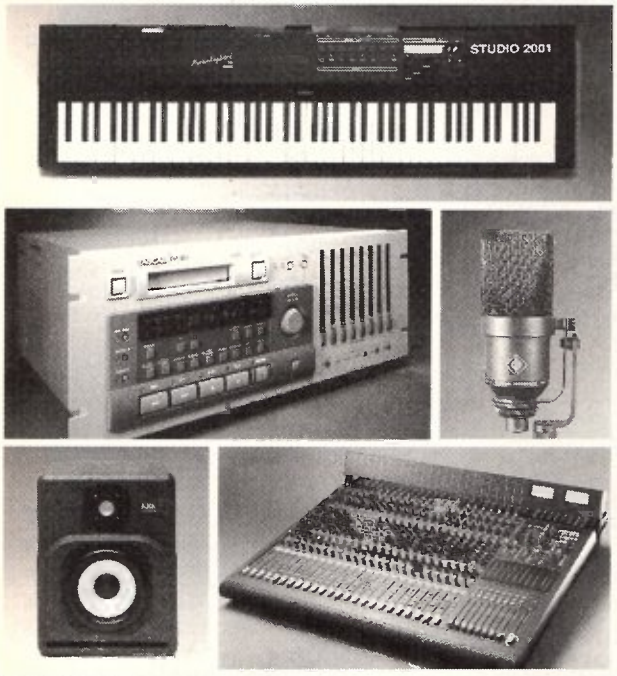
PLAYING THE TUNE

The PA system was tuned by Jeff Morley of The Lyons Group. The room equalizers were then locked off from fidgeting hands. Morley took a cue from David Andrews (Andrews Audio, New York) and EQ'd the room via parametric units instead of by

MAMA KIN EQUIPMENT LIST

Console
Soundcraft Delta 24 channel w\Theatre modules.
Equalizers
Klark-Teknik stereo1/3 octave (engineer)
Klark-Teknik parametric (locked off for house EQ)
Ashly 1502 stereo 15-band (monitors) [2]
Crossovers
JBL M553 three-way stereo for main PA
JBL M522 two-way stereo for delay speakers
Processors
Yamaha SPX 990 [2]
JBL M644 noise gates [2]
JBL M712 compressor/limiter [2]
Klark-Teknik digital delay units [2]
PA speakers
JBL 4731A mid/high cabinets [2]
JBL 4719A subwoofer cabinets [2]
Monitors
JBL MR 802 wedges [4]
JBL MR 825 drum monitor
Delay speakers
SR 4722A cabinets [4]
Power Amplifiers
JBL MPX1200 (subwoofers) [2]
JBL MPX600 (low-frequency/delay speakers)
JBL MPX300 (high-frequencies/PA and delay speakers) [2]
Microphones
Shure SM-58 [4]
Shure SM-57 [8]
Shure Beta 57
AKG D-112

AMERICA'S FASTEST GROWING MUSIC RETAILER*



There's a simple reason for Sweetwater Sound's success. Not only do we have the equipment you want in stock at affordable prices, but we also offer outstanding value: one-on-one customer service and quality after-the-sale support other dealers can only dream about. Our sales engineers all have real-world MIDI and recording studio experience, so they can direct you to the perfect product for your particular needs.

But don't just take our word for it. Give us one try and we're willing to bet Sweetwater Sound will be your first choice for audio, MIDI and recording equipment for a lifetime!

OVER 80 OF THE BEST NAMES IN THE BUSINESS

Korg • Roland • Opcode • Sony
Mark of the Unicorn • Mackie
Digidesign • Kurzweil • Marantz
Tascam • AKG • Ramsa • DBX
KRK • Panasonic • Neumann
Fostex • E-mu • Digitech • JBL
Summit • Sennheiser • Lexicon
Fatar • Furman • Tannoy • KAT
Crown • BBE • Carver • Shure
3M, Ampex and Denon Tape
Mac & IBM Software & Interfaces

OTHER MAJOR BRANDS TOO!
HUGE IN-STORE INVENTORY!

OUR EXCLUSIVE GUARANTEE:
"If you don't like it, we'll take it back — with no hassles!"

Sweetwater SOUND INC.®

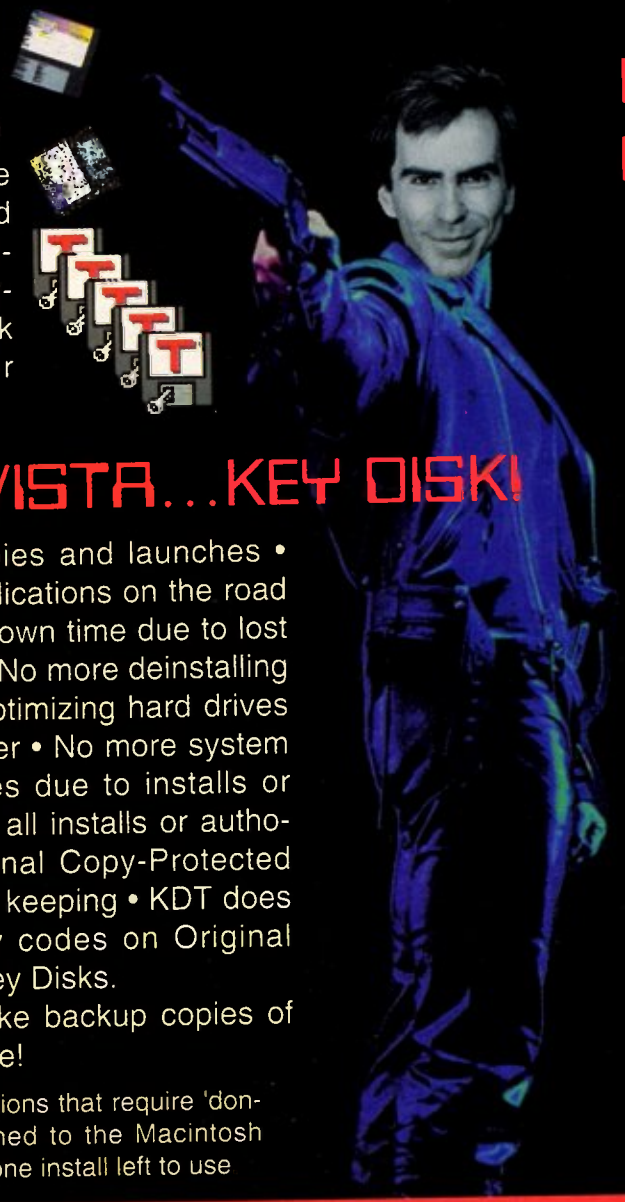
Source: Music Trades 8/93, Inc. Magazine 10/93, Music Inc 5/9

5335 BASS RD. • FT. WAYNE, IN 46808 (219) 432-8176 FAX (219) 432-1758

CIRCLE 73 ON FREE INFO CARD

World Radio History

KeyDisk TERMINATOR™



KeyDisk TERMINATOR™ is a Macintosh software package that gives licensed software users the capability to run any Original Copy-Protected Master Key Disk application without ever using the key disk again!

I'LL BE BACKED UP!

Mac™OS

HASTA LA VISTA...KEY DISK!

Unlimited application copies and launches • Take favorite key disk applications on the road without worry • No more down time due to lost installs or authorizations • No more deinstalling or deauthorizing before optimizing hard drives • Applications run smoother • No more system install conflicts or crashes due to installs or authorizations • Replaces all installs or authorizations back onto Original Copy-Protected Master Key Disks for safe keeping • KDT does not alter any proprietary codes on Original Copy-Protected Master Key Disks.

Regain your rights to make backup copies of your own licensed software!

KDT will not work with applications that require 'dongles' or 'keys' that are attached to the Macintosh ADB port. Must have at least one install left to use

$99

Credit Card & C.O.D. Orders Processed Same Day Received

DISCOVER NOVUS

VISA

MasterCard

AMERICAN EXPRESS Cards

SYDNEY URSHAN MUSIC

Internet: urshan@netcom.com

AppleLink/AOL: URSHAN

FAX: (818) 901-WEEB

Sales & Support: (800) 88-DWEEB

SEE US AT NAMM '95, BOOTH 7422!

CIRCLE 59 ON FREE INFO CARD

World Radio History

using the typical approach with graphics. He feels that a parametric unit can be more accurate than a graphic unit in tuning a PA provided the engineer is familiar with use of the device. There is a graphic equalizer at the mix position, allowing the guest engineer to tweak the system to taste.

Since Mama Kin also functions as a bar, there is actually a second PA system, the "bar" system. It consists of eight JBL Control 10 monitors, four along each length of the club. This system is used to play a CD jukebox or tapes when there is no band performing. The low-frequency information from the bar system is sent to the subwoofers at the stage via a separate crossover unit. This allows the bar system to play with or without the subwoofers and also allows the PA system to be distributed through the rear of the long room (via the Control 10's) when a band is playing. The monitors at the rear of the room are on a delay line that time-aligns them with the main PA system. Lyons custom-wired the system so that the rack in the bar can turn on either the Control 10's, the entire PA, or the Control 10's plus the subwoofers. An A-B switch at the mix position overrides any controls at the bar, so when a live band is performing, the PA is back under control of the engineer. When the engineer takes control of the system, the delay line is switched in to align the Control 10's to the PA; when the engineer gives control back to the bartender, the delay is switched out of circuit.

THE AUDIO VISION

Since the club occupies only the first level of the two-story building, the second floor was left for facilities like the aforementioned dressing rooms and for VIP rooms. Sony artists Aerosmith, The Lyons Group, and Sony are putting together an audio/video editing suite for the second floor. The room will have an audio console and a high-quality video-editing system with three cameras. The audio console will run from a transformer-isolated split of the stage microphones and the three cameras will each split into two feeds. The first feed from each camera connects to a video editor that can be used to live-edit the band's performance to VHS as it happens. The second feed from each camera connects to a 3/4-inch video deck that can record the entire performance from its respective camera. The resulting videotapes will be archived so that if a band gets a video budget in the future, the tapes can be pulled for postproduction use.

THE REVIEWS ARE IN

It was only appropriate that opening night at Mama Kin featured a performance by Aerosmith. In its review of that concert the *Boston Globe* referred to the sound of the PA system as "so good that even audiophiles had to drool." There is little doubt that Mama Kin will become one of the foremost showcase clubs in the New England area. EQ

It's Never Been Easier to Control Your Dream.

CuePoint Universal Autolocator

MMC MIDI MACHINE CONTROL

JLCooper's new CuePoint Autolocator controls Alesis ADAT, Fostex RD-8, Tascam DA-88, other recorders, and digital workstations in a powerful, compact and affordable package.

CuePoint is ADAT Sync compatible using the optional dataCARD (CuePoint-ADAT Sync Card) or the dataSYNC.

Serial, Parallel & ADB cards coming soon.

adat® SYNC

dataSYNC ADAT•MIDI Synchronizer

The dataSYNC connects to your ADAT and provides MIDI Time Code to drive computer based sequencers, digital audio and video workstations. Supports MMC.

dataMASTER Professional Synchronizer for the Alesis ADAT

dataMASTER allows the ADAT to sync to all types of computer based workstations, analog recorders and video editors via SMPTE or MIDI Time Code. Using MIDI Machine Control, dataMASTER integrates ADAT's digital audio tracks into virtually any audio, video post production or multimedia system.

JLCOOPER ELECTRONICS

JLCooper Electronics • 12500 Beatrice Street • Los Angeles, CA 90066 • 310-306-4131 • FAX 310-822-2252

©1994 JLCooper Electronics. All Rights Reserved. All brand and product names are the property of their respective holders. Call for our new full line catalog.

CIRCLE 42 ON FREE INFO CARD

World Radio History

PORTADAT

PERFECT PORTABLE DAT

Quite a claim, we know. But then these are no ordinary DAT recorders. Designed in consultation with representatives from all areas of professional audio recording by HHB, the World's leading independent suppliers of DAT technology, the PORTADAT range has every detail covered. Compact, light and sonically superb, the PDR1000 features a rugged direct drive transport with 4 heads for confidence monitoring, 2 hour rechargeable battery life, 48v phantom powering, balanced analogue inputs, 44.1/48/32KHz sample rates, digital I/Os and a full range of indexing facilities. In addition, the PDR1000TC is equipped to record, generate and reference to time code in all international standards. But perhaps the most remarkable feature about the PORTADAT range is that for once, perfection doesn't cost the earth. For a free, 8 page color brochure on the PORTADAT, the future of portable DAT recording, call Independent Audio or mail the coupon today.

Independent Audio · 295 Forest Avenue, Suite 121, Portland, Maine 04101-2000, USA
Tel: 207 773 2424 · Fax: 207 773 2422

Studer Revox Canada Ltd · 1947, Leslie Street, Toronto, Ontario M3B 2M3, Canada
Tel: 416 510 1347 · Fax: 416 510 1294

HHB Communications Ltd · 73-75 Scrubs Lane, London NW10 6QU, UK
Tel: 0181 960 2144 · Fax: 0181 960 1160

HHB

CIRCLE 33 ON FREE INFO CARD

For full details of the PORTADAT range of portable DAT recorders, please mail this coupon to Independent Audio

Name _____

Address _____

Zip Code _____ Tel _____

EQ195

DAT
Digital Audio Tape

World Radio History

BBE 862 Sonic Maximizer

IT IS OFTEN at the stage when we have committed a good recording to a cassette copy (or are playing back a cassette, hoping to retrieve the presence of the original recording) that we find the presence of the recording has fallen away. The mechanics of the cassette format work against us and we find that the high frequencies have diminished and the recorded sounds have become veiled. We may resort to some EQ to add a little top end. Unfortunately, as soon as the audio drops below a certain level, the tape hiss gets the benefit of the high-end boost, too. This is an application where the BBE 862 Sonic Maximizer can be very useful. The unit allows the user to add up to 12 dB of high-frequency boost, referred to on the front panel as BBE Process (see fig. 1), and bring back some of the missing presence of the recording. The 862 has a threshold that prevents very low-level (less than –45 dB) sounds, such as tape hiss (see fig. 2), from also being boosted.

This unit is not limited to recovering audio from the effects of cassette copies. The BBE Process can also be used to add brilliance to sources that suffer from overcompression or other forms of processing that cause perceived high-frequency loss. It can also bring back the sense of air that is hard to get from some instrument/microphone combinations. Vocals can benefit from a little of this processing when the foam windscreen has filled with too much humidity or you would like to add a little of that condenser sparkle to a dynamic vocal mic. The low-level threshold of the process is useful in this application to prevent mic-preamp hiss and other background HF junk.

Keep in mind that a little of the BBE Process goes a long way. Start out with a small amount and listen awhile. It is easy to turn the BBE Process control up until the sound becomes harsh and brittle. Not surprising, considering the frequencies boosted by the control (see fig. 1).

The BBE 862 also has a control called Lo Contour that provides a bell-shaped boost or cut of low frequencies (see fig. 3) centered around 60 Hz. This adds a bit of that low-end thump without too much danger of blowing bass drivers across the room. It can be deceptive when used with some loudspeakers, though, so if you find that the low-frequency ports on your nearfields are pushing out air at gale force, turn back the Lo Contour control. This control also allows the user to remove excess bass from the processed sound, which is often a good way of achieving a little more midrange clarity.

The controls on the review unit were flat in frequency response when the Lo Contour control was set

Road Test

MANUFACTURER: BBE Sound Inc., 5381 Production Drive, Suite 245, Huntington Beach, CA 92649. Tel: 714-897-6766.

APPLICATIONS: Enhancing the perceived quality of live and recorded sound sources.

SUMMARY: Two-channel processor for selectively adding high-frequency information dynamically to sound sources and providing low-frequency cut or boost.

STRENGTHS: Adds high end without increasing noise at low levels.

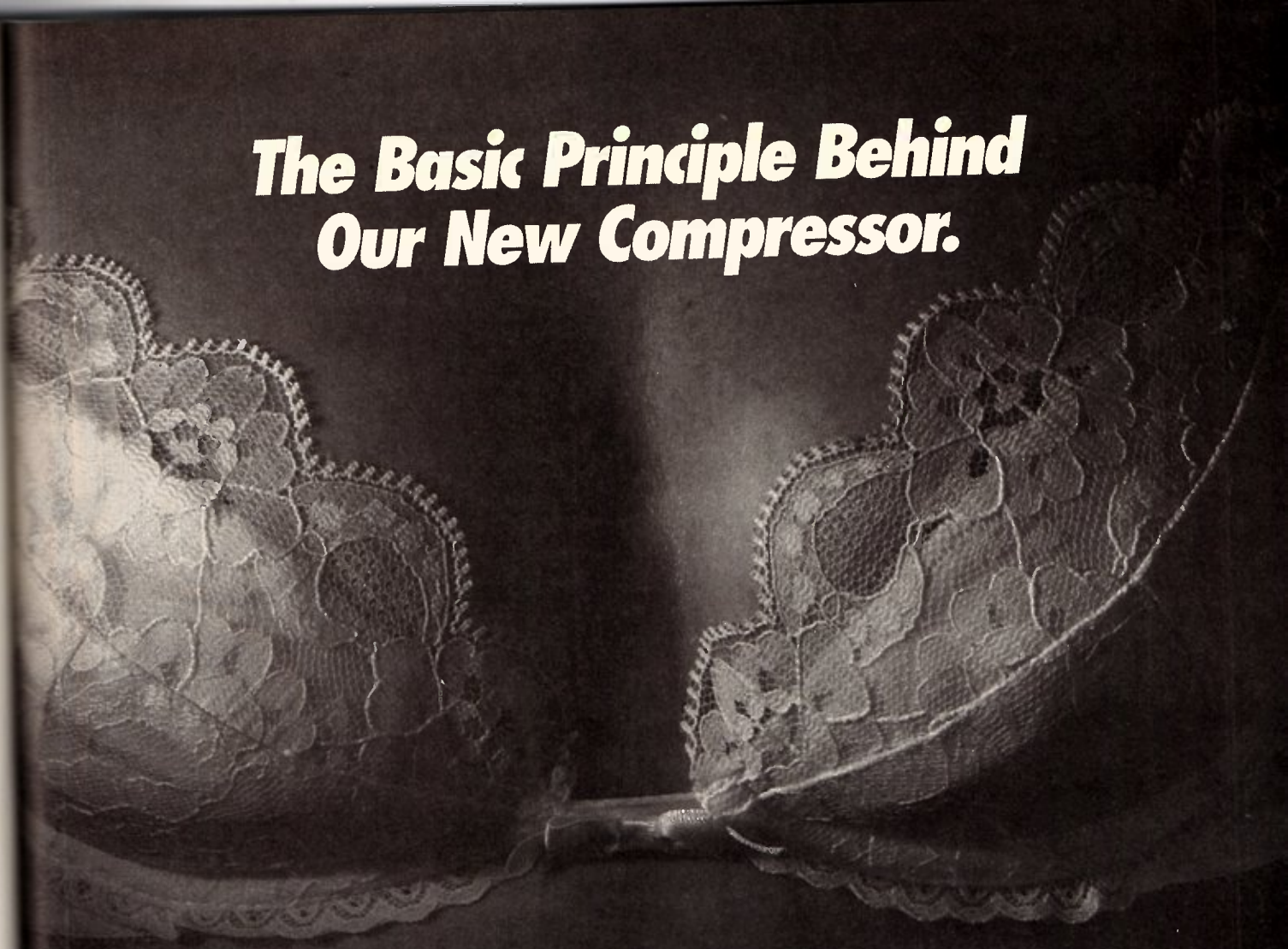
WEAKNESSES: Causes phase shift across audio spectrum, but listening revealed no detrimental sonic effects.

PRICE: $599 **EQ FREE LIT. #:** 145

BY WADE MCGREGOR

World Radio History

The Basic Principle Behind Our New Compressor.



The Wonderbra® and our new 488 DYNA-Squeeze™ Compressor/Interface were designed to perform the same, remarkable feat: To gently squeeze and push up.

While the result of the Wonderbra is strictly visual, the effect of the DYNA-Squeeze is purely audible. And that's where this seemingly ridiculous comparison ends.

With the eight channel DYNA-Squeeze connected between your console and digital recorder, critical gain riding instantly becomes a faded memory. Now you can get back to recording hot, just like the good old analog days.

And by gently pushing more sound into the upper end of your recorder's dynamic range, DYNA-Squeeze lets you maximize resolution, while simultaneously minimizing low level distortion.

To get your hands on a DYNA-Squeeze, ring us toll-free at 1-800-288-8855.

At $579, it may not improve your looks, but we guarantee it'll do wonders for your sound.

Symetrix

Wonderbra is a registered trademark of Canadelle, Inc.

CIRCLE 74 ON FREE INFO CARD

World Radio History

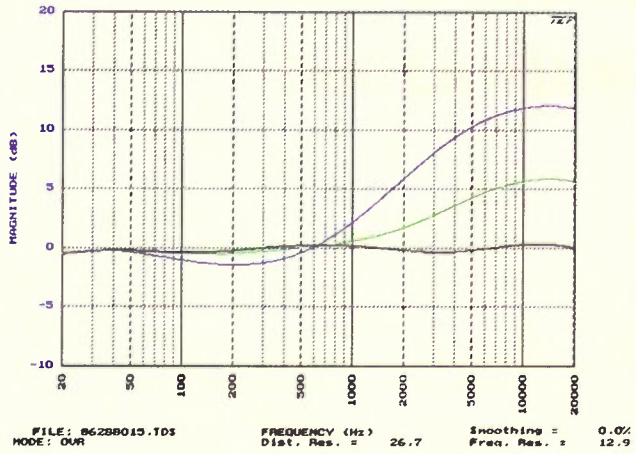


FIGURE 1: BBE Process control boosts high frequencies.

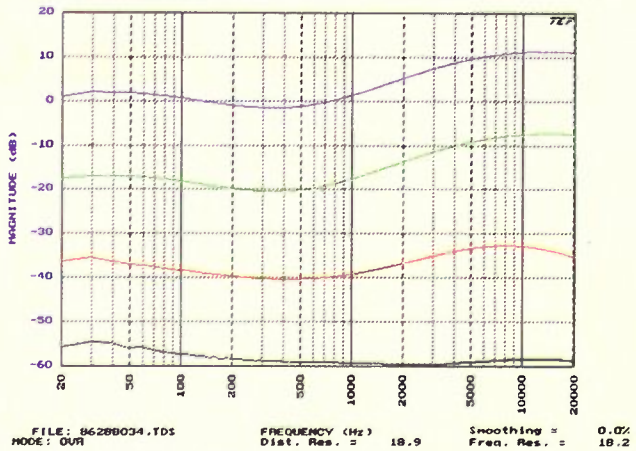


FIGURE 2: BBE Process varies high-frequency boost depending on signal level.

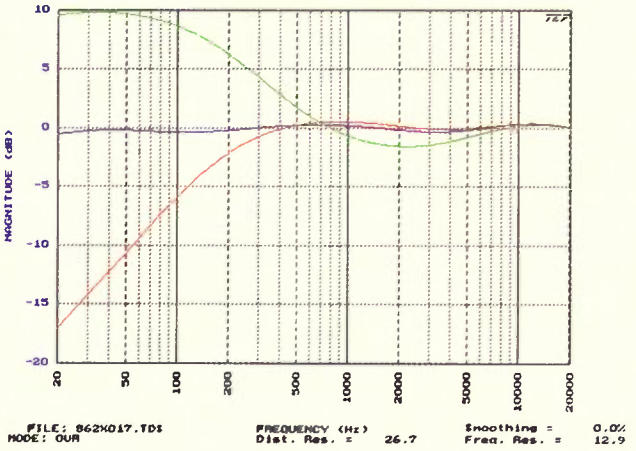


FIGURE 3: Lo Contour control provides asymmetrical boost or cut of low frequencies.

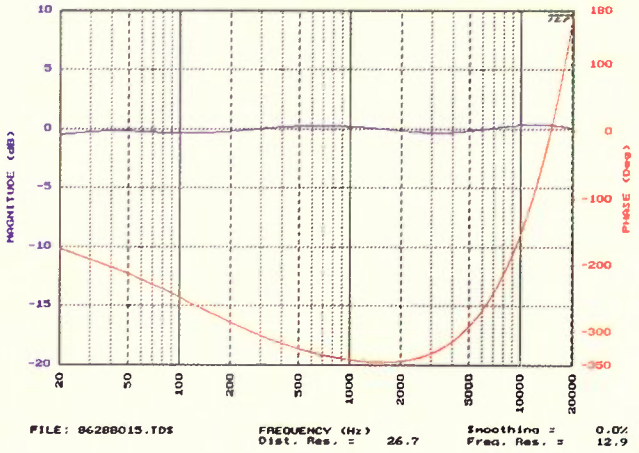


FIGURE 4: Phase response of BBE 862 with controls set for flat frequency response.

to approximately 11 o'clock. The manual stated that the flat setting was at 12 o'clock, but this produced a 2 dB boost at 60 Hz.

PHASE VALUE

BBE considers the inherent phase shift of its processors (see fig. 4) will compensate for phase shift in typical loudspeakers. BBE originally arrived at this idea through listening tests using a variety of loudspeakers and felt it had improved the clarity of the sound by adding a specific amount of phase shift. However, the phase response of loudspeakers varies greatly depending on the crossover type, the drivers used, the loudspeakers' relative physical positions, and even the listening position. No one I have spoken to actually uses a BBE processor to compensate for the phase response of a loudspeaker. It is really the high-frequency boosting (BBE Process) and Lo Contour controls that provide you with the power to resurrect lifeless sound sources. If you have the final word on the quality of the sound you are working with, then your ears must be the judge.

The BBE 862 is the professional version of BBE's series of Sonic Maximizers. It uses balanced XLRs and 1/4-inch phone jacks for its +4 dBm inputs and outputs. The unit features two identical but completely independent channels that only share the power supply and Function IN and OUT (bypass) button. There are other models in the series to choose if you require stereo operation or unbalanced inputs normalized to lower levels such as –10 dBV. The BBE 862 is intended to be patched into mixing consoles where individual channels or submixes require processing. Some people even process entire mixes for broadcast, live concerts, or mastering with the unit.

The front panel of this single-rack-unit device is cleanly laid out and the control functions are reasonably clear. However, the Lo Contour control does not have any labeling to suggest that there is a + and – to this control relative to a flat response. This may prove deceiving when first using the unit. Output-level metering is provided by two green (0 and +10) and two yellow (–10 and –20) LEDs and a red clip indicator for each channel. The bypass switch position is also displayed with colored LEDs.

If you are routinely adding high frequencies to sound sources and don't mind (or maybe even like) a little phase shift, then the BBE 862 Sonic Maximizer may be just the device you need. EQ

World Radio History

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

AMPEX

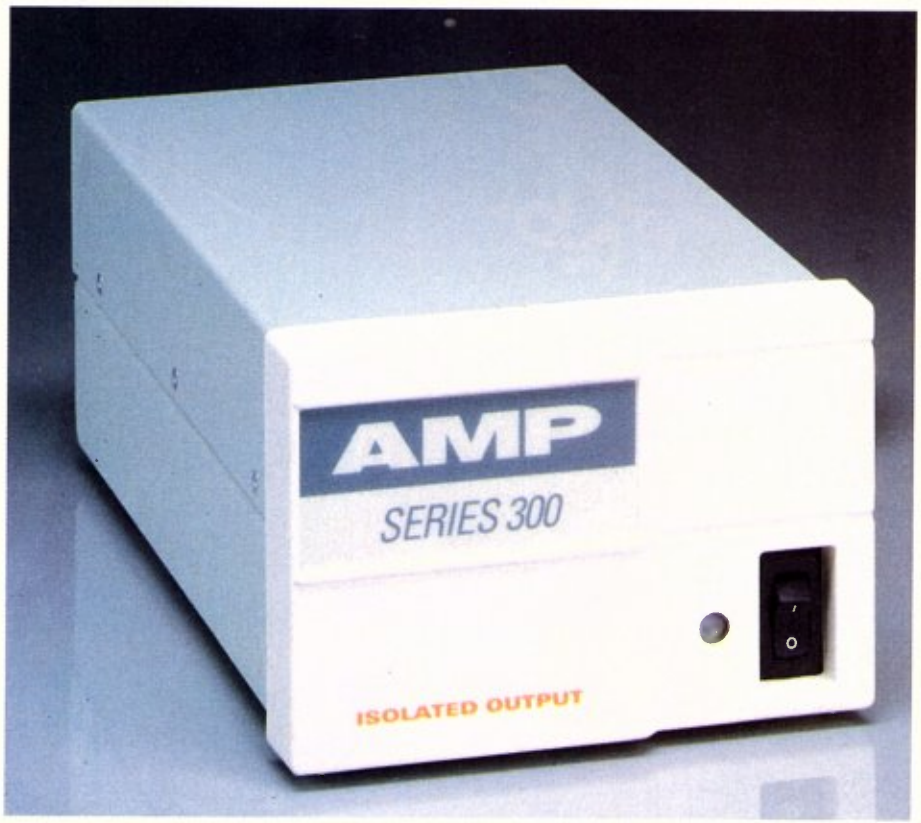
Ampex Recording Media Corporation 401 Broadway, M.S. 22-02, Redwood City, CA 94063-3199 ©1993 Ampex Recording Media Corporation

CIRCLE 84 ON FREE INFO CARD

World Radio History

EQ LIVE

AMP AMPiso Series 300 Power Conditioner



WE ARE CONSTANTLY working to minimize the noise in our audio systems. However, only occasionally do we consider the noise that travels into the units via the AC power cord. We associate AC power with the hum and buzz that can result from faulty power supplies, mistakes in cable routing, or improper grounding. There are, however, noises that can become plainly audible even when the equipment is correctly installed and running fine. These can be transient noises such as clicks and pops, or intermittent noises such as buzzes, whistles, and whines, that sneak into the equipment from the power line.

Buying a power bar that includes spike protection and noise filtering can help reduce some forms of power-line noise, but it is a relatively simple solution to a complex problem. When I started doing location recording, about 20 years ago, I found our state-of-the-art equipment to be well behaved in many locations, but susceptible to strange noises in others. The solution was an isolation transformer. This simple device was merely a very large, heavy transformer that went between the power line and all our recording equipment. This solved the intermittent noise problems, but at that time the transformer cost about $700 — even before it was installed in a case with a cord and AC outlets. It weighed 15 kgs (33 lbs) and ran very hot; it also produced a very loud acoustic buzz, so it had to be placed out of earshot.

The AMPiso is a brand-new design of isolation

continued on page 142

Road Test

MANUFACTURER: AMP of Canada Ltd., 20 Esna Park Drive, Markham, Ontario, L3R 1E1. Tel: 905-475-6222.

APPLICATIONS: Reduction of power-line–induced noise in audio equipment.

SUMMARY: A simple and effective way to reduce the clicks and buzzes that can creep into your audio gear from the AC power line.

STRENGTHS: Full isolation from the power line, allowing a greater amount of noise rejection than that of most other in-line power conditioners.

WEAKNESSES: Produces a slight mechanical buzz that may be audible when the unit is fully loaded or fed from the square-wave output of a low-cost standby power supply.

PRICE: $299 **EQ FREE LIT. #:** 140

BY WADE MCGREGOR

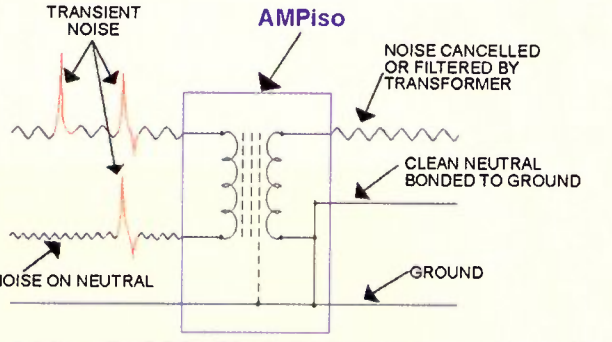
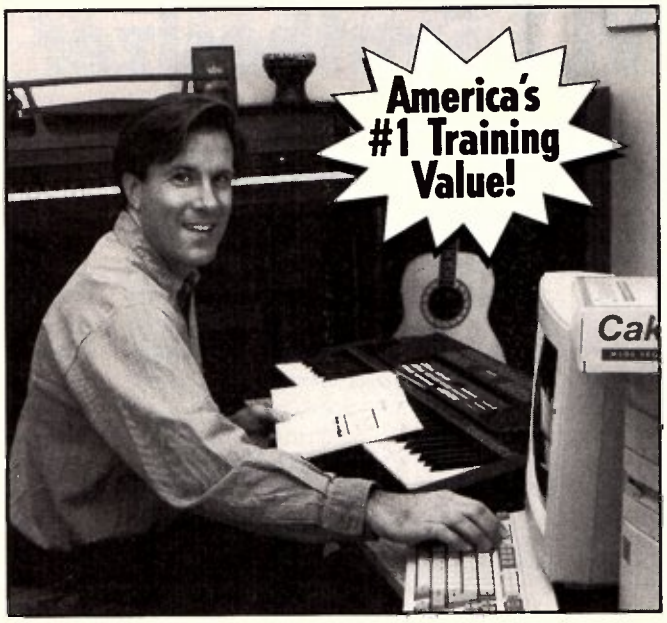


FIGURE 1

World Radio History

Make money in electronic music technology!

NRI's breakthrough training gives you everything you need to build your own computer-controlled music studio, then start a new career or business of your own!



Hands-on course includes a 486SX2/ 50 MHz computer — the most powerful computer in home study today — plus a Kawai X50-D professional-level synthesizer, Cakewalk MIDI sequencing software, Sound Galaxy NX Pro sound card, and more!

Prepare for an exciting, multifaceted career

In the booming music industry, NRI training opens up unlimited opportunities. You can work as a sound engineer, recording engineer, or road technician ... even start your own business selling and servicing today's MIDI-based systems. Or unleash your own musical creativity, writing and composing music with the extraordinary digital instruments NRI provides.

Learn state-of-the-art music synthesis

Build your own electronic music center with all this real-world equipment:

- Complete IBM-compatible 486SX2/50 MHz computer featuring mini-tower design, Pentium Overdrive-ready motherboard, 4 meg RAM, 420 meg hard drive, Super VGA color monitor with .28 dot pitch, fax/modem, and more
- High-end Kawai X50-D General MIDI synthesizer with touch-sensitive keyboard, digital effects with reverb and chorus built-in, one finger ad-lib, mixing, and more
- Sound Galaxy NX Pro sound card with built-in MIDI interface and speakers to accommodate interactive multimedia applications
- Your own desktop recording studio — the critically acclaimed Cakewalk 256-track MIDI sequencer software that helps you record, edit, and play back multiple tracks of music
- SoundSculptor software that visually demonstrates the operation of FM music synthesis
- Electronic components you use to build up live circuits, including sound generating ones

You discover how to use, program, and service this professional equipment through hands-on projects that make learning both fun and challenging — *regardless of your experience in electronics or music.*

Gain expertise and confidence, step by easy step

Study at your own pace, with the committed support of NRI's instruction team just a letter or phone call away. You begin with detailed lessons that move from electronics fundamentals and music notation to sound generation routines, digital logic, microprocessors, and sampling and recording techniques. Then move on to get first-hand experience with MIDI, waveshaping, patching, sequencing, mixing, special effects, and much more.

Find out about NRI's unique, groundbreaking training in electronic music technology

NRI's free, full-color catalog has all the details — send for yours today! If the coupon is missing, write to: NRI Schools, McGraw-Hill Continuing Education Center, 4401 Connecticut Avenue, NW, Washington, DC 20008.

Complete lessons, top-notch equipment, hands-on projects — NRI training doesn't miss a beat!

SEND TODAY FOR FREE NRI CATALOG!

NRI Schools
McGraw-Hill Continuing Education Center
4401 Connecticut Avenue, NW, Washington DC 20008

☑ **Check One FREE Catalog Only**

- ☐ **Electronic Music Technology**
- ☐ Microcomputer Servicing
- ☐ TV/Video/Audio Servicing
- ☐ LAN Specialist
- ☐ Basic Electronics
- ☐ Multimedia Programming
- ☐ Computer Programming
- ☐ Desktop Publishing & Design
- ☐ Fiction/Nonfiction Writing
- ☐ PC Applications Specialist

Name _____ Age _____

Address _____

City _____ State _____ Zip _____

Accredited Member, National Home Study Council 377-0295

CIRCLE 53 ON FREE INFO CARD

World Radio History

Yamaha VL1 Synthesizer

EQ LAB REPORT

MANUFACTURER: Yamaha Corporation, 6600 Orangethorpe Ave., Buena Park, CA 90620. Tel: 714-522-9011.

SUMMARY: A true musical instrument with character — and one that can be as demanding to play as an acoustic instrument.

APPLICATION: Keyboard synthesizer

STRENGTHS: Incredible emulation of wind instruments, including the best sax voice you've ever heard (short of the real thing, that is); unprecedented real-time control allows an extraordinary degree of expressivity.

WEAKNESSES: Two-voice polyphony; four-octave keyboard; limited sonic palette; limited user programmability; breath-controller proficiency strongly recommended (though not required).

PRICE: $4995

EQ FREE LIT. #: 141

AT FIRST GLANCE, the VL1 appears to be very much like other Yamaha synths manufactured in the post-DX era; despite its unusual colorings (gold and woodgrain), all the familiar trappings are there, including a large backlit LCD; a large data-entry wheel; a series of mode, bank, and program select buttons; the usual complement of editing buttons (including "soft" buttons beneath the LED), continuous controller wheels and sliders; and a front-panel breath-controller jack. Likewise, the rear panel has no surprises, offering the usual MIDI in/out/thruputs along with four pedal inputs and a stereo audio output.

World Radio History

But appearances can often be deceiving, and the VL1 can all too easily be misunderstood if you approach it like "any other" keyboard. In fact, the VL1 is like no other synth on the market. There are no piano sounds, no pad sounds, no string ensembles, no choirs, no drums. It's not a workstation (there's no sequencer, nor are there any sampling capabilities), and it has only the barest multitimbral capability — you can only play a maximum of two notes at a time. What's more, it has only limited functionality as a master controller, so it's most definitely not the only keyboard you'll want in your onstage or recording arsenal. Even its keyboard is quite small — only four octaves. Given all this, the price tag — just under five grand — may seem ludicrous at first glance.

But what the VL1 does provide is a fascinating glimpse into the future and a unique opportunity to inject a healthy dose of your own musicianship into the music you create with it. The VL1 is special because it is the first commercially available synth to utilize physical modeling technology. (For more information on this process, see the "Let's Get Physical" article in the January '95 issue.) The "virtual instrument" created by the VL1 is designed to emulate the sound of those musical instruments that require a continuously sustained application of energy in order to create a sound. This encompasses the whole family of reed and wind instruments, as well as bowed string instruments. For example, you can only hear a sax or clarinet sound for as long as air is blown past a reed. Similarly, a trumpet or flute sound exists only as long as air is blown into or over the body. This is one reason why the VL1's two-note polyphony is not so limiting, after all; in many instances, it's really one note too many, since wind instruments are monophonic in nature. The other reason has to do with economics: the amount of computer processing overhead demanded by a physical modeling instrument is so high, additional polyphony would substantially increase the cost of the already pricey VL1.

GET REAL

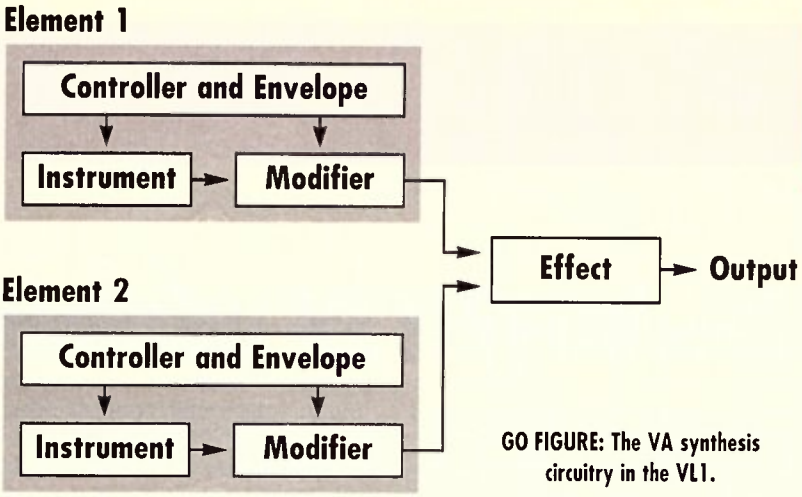
The VL1's 128 preset voices include some of the most amazingly realistic saxes, clarinets, oboes, bassoons, trumpets, cornets, and flutes I've ever heard. Also included are a variety of unusual sound effects I've never heard any other synth come close to making. On the other hand, I found many of the factory solo string and bass sounds to be somewhat disappointing — they're thinner and not as "meaty" as many users might like. But perhaps the most striking facet of the VL1 is the extraordinary degree of user control and expressivity it provides. This is largely because a MIDI controller is absolutely required — not just optional — in order to provide the "virtual" sustaining energy that the VL1's instrument model requires. Although you can assign any controller (wheel, slider, footpedal, etc.) to this "breath pressure" function, you'll probably find that the breath controller (provided with the VL1) is the best choice, since it allows real visceral user input. This in turn demands a degree of proficiency in its use. This proficiency can take several weeks of practice to develop, if like me, you've never played any kind of wind instrument before. But it is amazing to blow slowly into this little piece of plastic and hear wind noise that gradually builds in intensity until a musical sound breaks through!

Beyond breath pressure, other real-time MIDI controllers can be assigned to alter various other parameters of the virtual instrument, and they should be used liberally in order to get the most out of the VL1 voices. These parameters include not only such obvious ones as pitch, amplitude, and vibrato, but also some new control concepts such as embouchure, tonguing, growl, scream, throat formant, damping, and absorption. A full description of how these parameters affect the sound is beyond the scope of this review, but suffice it to say that you can alter VL1 sounds — in real time — in ways that go far beyond what conventional synths allow. These controls also enable you to articulate precisely, making it easy to slur, play legato, or tongue individual notes.

HOW IT WORKS

Despite all of this seeming complexity, the hierarchical structure of a VL1 voice is actually quite simple: a voice can contain one or two stereo elements that can be layered together or split over the keyboard. Each element consists of an instrument, which is routing signals to a series of modifiers. Both the instrument and the modifiers receive continuous input from a number of user-scalable MIDI controllers before sending the final composite signal onto an onboard effects processor. Envelopes can be applied to various controllers to simulate realistic response times, and many parameters can be keyboard scaled to increase or decrease the degree of change as notes

World Radio History



GO FIGURE: The VA synthesis circuitry in the VL1.

in different registers are played.

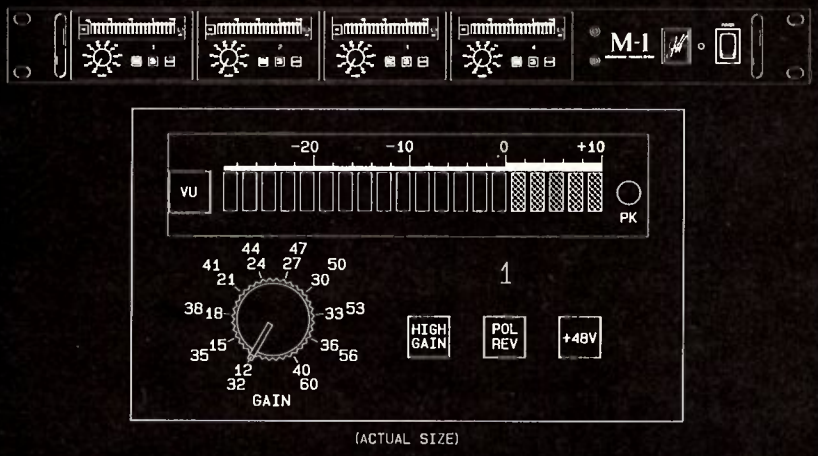
The VL1's instrument consists of two components: a driver and a pipe/string. The driver corresponds to the device that causes the excitation of air in the equivalent acoustic instrument (e.g., a reed, mouthpiece, or bow) and the pipe/string corresponds to the part of the acoustic instrument that resonates and amplifies the sound (e.g., the pipe bore of a wind instrument, or the bow, string, and body of a stringed instrument).

The modifier block consists of five components: a harmonic enhancer (which enables frequency modulation between user-selectable input signals); a dynamic filter (which can be low-pass, high-pass, band-pass, or band-reject); a frequency equalizer (5-band parametric with both high- and low-pass filters); an impulse expander (which simulates metallic resonance); and a resonator (which simulates wooden resonance).

Finally, the VL1's effects section contains three components: modulation effects (flanging, dual pitch change/harmonizer, and distortion); feedback effects (mono or stereo delay and echo); and reverb (hall, room, plate, and large space varieties). Although many of these at first glance appear to be the standard Yamaha effects found in prior products, they are all in fact being produced by the same custom 32-bit DSP chip used for the physical modeling itself. In fact, it's best to think of the VL1 effects section as an extension of the modeling process, since it essentially allows you to define the "virtual environment" in which the sound exists. To this end, there are a number of new variables, such as distortion parameters, that enable you to specify device type (transistor, tube, fuzz pedal, etc.) or speaker type (direct feed, stack, combo, twin, radio, or megaphone). Another nice touch is the provision of a screen that calculates musical delay times (in ms) for user-entered tempos. There is, however, no means to synchronize delays to incoming MIDI clock signals.

Because the virtual instrument used by the VL1 is programmed to

M-1
MICROPHONE PREAMPLIFIER



(ACTUAL SIZE)

"No comparison!" "Whoa!" "Even the producer could tell the difference!" A few typical comments! The M-1 is clearly superior. Here's why:

The JENSEN JT-16-B INPUT TRANSFORMER, *IMPROVED!* The world's best mic-input transformer, now even better!

THE 990 DISCRETE OP-AMP. The 990A-24V is far superior to the monolithic op-amps found in other equipment.

DC SERVO and INPUT BIAS CURRENT COMPENSATION *eliminate all coupling capacitors* and degradation they cause.

Standard equipment: illuminated push-buttons, shielded toroidal power transformer with 6-position voltage selector switch, silver plated XLRs, ground-lift switches, phantom power, polarity reverse and gain controls. Options include the Jensen JT-11-BM output transformer, VU-1 meter (shown), PK-1 meter, gold plated XLRs.

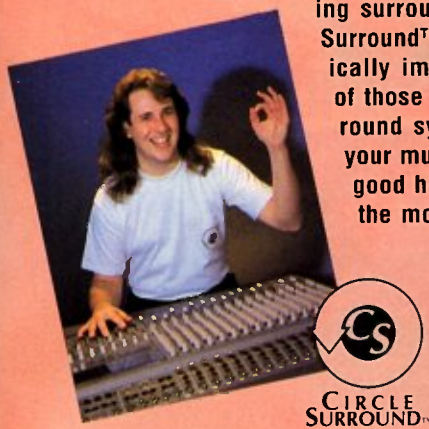
THE JOHN HARDY COMPANY
P.O. Box AA631
Phone: (708) 864-8060 Evanston, IL 60204 Fax: (708) 864-8076

CIRCLE 83 ON FREE INFO CARD

World Radio History

Don't Mess Surround.

There's a lot of confusion about surround sound recording these days, and as a project studio owner you don't want to mess around with the wrong format. ∞ Cinema surround is fine for the movies, but what about your music? Now you can record with the world's finest music surround sound system, Circle Surround™ from RSP Technologies. ∞ Our patent pending intelligent process will enable you to position instruments, vocals, sound effects and so on, anywhere in the circle in conjunction with a four, or five, speaker surround system. Complete smooth panning of the entire 360 degree sound field is possible. ∞ Circle Surround™ uses no artificial ambience effects, and no schemes to mess up your original source material. Just the best surround sound process available for the most dramatic and realistic music and audio/video surround productions. ∞ Compatible with existing surround systems, Circle Surround™ will even dramatically improve performance of those typical cinema surround systems. ∞ So put your music, your soundtrack, your audio/video production, in good hands with Circle Surround™ and leave the popcorn at the movies. Give us a call, or visit your RSP Technologies dealer and quit messing around when it comes to surround.



CIRCLE SURROUND™

RSP Technologies

CIRCLE 92 ON FREE INFO CARD

2870 Technology Drive ∞ Rochester Hills, Michigan 48309 ∞ (810) 853 · 3055

World Radio History

DELTRON HIGH END SHROUDED GROUND CONTACT

NAB95
See You At BOOTH #4605

SOUND CONNECTION SOUND PERFECTION

A range of professional phono plugs featuring a fully shrouded ground contact, plus a PTFE insulator for a high dielectric constant. The solid center pin has a generous solder bucket. A robust cable clamp provides additional strength and accommodates large diameter cables.

DGS PRO-AUDIO

Deltron/Gotham Stateside
US Sales & Stocking Warehouse

800-292-2834

P.O. Box 1700426, Arlington, TX 76003

CIRCLE 23 ON FREE INFO CARD

MERGE A LITTLE, MERGE A LOT.

Merger
2-input MIDI Merger
$79 MSL

Quadra Merge
4-input MIDI Merger
$129 MSL

- MIDI-powered - no batteries or wall adapters required!
- Merges all MIDI data types including Sysex and MIDI Time Code
- Fast merging algorithm insures your data arrives with minimal delay
- MIDI indicator LED flashes to indicate the presence of MIDI data

Call for a **FREE** brochure describing our complete line of modular MIDI-processing products!

Toll-Free 1-800-561-MIDI (6434). Outside US and Canada call (604) 794-3013 Fax (604) 794-3396 CompuServe 72662,140 or write to MIDI Solutions, 816-810 W. Broadway, Vancouver BC Canada V5Z 4C9.

MIDI Solutions Inc.
Innovative Solutions for Today's Musician

CIRCLE 48 ON FREE INFO CARD

obey the natural laws of physics and acoustics, it would be very easy to create one that yields no sound at all — easier, in fact, than it would be to create one that does make a sound. For this reason, Yamaha's design engineers decided not to permit the user access to any instrument parameters beyond providing the opportunity to specify the relative mix of driver, pipe/string, and "tap" components ("tap" allows you to obtain a signal from any point within the length of the pipe/string and add it to the overall signal).

This means that despite the plethora of edit parameters, user programming largely consists of making controller assignments and of tweaking the five modifier and three effects processor components. While this degree of programming allows you to substantially alter a preset voice, it doesn't allow you to fundamentally change the character of the voice. The majority of people rarely hit the edit button, and if you're among them, none of this will matter much. If, on the other hand, you really like to dig in and create voices from scratch, you may find this limitation somewhat frustrating.

HANDS ON

The VL1 user interface is, happily, pretty straightforward. True, there are lots of menus nested within menus, but this should be old hat to anyone who's worked with synths before. My only complaint is that there's no numeric keypad — all data has to be entered using the aforementioned data entry wheel (which is notched) or with the increment/decrement keys. Four directional cursor buttons allow you to easily navigate within each screen, and there's a dedicated "exit" button that will get you out of any screen you've mistakenly entered. Bypassing voice effects requires two key presses; there's no dedicated "bypass" switch as we've seen on many other Yamaha instruments. A bonus of this system is that you can selectively switch off any or all of the three effects components. An onboard disk drive enables you to save or load either banks of voices or individual voices, and there is provision for MIDI sys-ex data dumps. In addition to two modulation wheels (one of which is center-detented and can be assigned any control number), there is a provision for the connection of an additional five physical MIDI controllers (breath controller, two footpedals, and two footswitches), each of which can be assigned any MIDI control number. There are also two continuous sliders on the front panel that can be assigned to any of a number of voice parameters, allowing for quick editing on the fly. Unfortunately, since these do not send out MIDI control change messages, they can't be used to remotely control other MIDI devices in a rig.

No question about it, the VL1 is not for everybody. If you're looking for an all-purpose synth or a fast, easy way to get lots of sounds, this definitely isn't the axe you want. But if you're looking for something completely different, or if you have the chops or desire to create expressive music using the sounds of various existing and theoretical wind instruments, look no further. The VL1 presents a challenge that no synth before it ever has: it demands the rigorous degree of practice, practice, practice that only acoustic instruments do. And, like an acoustic instrument, if you're not prepared to put in that effort, you'll get little out of it. But if you're up to that challenge, the rewards are there. I found that I actually looked forward to practicing on the VL1 each day and I had the reward of knowing that I sounded a little bit better on it each day as a result of the time invested.

It isn't often I say this about a product I review, but I am blown away by the VL1. Literally. After all, when was the last time you encountered an instrument that not only demanded every ounce of musicianship in you but also gave you a cardiovascular workout in the process? —*Howard Massey*

Howard Massey heads up On The Right Wavelength, a MIDI consulting company, as well as running Workaday World Productions, a full-service music production studio. He has come to the conclusion that all reality is, in fact, virtual.

World Radio History

SAW THE NEW *BUZZWORD* IN DIGITAL AUDIO!

Software Audio Workshop

The Fastest, Most Affordable Hard Disk Editing Solution Available Today!

MICROSOFT WINDOWS COMPATIBLE

NEW!

- File Converter & EDL Management
- Audio Gate/Compressor/Peak Limiter
- 7 Band Paragraphic EQ with High & Low Cut Filters
- Echo Generator for Precise Control of Echo Effects
- Auto Panner for Specialized Panning Effects

Sold Separately ($349.00) Requires SAW Software

Look What They're Saying...

"SAW feels and performs significantly faster than the more expensive systems I have been using..." " SAW is too useful and too reasonably priced to ignore..." **(Dave Tosti-Lane, ©1994, Feb MIX Magazine.)**

"SAW gives you multitrack capabilities currently found only on dedicated hardware systems costing thousands more." — "Although it resembles OSC's DECK II for the Macintosh, or Spectral Synthesis' Digital Studio for the PC - without the dedicated hardware - it really is in a class of its own." **(Dennis Miller, © 1993, Dec ELECTRONIC MUSICIAN.)**

"Software Audio Workshop, is an editor that seems to be quantitatively faster and more powerful than any other in the Windows environment. ...if the performance we experienced is an indication, it could be the first truly professional Windows editor." **(Tim Tully, © 1994 Feb NewMedia Magazine)**

"At 10 times the price, SAW is a competitive product. At it's market price, you'd have to be crazy not to buy it...if you can afford a reel to reel, you can afford this system." **(Lindy Williams V.P. Engineering, Lotus Communications Corp.)**

"This program really screams. The speed of access for sound files and the ability to change the display quickly enough to allow scrolling of the waveform as the music plays are truly amazing." **(Dave Tosti-Lane)**

PICK HIT PICK HIT NAB BE Radio 1994 PICK HIT PICK HIT

SAW DELIVERS 32-BIT ASSEMBLY LANGUAGE POWER ON TODAYS 386/486 SYSTEMS!

ASK FOR IT BY NAME!

TEC TECHNICAL EXCELLENCE & CREATIVITY 1994 NOMINEE

THE POWER OF SAW...

4 Simultaneous Stereo (8) Playback Tracks
SMPTE Sync & Generate Capability
Live Automated Non-Destructive Mixing
RealTime Preview Of All Data Processing Functions
Backup & Restore Entire Editing Sessions To Audio DAT
Vari-Pitch In Tenths Of A Semitone Resolution Without Waveform Glitching
Incredibly Fast Assembly Language Waveform Displays & Screen Redraws
Simultaneous Synch Record/Play (Soundcard Dependant)
MIDI Region & Play Sequence Trigger Capability
And Much, Much, More! For Only $599.00

INNOVATIVE QUALITY SOFTWARE
2955 E Russell Rd
Las Vegas, NV 89120
Tel (702) 435-9077
Fax (702) 435-9106

CIRCLE 93 ON FREE INFO CARD

World Radio History

Soundscape Hard-Disk Recorder

EQ LAB REPORT

MANUFACTURER: Soundscape Digital Technology, Inc., 705-A Lakefield Road, Westlake Village, CA 91361. Tel: 805-495-7375; Fax: 805-379-2648.

APPLICATION: For project studio, audio-for-video, radio and TV production, audio-for-film, and ADR.

SUMMARY: Competitively priced, 8-track hard-disk recorder/editor with built-in mixer and a generous complement of tools and features.

STRENGTHS: Easy to install and use; requires minimal PC power (386 or higher); features a programmable tool bar.

WEAKNESSES: Lacks discrete inputs and outputs; no cross-fade tool on this version (v1.15).

PRICE: $3250 w/o hard disk **EQ FREE LIT. #:** 142

SOUNDSCAPE'S SSHDR1 is an 8-track digital recorder, editor, and mixer in a two-space metal rack case. A standard 386 or higher PC compatible provides the front end. For most of the tests, I used a plain vanilla 486 SX/33 with 8 MB of RAM and a standard VGA monitor.

SOFTWARE INSTALLATION

The Windows-based software comes on a single floppy and installs in minutes. It creates a program group with 16 icons that preconfigures Soundscape from 4 to 48 tracks. (The latter requires six units, each capable of eight tracks.) The program boots quickly and requires minimal processing from the PC so that other programs

World Radio History

can run simultaneously. The PC's most complicated task is to calculate the graphic curves for the EQ display. (Two tracks of EQ can be auditioned in real time, then processed.) Though slower on SX models, it's quick on a DX/66. No problems were ever encountered, but the display can be turned off if your system is slow.

Communication with the PC is via parallel interface. One 8-bit ISA card will drive two units. Conflicts with other peripherals is minimal because the hex address of the interface does not conflict with any COM or LPT ports.

THE LAY OF THE LAND

The menu row is at the top of the screen, followed by the tool bar and a calibrated Time Axis. Musical resolution options include bars, quarter, eighth, sixteenth, and thirty-second notes, plus triplets, SMPTE sub frames, and down to "off," for editing at the sample level. As with a CAD program, there is a Snap feature. Snap makes locator flags so that the "play head" and soundfiles click into place.

Most of the screen is dedicated to the Arrange window, which can be sized, scaled, and zoomed to view all, or any portion, of the soundfiles. On the lower portion of the screen are the default locations for the mixer, audio, and memory buffer meters, the take directory, the transport control panel, and the locator. (Arrow buttons on the QWERTY keyboard also double as transport controls.)

In addition to the programmable tool bar, four tools can be loaded into the mouse at any one time. When a tool icon is selected with the left button, a black bar appears under the left side of the icon. Selecting with the right mouse button places a black bar under the right side of the icon. Pressing the ALT key while clicking puts a red bar below the icon. (Referring to the tool bar gives a visual indication of which tools are selected.) It is possible, for example, to have the edit, fade, drag, and solo tools on the mouse at any one time.

The Scissors tool is used to mark a track. Two marks define a section that can then be manipulated by such tools as Level, EQ, Fade-up, Fade-down, Move, and Normalize, to name a few. Group gropes are also possible by placing the left and right cursors around a section.

THE HOT ROD

For comparative purposes, a high-powered 486 DX2/66 was used to determine its effects on system performance. The PC was loaded with 16 MB of RAM, a 928 Movie video accelerator, and a 17-inch SVGA monitor. The default Soundscape window only takes up two-thirds of this screen. This leaves plenty of room to move the transport panel, mixer, take directory, and memory buffer away from the Arrange window, which can then be expanded to fill the screen.

Inside the box is the main PCB (home to the DSP) plus room for two IDE/AT 1.7 GB drives. Independent power supplies isolate the drives from the signal electronics, reducing the likelihood of digital noise entering the analog domain. Noise was never noticed, although on one occasion the Crystal Semiconductor, self-calibrating D/A converter distorted as the program passed through the –30 dB range. Repowering solved the problem.

The stereo inputs and four channel outputs appear in both analog and digital flavors, all utilizing gold-plated RCA connectors (XLR connectors are optional). Input sensitivity is selectable between –10 and +4. Output is fixed at –10. MIDI In, Out, and Thru connectors are also provided. SMPTE to MTC requires a third-party box such as the JLCooper PPS-100.

Pressing E diverts DSP power from the mixer to the EQ window. Real-time

World Radio History

spectral processing is limited to two channels. Once tweaked, a tool makes the EQ "stick" to that track. Processing time varies depending on the take length and the number of filters applied to the take. Eight filters can be applied to a mono file, while stereo files get four filters per channel.

That's what it has — let's find out what it can do:

START YER ENGINES

The first hump I encountered was figuring out how to hear the source. I was anxious to play, of course, so when the manual didn't open to the magic page (Chapter 3, page 16), I confess to having taken the easy way out. I reached out and touched a customer service representative at Soundscape where a live human quickly answered my question. A startling contrast to the more typical voice mail.

The recording process is actually quite simple. Analog or digital inputs are selected from the Settings menu, record-enable icons are accessed from the tool bar, and the soundfile length is set on the time ruler. Click the pointing device (i.e., the mouse) in the Arrange window and, presto, visual and sonic contact. The recording begins when the "+" key is pressed. The rest is easy.

My first basic test, editing the bizarre responses to my equally bizarre outgoing phone messages, proved to be a six-hour crash course in fun — laughter being the primary obstacle to progress. Soundfiles were loaded to Soundscape from cassette via the analog inputs. Level must be adjusted at the source because no input level control is provided. Soundfiles can also be normalized, that is, rescaled so that the highest peak is at maximum, or zero dB. Both input and output levels can be independently monitored. Apart from the initial obstacle, the rest of the software proved very intuitive. I was now ready for a musical challenge.

My first basic test, editing the bizarre responses to my equally bizarre outgoing phone messages, proved to be a six-hour crash course in fun — laughter being the primary obstacle to progress.

THE HANGDOGS

Over the past several months, I have been working with a local folkabilly band, The Hangdogs. Rather than go the multitrack route, live-to-DAT recordings were made with an AKG/dbx microphone and preamp combination (for the review, see *EQ* December '93). Flintstones-style mixing techniques included moving instruments, players, and attitudes until blend and dynamics converged.

Creating a composite from the best takes of each performance was a good challenge for Soundscape. This time, transfer was from DAT via the S/PDIF port. Each take is automatically numbered, but can be relabeled with text via the Information tool. The choice take, "Fools Rush In," was good up until the solo section. Four additional takes were loaded from this point. All the takes were lined up at the downbeat of the solo, which was then divided into groups of four measures.

Due to guitar phrasing variances, creating the ultimate solo became a challenge, and would have been facilitated by an adjustable Cross-fade tool. This feature, slated for Version 1.16, is due about the time this issue hits the stands. If the jump from Version 1.14 to 1.15 is any indication, the next revision has much to offer. [Soundscape states version 1.16 will include scrub/solo scrub, strip silence, intelligent deglitching, shrink takes, 999 location points, and a defragment feature.]

OVERDUBS AND MIXING

Semiautomatic Slim, the guitarist, stopped by to add acoustic guitars. The fact that I was a Soundscape overdub virgin was compounded by working on two hours of sleep. Soundscape, however, was transparent and Slim was gone in less than real time. Up to 64 virtual tracks can appear in the arrange

World Radio History

THIS IS EQ ON CD-ROM

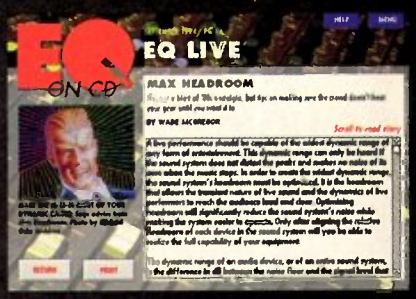
Thirty valuable back issues on a single CD-ROM. An EQ library.

All the tips, techniques, products, reviews and opinions — from the industry's leading experts. All easily sorted by any word, manufacturer, name, or columnist. All the reviews. All the products. Fully indexed, searchable and available at a click of your mouse.

EQ ON CD. The ultimate project studio resource.

EQ ON CD works with either Mac (LC or higher) or Windows (386 & VGA min.) computers.

Over $100 worth of magazines for only:



$19.95

Order today

Please Note: EQ ON CD will begin shipping in April. Actual product may differ from screens pictured. Supplies will be limited. So order now.

☐ Yes, send me my copy of EQ ON CD for only $19.95!

I use a ☐ Mac ☐ Windows computer. Type: _____

Name _____

Address _____

City _____ State _____ Zip _____

Signature _____

Payment Method: ☐ MC ☐ Visa ☐ Amex ☐ Check Enclosed

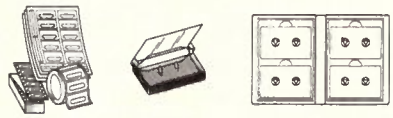
Card # _____ Exp. Date _____

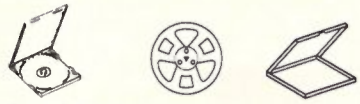
Mail to: EQ ON CD, c/o PSN Publications, Inc., 2 Park Avenue, New York, NY 10016

World Radio History

professional
Audio Supplies
immediate shipment

QAR1/6b


labels cassette boxes albums


CD packaging reels and boxes

ask for our free PolyQuick catalog

Chicago
(708) 390-7744 Fax: 390-9886
Los Angeles
(818) 969-8555 Fax: 969-2267

PolyQuick
1243 Rand Road, Des Plaines IL. 60016
16018-C Adelante Str. Irwindale CA 91702

CIRCLE 57 ON FREE INFO CARD

LEARN THE ART OF RECORDING

You can get the practical, real-world skills needed to successfully start your career as a recording engineer, producer or studio musician. •Hands-on approach, learning by doing •Previous experience not required •Complete 300 hours of training in less than 2 months •6 studios filled with the latest equipment •Small classes, excellent personal attention •Job placement assistance •Financial aid available •Low cost, on-campus housing

For free brochure, call or write today
1-800-848-9900 1-614-663-2544

The Recording WorkShop
THE RECORDING WORKSHOP
455-Q Massieville Rd
Chillicothe, Ohio 45601

Ohio State Board of Proprietary School Registration #80-07-0696T

CIRCLE 76 ON FREE INFO CARD

window, provided enough hard-disk space exists.

In spots where the new guitars didn't lie in the pocket, obvious timing discrepancies were easily visible in Zoom mode. Out-of-time sections were marked and moved into place. Though originally trained to use stainless steel editing tools, I found the waveform views obviated the need for scrub or loop features. (These are also on the virtual drawing board.)

Because it was a live recording, feedback inevitably occurred. This problem was easily dealt with by repeatedly playing the offending shrieks and adjusting the EQ (+14/–24 dB) until they disappeared. The bandwidth can be made narrow enough to not affect the surrounding music. In addition, only the sections that required processing received treatment. Again, remarkably transparent. In the same way, I tweaked the level of the overdubbed guitars to mold their dynamics to that of the song, producing the effect of automation. The end result was smooth, warm, and punchy.

Up to 64 virtual tracks can appear in the arrange window, provided enough hard-disk space exists.

I was often reckless, but I never crashed the system. Though I didn't get to run Soundscape simultaneously with a MIDI program, I did have it open while logging on to AOL. Performance was not changed, but Soundscape could not export a soundfile to the PC (more on that in a moment).

In between projects I returned to the manual, each time a bit more calm and receptive. The information is there, but it's not organized for new users. The good stuff appeared in the third chapter. I think that a "Top Ten List" at the head would be helpful. Keeping the manual up to date with each software upgrade will be Soundscape's ultimate challenge. (Both hard-copy and read-me files document the changes with each version.) [Soundscape plans (before late spring '95) with version 1.17 to supply a hard copy manual with index and a floppy version in Word. Version 1.17 also plans to include reverb, compression, delay, pitch shifting, and more.]

CONVERSION AND BACKUP

Soundscape will import and export 16-bit .wav soundfiles with the PC. I experimented with a few file-conversion utilities that came with the SoundBlaster audio card. Though the process is crude and potentially time consuming, stereo files can be converted to mono and 16-bit files reduced to 8-bit. In addition, sample-rate conversion can also reduce file size, the prime consideration for some software applications. One problem occurred with imported, 48 kHz sample-rate .wav files. These played slower (probably at 44.1 kHz) in SoundBlaster, which recognizes but cannot correctly play 48 kHz files.

Backup to DAT was both effortless and interesting. Soundscape permits large file names, which means you'll have a better chance of knowing what is being restored. Listening to the backup process gives new meaning to the phrase "random access." Sound fragments stutter and alternate from side to side. Somehow Humpty Dumpty gets put back together; a painless procedure.

FINALE

Soundscape's SSHDR1 is a capable production tool well suited to the project environment. It is a cost-effective alternative to tape-based multitracking because of its ability to overdub beyond eight tracks. Although discrete inputs and outputs would be a plus, the lack of same does not detract from overall operation. Its minimal demands on the PC make it ideal for MIDI.

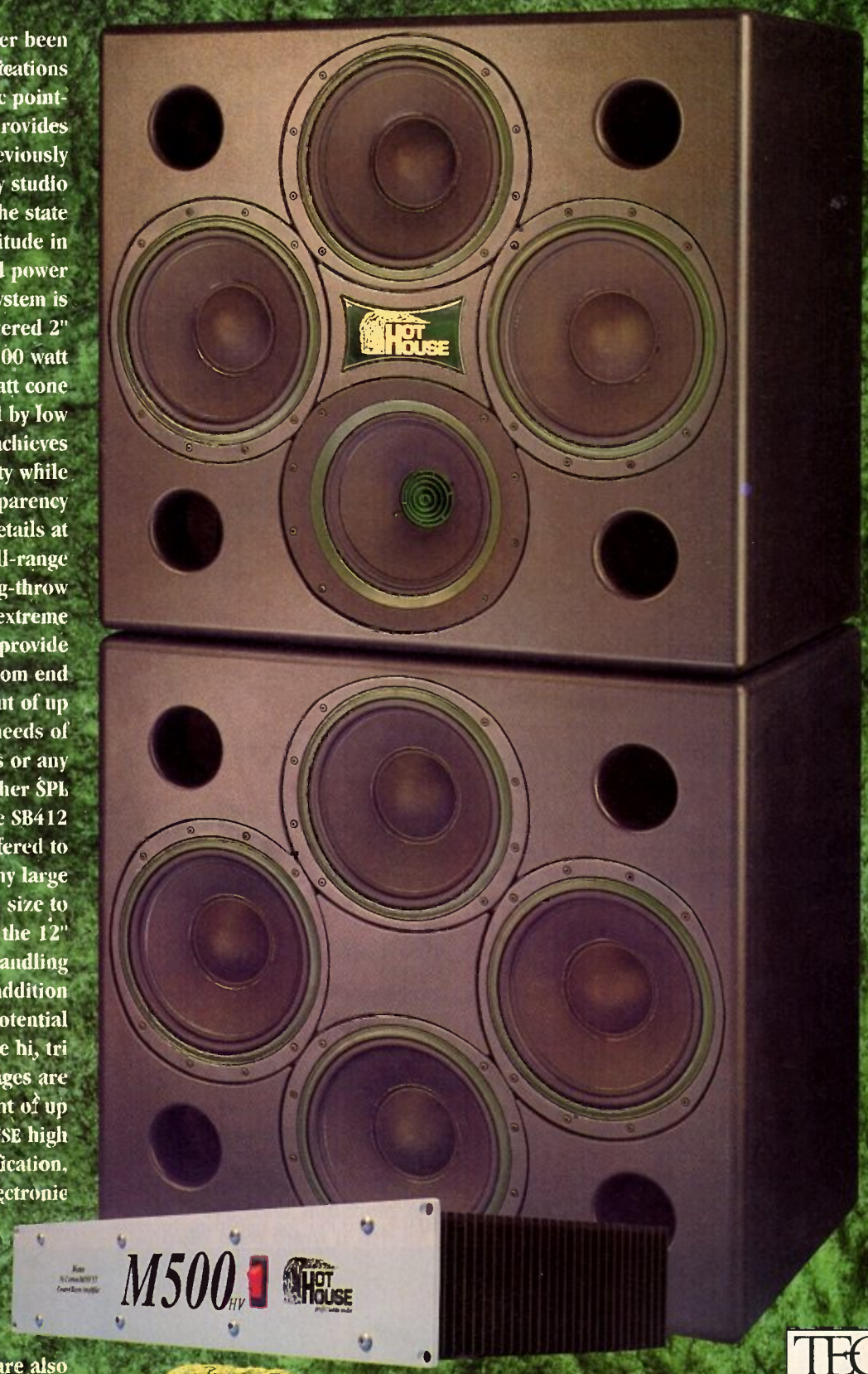
Ever since the introduction of the DAT format, the world has searched for a replacement to the razor blade. Soundscape is a sharp, affordable replacement with extras.

—Eddie Ciletti

World Radio History

Introducing the new HOT HOUSE HIGH OUTPUT SERIES MONITORS and HIGH IMPACT SUBWOOFER

Unlike anything that's ever been offered for control room applications before, the new dual-concentric point-source technology not only provides sound pressure levels previously unobtainable in primary studio monitors, but also advances the state of the art by full levels of magnitude in phase linearity, distortion and power handling. The heart of the system is the extraordinarily high powered 2" throat SUPER-DUAL. With a 1200 watt compression driver, a 1400 watt cone midrange, and unencumbered by low frequency information, it achieves unequalled transient capability while maintaining the transparency necessary to resolve subtle details at lower operating levels. The full-range SD312's three high speed long-throw 12" woofers, engineered for extreme excursion and durability, provide exceptionally fast and tight bottom end down to 25 hertz with an input of up to 3800 watts. To address the needs of very large control rooms or any application requiring even higher SPL and low frequency content, the SB412 High Impact Subwoofer is offered to augment the SD312 (or any large format monitor). Identical in size to the 312 but with four of the 12" woofers and a peak power handling capability of 5000 watts, its addition pushes the system's peak SPL potential to nearly 150 decibels. Available hi, tri and quad amplified, packages are provided with a full complement of up to 20 kilowatts of HOT HOUSE high current audiophile amplification, custom HOT HOUSE SDX electronic crossovers, TEFLON KIMBER KABLE wiring harnesses and full isolation mount system. The High Output Series cabinets are standard retrofit dimensions, but are also available in several custom configurations to meet difficult or unique installation applications.



HOT HOUSE professional audio

TEC TECHNICAL EXCELLENCE & CREATIVITY 1994 NOMINEE

TEL 914-691-6077 • FAX 914-691-6822
275 Martin Avenue Highland N.Y. 12528

YOU'VE *NEVER FELT ANYTHING* LIKE THIS IN A CONTROL ROOM BEFORE

CIRCLE 102 ON FREE INFO CARD

World Radio History

E-mu Morpheus Synth Module

EQ LAB REPORT

MANUFACTURER: E-mu Systems, Box 660015, Scotts Valley, CA 95067. Tel: 408-438-1921.

SUMMARY: Provides a fresh approach to subtractive synthesis and many great new electronic sounds (with an emphasis on "electronic"), but programming is not for the faint of heart.

APPLICATION: Synthesizer module.

STRENGTHS: Good sound quality (with an especially rich low end); tonal characteristics of most programs can be altered in real time via MIDI controllers; great for scoring and techno/rave applications; 32-voice polyphony; auxiliary ("sub") stereo outputs provide send/return loops for connection to external signal processors; vast memory for storage of ROM and RAM programs.

WEAKNESSES: Effects are not linked to individual voices; no sample RAM; programming is convoluted and requires a good deal of advanced knowledge; small, 2-line LCD; large jumps in level between many factory patches; drum sounds cannot be easily remapped.

PRICE: $1495

EQ FREE LIT. #: 143

HAVE YOU EVER been to a restaurant and tasted an incredible new dish, only to discover that the ingredients in it are much the same as those you use at home all the time? It never ceases to amaze me how the same components, prepared just slightly differently, can yield such a wide variety of taste sensations.

E-mu's Morpheus synth module provides a very similar experience. Its basic ingredients — digital samples, filters, envelopes, and LFOs — have been integral parts of most electronic instruments for many years now. But its evolution and the usage of these components result in a sonic identity that's different and fresh. In short, this is a synth with character!

Though based largely on the design of E-mu's popular Proteus line, Morpheus is not just a "box of sounds." Instead, it is a true synthesizer, using onboard ROM digital samples as building blocks for the creation of entirely new sounds. Though the basic process is subtractive synthesis (namely, taking a sound source and passing it through a filter to remove unwanted components), the onboard filters Morpheus usesare unusually complex and are arranged in what E-mu calls a "Z-Plane" configuration. This is actually a series of four or eight complex digital filters that simulate voice or instrument resonance characteristics, with provision for using a MIDI controller for real-time interpolation ("morphing") between filters. In addition, selected MIDI note-on parameters (such as key number or key velocity) can be used to further control the interpolation between one or more filters within the Z-Plane structure.

Most of Morpheus's factory patches are very electronic in nature and are geared mostly for scoring and techno/rave applications. Many are vaguely reminiscent of the Korg Wavestation or other vector synths. And most use the modulation wheel (MIDI controller #1) for filter "morphing," enabling you to significantly change the character of the sound in real time while a note is being held (any other MIDI controller — but preferably a MIDI joystick control from an instrument such as the Wavestation or Yamaha SY22 — can be substituted, if you like). This allows you to "play" the voices themselves, building sonic complexity, creating swirling movements around the stereo image, or even totally transforming one type of sound into another. In addition, key scaling, velocity, aftertouch, and other factors give you the ability to coax a whole range of timbral variations from a single sound. Morpheus's audio fidelity is quite good, with a particularly solid low end that enables it to create killer synth basses and low pedal drones. The onboard ROM samples include pianos, guitars, basses, string sections, and a number of fairly synthetic-sounding drum and percussion voices (which, alas, cannot be easily remapped), as well as a large variety of single-cycle waves. Of these,

World Radio History

the acoustic guitars are the most striking, with a crisp attack and a good deal of clarity. In general, I found most of the 384 factory sounds to be musically useful, though few, if any, provide really accurate emulations of acoustic instruments. However, if you open up your ears to new sonic possibilities, chances are you won't be disappointed by the lack of "bread and butter" patches.

Programming Morpheus is straightforward, but can be a somewhat tedious affair, due largely to the small 2-line LCD and lack of numeric keypad. The filter section is, of course, where most of the Morpheus magic actually happens. Here, you can designate various MIDI controllers to control the amount of interpolation between each of the filters in the Z-Plane set. The specific kinds of filters at each of the "corners" of the Z-Plane are factory preset and cannot be user-programmed; however, there are 197 of these filter types, so there are lots to choose from. Many have been designed to re-create the resonant frequency areas of acoustic instruments or the human voice, so it is entirely possible to select one kind of instrument sound and filter it with the characteristics of another, completely different kind of instrument.

In addition to the usual complement of envelope generators and LFOs, Morpheus also provides advanced devices called "function generators" for modulation purposes. These are essentially highly evolved interactive eight-segment envelope generators that have the ability to conditionally jump from one segment to another depending upon the conditions at the moment (for example,

continued on page 143

RECORDING EQUIPMENT

—All Major Brands—

FOR STUDIOS/HOMES CHURCHES/CLUBS

- Reel to Reel Decks (2-4-8-16-24 Track)
- Cassette Decks • Mixing Boards
- Mikes • Studio Monitor Speakers
- Special Effects Units Accessories

TASCAM
TEAC Production Products

- **VOLUME DEALER**
- NEW & USED
- E-Z TERMS
- ALL MAJOR CREDIT CARDS
- PROFESSIONAL ADVICE

Call for pricing information.

RHYTHM CITY

1485 NE Expressway
Atlanta, Georgia, 30329
1-404-320-SALE • 1-404-320-7253
Special Pricing for Package Systems.

CIRCLE 62 ON FREE INFO CARD

COMING UP IN MARCH 1995

KILLER QUEENS. **Heavy metal legends Queensryche reveal how they set up a project studio to record their latest album — and how they are taking it with them when they tour.**

BECOME A MASTERING MASTER. **This issue offers a special mastering section that will provide valuable techniques for making magnificant masters. Inside this section, Bob Ludwig reveals do's and don'ts; Roger Nichols investigates mastering for CD-ROMs; Bobby Owsinski tells mastering tips; and you'll find out what a replicator really wants in a mastered disc.**

CLOSE CALL. **Shopping for a new set of nearfields? *EQ* auditions five new nearfield monitors and tells whether or not you should give them a listen.**

TO BE A PART OF THIS ISSUE, CONTACT:

Kathleen A. Mackay; Associate Publisher (ext. 152)

Advertising Sales:

Daniel A. Hernandez (ext. 150)
Matt Charles (ext. 147)
Andrea Berrie (ext. 148)
Christine Cali (ext. 155)

TEL: 212-213-3444 • FAX: 212-213-3484

World Radio History

Miking Goes the Distance

Get a more natural, open sound through the use of distant miking techniques

BY BRUCE BARTLETT
WITH JENNY BARTLETT

Close miking is the norm these days, since it gives a tight, punchy sound with lots of presence. Guitar amps and drums are often miked within an inch or two, and saxes are miked close to the bell. But there's an alternative — distant miking — which is a great way to open up the sound of your tracks.

Moreover, close and distant miking can coexist in the same recording and complement each other. For example, suppose you've recorded a song made of sequenced parts. Normally this sound is very dense, but if you add acoustic guitar, sax, or horns miked a foot or more away, you'll get an open, airy effect. The distant miking enhances what you normally do.

If you want to capture a natural sound on an acoustic instrument, chances are you'll get it more easily if you move the mic back about a foot or two. The sound opens up and becomes more natural.

Here's why: Musical instruments are designed to sound best at a distance — at least 1-1/2 feet away. The sound of an instrument needs some space to develop. A mic placed a foot or two away tends to pick up a well-balanced, natural sound. That is, it picks up a blend of all the parts of the instrument that contribute to its character or timbre.

Think of a musical instrument as a loudspeaker with a woofer, midrange, and tweeter. If you place a mic a few feet away, it will pick up the sound of the loudspeaker accurately. But if you place the mic close to the woofer, the sound will be bassy. Similarly, if you mic close to an instrument, you emphasize the part of the instrument that the microphone is near. The tone quality that is picked up very close may not reflect the tone quality of the entire instrument.

LEARNING FROM PAST MASTERS

Despite its importance, mic technique seems to be a vanishing art. We can learn from the masters of mic technique, many of whom made gorgeous recordings with distant mics. Judging from session photos taken in the '50s and early '60s, the engineers used to place the mics at least a foot or two from the instruments. The sound picked up this way was natural, and was often better than what we're recording now. We tend to be addicted to close miking, not realizing there's an alternative.

For an example of how good distant mic placement can sound, check out the Dave Brubeck reissue *Time Signatures — A Career Retrospective*. Even though the tapes are 30 years old, they sound great: the drums have lots of impact, the acoustic bass sounds full, and the piano

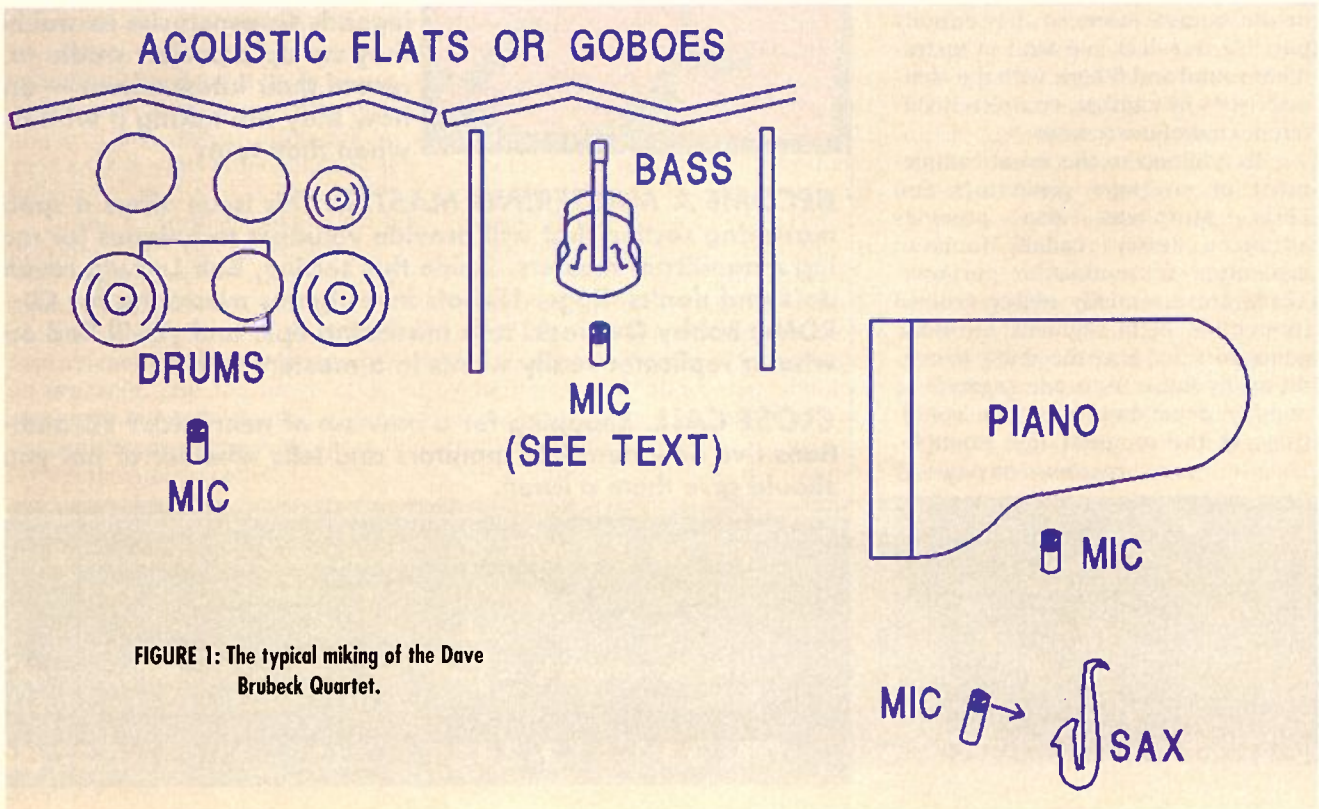


FIGURE 1: The typical miking of the Dave Brubeck Quartet.

World Radio History

"unbelievable...

this is one piece of gear you should hear for yourself..."

Tom Schizzano
Home & Studio Recording
September '92

"...exceptional...

the sonic quality...is superb, rivalling digital equipment many times the price."

Dominic Hawken
Audio Media Magazine
March '94

5 points out of 5

for sound quality

David Miles Huber
Electronic Musician
June '92

The CardD Plus™

Not to be confused with multimedia soundcards, the CardD Plus is for professional hard disk recording and editing. If you need the best possible sound on your IBM, this is it.

$795

The CardD™ $295

Digital input/output option for the CardD Plus!

The DIGITAL ONLY CardD $495

Stand-alone digital i/o card for the IBM! Do direct digital transfers between DAT and hard disk!!

Digital AUDIO LABS

14505 21st Ave. N., Suite 202, Plymouth, MN 55447
phone (612)473-7626 fax (612)473-7915

CIRCLE 25 ON FREE INFO CARD

World Radio History

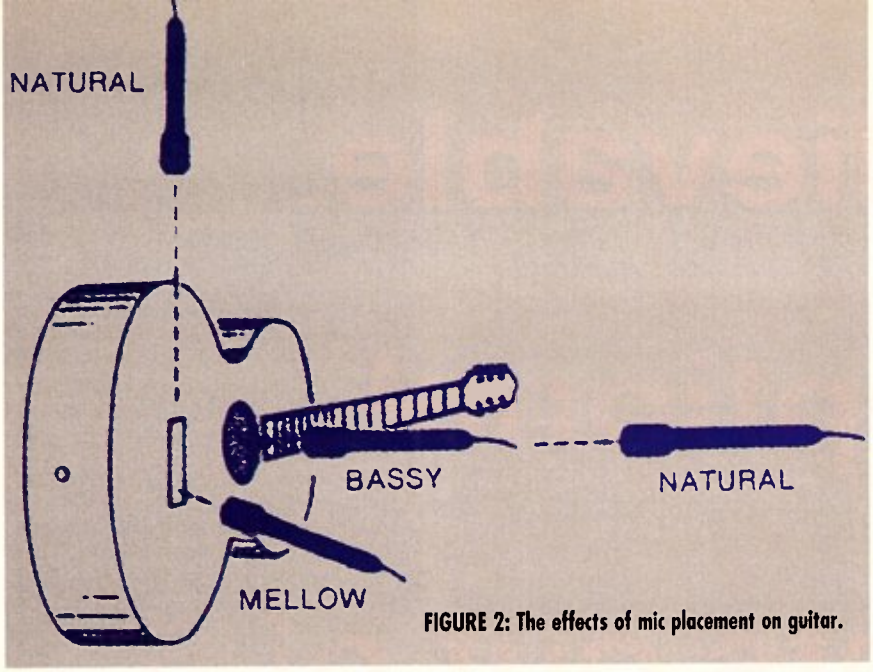


FIGURE 2: The effects of mic placement on guitar.

and sax are warm rather than thin.

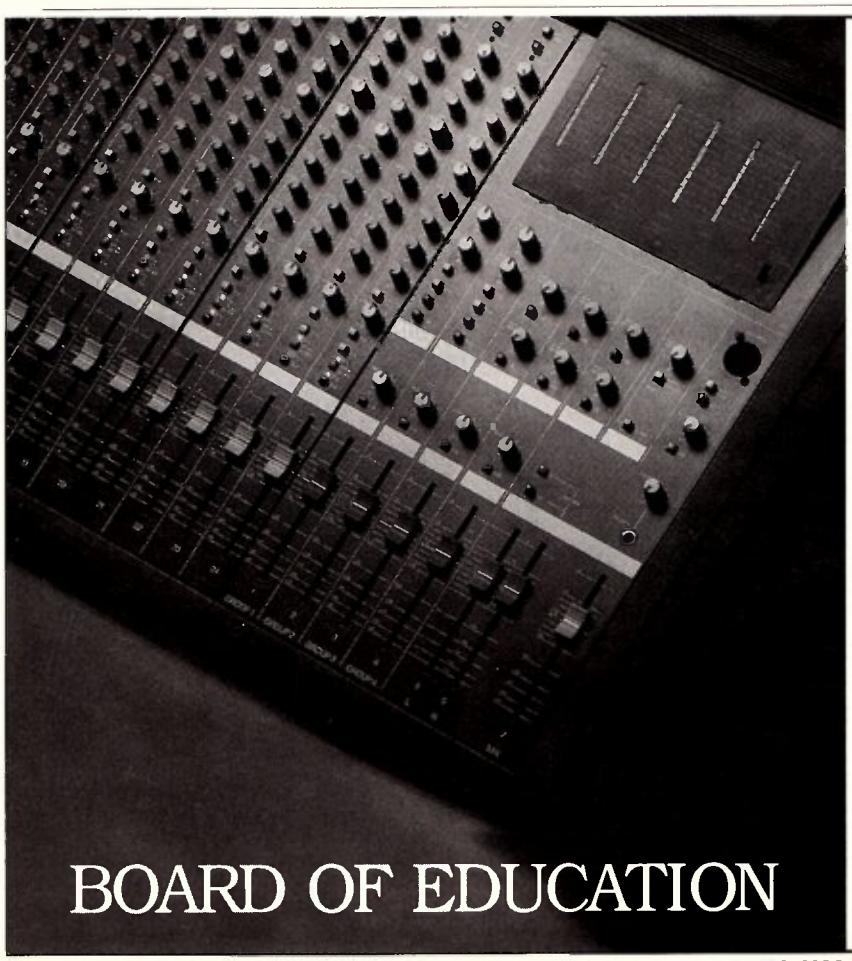
On the Brubeck groups, the engineers used one large-diaphragm condenser mic per instrument, and each mic was at a respectful distance (fig. 1). They usually miked the sax about 1-1/2 feet away from the keys and bell. The piano was miked just outside the raised lid, with the mic about 1 foot below the lid. The entire drum set was picked up with one mic placed 5 feet off the floor and 3 feet in front. String bass was covered by a mic about 1-1/2 feet from the bridge.

How can we use those techniques from the past to record better sound in our productions today?

Usually, you can get a natural sound if you place the microphone as far from the instrument as the instrument is big. That way, the mic has equal pickup of all the sound-radiating parts of the instrument. For example, if the body of an acoustic guitar is 18 inches long, place the mic 18 inches away for a natural tonal balance (fig. 2). If this sounds too distant or muddy, move in a little closer.

Similarly, try miking a sax about 1-1/2 feet away, about halfway between the tone holes and the bell. You'll appreciate the warm, musical timbre you hear at that distance. Of course, you might not want a natural sound. If you prefer a bright, edgy tonal balance, mic the sax closer to the bell (fig. 3). Here are some tips for other parts:

- Grand piano: Remove the lid and mic 18 inches to several feet over the hammers. Also try recording with the lid on but raised and place the mic a few feet away, in line with the lid.
- Lead vocal: Place the mic about 1 foot away at nose height to prevent breath pops.
- Harmony vocals: Use a stereo mic, or a stereo pair of mics, at about 3 feet from the singers.
- Drums: Try a stereo pair about 3 feet in front and raised 5 feet. Boundary mics also work well when placed on the walls, ceiling, or gobos.



Phonic's M-Series four-bus mixing consoles are not high-school dropouts masquerading as college grads. Available in 24- and 16-channel versions with sub groups and master output, these production-quality boards are engineered to deliver clean, quiet mixing performance at a price that won't require a student loan.

For enhanced mixing control and added flexibility, all input channels feature six aux sends assignable to pre and post fader positions, 3-band semi-parametric EQ with sweepable mids and easy insertion of outboard effects on input channels, sub groups and master outputs.

There just isn't enough room in this ad to educate you on all the exciting features and functions found on Phonic's M-2442 and M-1642. For a real education, check them out at a professional audio retailer near you.

ARTICULATE SOUND
PHONIC®
1632 McGraw Ave., Irvine, CA 92714 (714) 253-4000
Offering Quality Products at Exceptional Value

CIRCLE 56 ON FREE INFO CARD

World Radio History

DISTANT DISCOGRAPHY

Check out these albums to hear distant miking in action

Dave Brubeck, *Time Signatures — A Career Retrospective*, Columbia/Legacy C4K 52945.

Sonny Rollins, *Way Out West*, Analogue Productions CAPJS 008 remastered by Doug Sax, CAPJG 008 remastered by Bernie Grundman.

Art Pepper meets the Rhythm Section, Analogue Productions CAPJS 010 remastered by Sax, CAPJG 010 remastered by Grundman.

It's important to know when not to mic far away. If you try to record several musicians at the same time in a small studio, each with a distant mic, the sound will be muddy due to leakage. Brubeck's engineers got away with this because the old studios they used were so big. The engineers could separate the musicians enough to reduce leakage to the point where it just added some air. When distant miking, you may need to overdub each instrument one at a time to keep the sound clean (free of leakage). Be careful, though — you don't want to lose the music's immediacy or the musicians' interaction by overdubbing more than necessary.

Distant miking works well if your studio either has good-sounding acoustics or is "dead" so you don't hear the acoustics at all. I don't recommend distant miking if the sound sources are close together, as with a singer/guitarist. If you put a mic 1 foot from the guitar and another 1 foot from the singer, and mix them together, you'll get phase interference between mics that gives a filtered tone quality. It's better to use two close mics, or use one distant mic to cover guitar and singer, or overdub the singer after recording the guitar.

MIC PLACEMENT FOR TONE CONTROL

Suppose you've found a good working distance for the mic. Now, if you move the mic left, right, up, or down, you'll change the recorded tone quality. In one spot, the instrument might sound bassy; in another spot, it might sound honky; and so on. So to find a good position, simply place the microphone in several different locations and monitor the results until you find one that sounds good to you.

You might want to plug a mic into a headphone preamp and monitor the mic placement with headphones. Place the mic in various spots while listening to the musician play, then pick a good-sounding spot.

Here's another method using just

continued on page 143

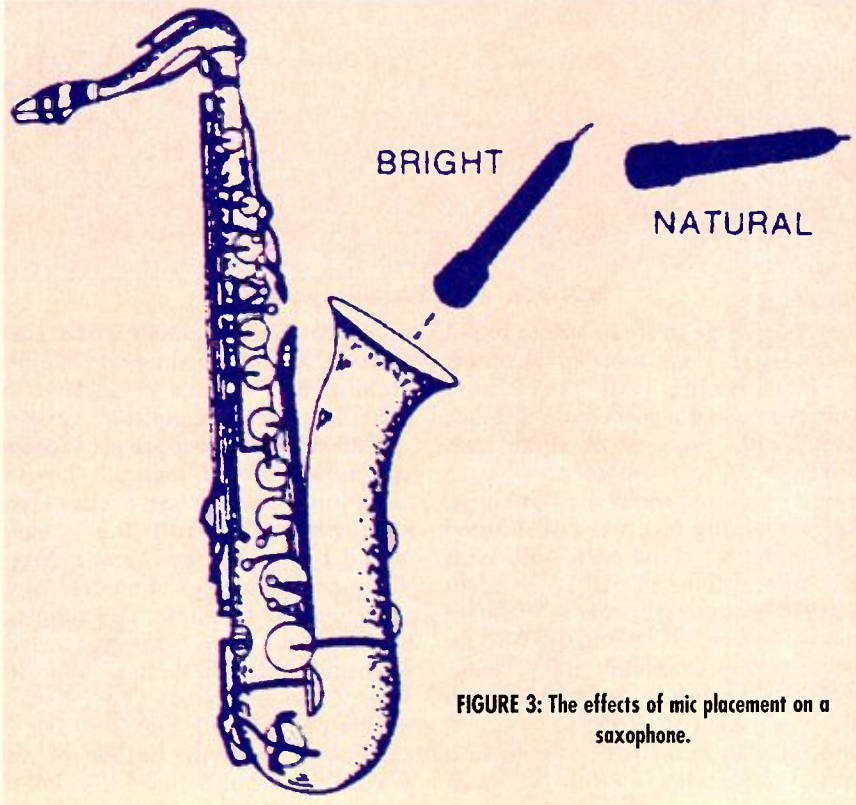
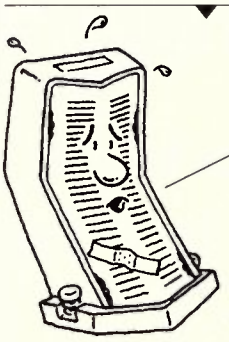


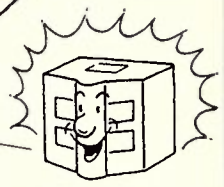
FIGURE 3: The effects of mic placement on a saxophone.

TALKING HEADS



I'm so worn! Edge tracks bounce...I'm way out of spec...Am I done for?

No! Go to JRF. I did, and now I spec out like new!

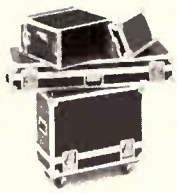


▶ HEAD RELAPPING
▶ OPTICAL ALIGNMENT
▶ NEW REPLACEMENT HEADS

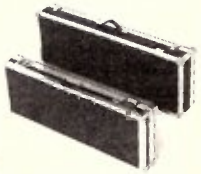
JRF MAGNETIC SCIENCES
(201) 579-5773
Fax (201) 579-6021
249 Kennedy Road, Greendell, NJ 07839

CIRCLE 43 ON FREE INFO CARD

PROFESSIONAL QUALITY AT THE RIGHT PRICE



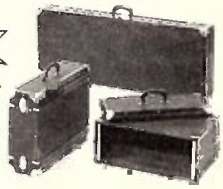
Heavy Duty ATA
• Custom and stock sizes
• Quick turn around



Medium to Heavy Duty Keyboard Cases
• Prices starting at $126

Heavy Duty AMP and Effect Racks
•Prices starting at $129

Prices starting at $59



Hardshell Cases
Available for:
guitars racks keyboards

DISCOUNT DISTRIBUTORS

FOR INFORMATION AND FREE BROCHURE *CALL* 800-346-4638 (In N.Y.) 516-563-8326

The Case Specialists

CIRCLE 27 ON FREE INFO CARD

World Radio History

Building a Better Bass Trap

Read this before you decide to take the trash out to the curb

BY BARRY HUFKER AND SCOTT SHEPARD

READY FOR PICKUP: The finished product.

Building the TrapCan is an inexpensive way to improve the acoustics of your studio, control room, or listening room. In its basic form, the TrapCan acts as a bass trap, absorbing excessive low-frequency energy. It can double as a polycylindrical diffuser to improve sound diffusion and reduce flutter echoes. Not only is the TrapCan an effective tool, it is also inexpensive and modular. You can build the traps one at a time until you achieve the desired result. With a little ingenuity, eight TrapCans can be built for about $250.

Quite simply, the TrapCan is a bass trap built in a rigid rubber trash can. We hit upon the idea recently while trying to solve the acoustical problems of a small local studio. There was really no budget for any corrections but there was a definite need for an effective acoustical solution. Analysis of the studio's resonant frequencies indicated that energy around 100 Hz was giving the room its "boomy" quality, while parallel walls reinforced other resonances and generated flutter echoes. The room's 100 Hz "honk" was our first target.

It must have been a fit of madness that made us realize a 32-gallon trash can is about the right height for a 100 Hz trap, and is usually cylinder shaped. Instantly the TrapCan was born!

After buying a trash can to confirm its range of resonant frequencies (80–100 Hz), we built a prototype. Convinced that we heard a localized improvement with one trap in a room corner, we invited a class of advanced audio students from Webster University to participate in another subjective, unscientific test. The group's assignment was to listen for any change in room sound based on the trap's presence or absence. Initial listening tests proved the design successful so we built another seven units. Four of the eight traps were placed in room corners where mode pressures are at their greatest. The remaining four were positioned at a midpoint along each wall. With all the TrapCans in place, we again asked the audio students to evaluate the acoustics. All commented on an obvious improvement. Independent reports from others using the studio also confirmed our success.

You can build the TrapCan in a variety of styles to suit different acoustical needs. Construction isn't difficult, costly, or time-consuming. Finding your room's resonances is only slightly more complex.

Room resonances are more properly known as room "modes." They are "standing waves" that occur when sound interacts with the room's boundaries (walls, floor, and ceiling). There are three types of modes: axial, tangential, and oblique. The simplest modes (axial) occur between any two opposing surfaces, such as opposite walls. Once generated, a sound wave travels toward both surfaces, but is prevented from going further when it strikes the boundaries. The sound

World Radio History

AD INDEX *For fast and easy information use the reader response card in this issue*

PAGE	BRAND	INFO#	PHONE#
53	3M	01	800-752-0732
7	AKG	XX	818-893-8411
25, 2, 67	Alesis	02, 03, 04	800-5-ALESIS
9	Amek Systems & Controls	05	818-508-9788
109	Ampex	84	415-367-3809
51	Aphex	08	818-767-2929
142	API	99	703-455-8188
63	Apogee Electronics	06	310-915-1000
95	Applied Research & Tech.	07	716-436-2720
10	Ashly Audio	09	716-544-5191
134	Audio Institute of America	10	415-931-4160
45	Bag End	98	708-382-4550
37	BASF	14	617-271-4000
20	BBE	11	714-897-6766
90	Caig Laboratories	12	714-897-6766
48	Caruso Music	13	203-442-9600
77	Carver Corp.	15	206-670-3401
80	CM Automation	16	708-449-7269
83	Community Light & Sound	17	215-876-3400
60, 86	Conneaut Audio Devices	20, 19*	800-762-9266
87	Crown	79	219-294-8200
15	D&R	29	409-588-3411
62	David Carroll Electronics	21	510-528-8054
49	dbx	31	801-568-7660
32	Demeter Amplification	22	818-986-7103
116	DGS Pro Audio	23	800-292-2834
69	DIC Digital	19*	201-692-7700
127	Digital Audio Labs	25	612-473-7626
5, 28	DigiTech	36, 26	801-566-8800
129	Discount Distributors	27	516-563-8326
152	Drawmer	101	508-435-3666
54	Ebtech	28	619-679-6510
85	Electro-Voice	30	616-695-6831
68	Europadisk	32	212-226-4401
137	Firehouse	94	718-383-5606
88	First Light Video Publishing	34	800-777-1576
75	Fishman Transducers	35	508-988-9199
47	Fostex	90	310-921-1112
136	Full Compass	38	800-356-5844
138	Full Sail	97	407-679-0100
55	Furman Sound	50	415-927-1225
81	G-Prime (Gotham)	51	212-765-3415
62	Grandma's Music & Sound	39	505-292-0341
105	HHB	33	207-773-2424
123	Hot House	102	914-691-6077
140	Illbruck	40	800-662-0032
117	Innovative Quality Software	93	702-435-9077
98	Institute of Audio Research	41	212-777-8550
104	JLCooper	42	310-306-4131
156	JBL Professional	XX	818-895-8190
129	JRF Magnetic Sciences	43	201-579-5773
143	KAT	100	413-594-7466
27	KRK	37	714-841-1600
134	Leigh's Computer	44	215-658-2323
18	Lexicon	82	617-736-0300
38, 61	Mackie Designs	45, 46	206-487-4333
140	Max Monitors	47	305-669-1330
116	MIDI Solutions	48	604-794-3013
91	Musician's Friend	65	503-772-5173
70	Night Technologies	49	800-375-92829
111	NRI Schools	53	202-244-1600
42	Panasonic/RAMSA	XX	714-373-7200
11	Peavey	55	601-483-5365
128	Phonic Hi-Tech	56	714-253-4000
122	Polyline	57	708-390-7744
80	Premium Entertainment	58	800-995-9664
50	Rane	60	206-355-6000
125	Rhythm City	62	404-320-7253
82	Rockford/Hafler	63	800-366-1619
133	Rorke-Data	95	800-328-8147
71, 115	RSP Technologies	64, 92	810-853-3055
79	Sascom Marketing	54	905-420-3946
48	Selco Products Company	66	714-521-8673
155	Sennheiser	67	203-434-9190
35	Sonic Foundry	68	608-256-3133
139	Sony	XX	800-635-SONY
89	SoundTech	88	708-913-5511
97	Soundtracs	69	516-932-3810
32	Stedman	70	616-629-5930
59	Studiomaster	71	714-524-2227
76, 102	Sweetwater Sound	72, 73	219-432-8176
103	Sydney Urshan	59	818-901-1649
107	Symetrix	74	800-288-8855
33, 135	Tannoy America	61, 96	519-745-1158
12	TASCAM/TEAC America	75	213-726-0303
114	The John Hardy Company	83	708-864-8060
122	The Recording Workshop	76	614-663-2544
101	Vestax Corporation	89	707-427-1920
54	West L.A. Audio	77	310-477-1945
23	Yamaha Pro Audio	78	714-522-9011
26	Z Systems	80	904-371-0990
31	Zoom Corp.	81	415-728-0210

World Radio History

wave then reflects back along its original path, combining with the waves still heading toward the boundaries. Along the path there are pressure maximums where the mode is strong, and pressure nulls where it is essentially nonexistent (fig. 1).

A standing wave forms at a frequency whose half-wavelength is equal to the distance between the two surfaces. Its energy increases over time, taking longer to decay than other frequencies. Multiples of the standing wave frequency also behave this way. As an example, if the standing wave is 50 Hz, then the room also has axial modes of 100 Hz, 150 Hz, 200 Hz, etc.

Tangential and oblique modes are even more complex. They stem from the interaction between two or three pairs of boundaries. Fortunately, axial modes, although the most audible, are also the easiest to determine and attack. Note, however, that while parallel walls aid standing waves, modes are not eliminated in rooms with nonparallel walls. The modes are just made more complex. Room modes are not a problem if they are distributed evenly in frequency, and increase smoothly in number with increasing frequency. Unpleasant room colorations are created when two or three of these modes are clustered together around a single frequency, creating a noticeable "resonance," such as a 100 Hz "boom."

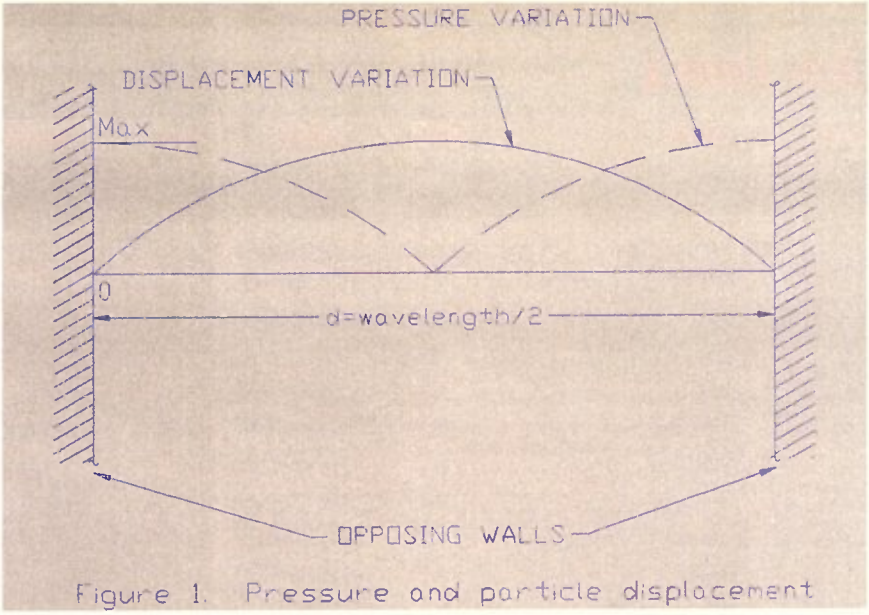
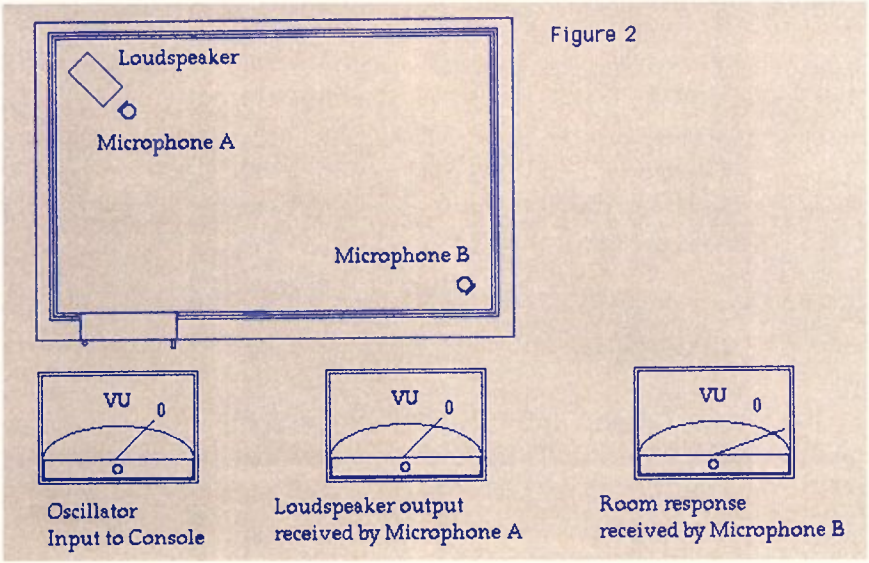
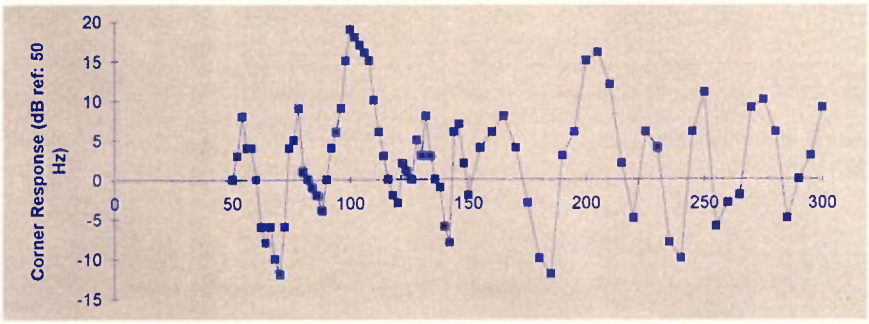


Figure 1. Pressure and particle displacement





TAKE IT FROM THE TOP: Figures 1, 2, and 3 (from top to bottom).

TESTING THE STUDIO

While computer programs are available for calculating a room's modes, they tend only to be accurate with rooms having parallel boundaries. You can find the resonant frequencies of your studio using the procedure shown in fig. 2. Begin by positioning a loudspeaker with good low-frequency response in Corner A. Place a high-quality microphone with a flat frequency response in front of the speaker at a short distance from it. Call this "Microphone A." A second microphone of the same type as Microphone A should be placed in Corner B, directly opposite the loudspeaker and just a few inches above the floor. Face the microphone toward the corner and call it "Microphone B."

Omnidirectional mics, such as the Bruel & Kjaer 4006, are ideal for this test. Unlike directional microphones, omnidirectionals don't exhibit a low-frequency boost when placed near a sound source. The 4006 possesses a very linear frequency response, but other microphones will do.

Once you have your mics placed, follow these three steps:

1. Send a 1 kHz tone into the audio console using a variable frequency oscillator and adjust for 0 VU on the board's meter. This tone is the calibration signal. All other results will be compared to it.

2. Turn the loudspeaker's amplifier on. Send the test tone to the speaker where it will be received by Microphone A. Return the signal from Microphone A to the console through a middle input. Route that signal to a multitrack bus for observation. Adjust this signal on the console until the bus meter reads 0 VU. If you can't get enough level, increase the output to the speaker but be sure to reset the 1 kHz tone on the console for 0 VU.

3. Now bring the signal from

World Radio History

RORKE DATA

Rack N' Roll

SONY

OPTICAL DRIVES

REMOVABLE HARD DRIVES

TAPE BACK-UP

OPTICAL CARTRIDGES & TAPES

Rorke is excited to announce the latest in high-end SCSI storage devices for DAW's. Our knowledgable staff will help to customize a powerful desktop or rackmount disk subsystem for your particular needs.

We're always at AES and NAB

1-800-328-8147 Rorke Data, Inc., 9700 W. 76th St., Eden Prairie, MN 55344, 612-829-0300, Fax 612-829-0988

Sony™ is a trademark of Sony Corporation of America

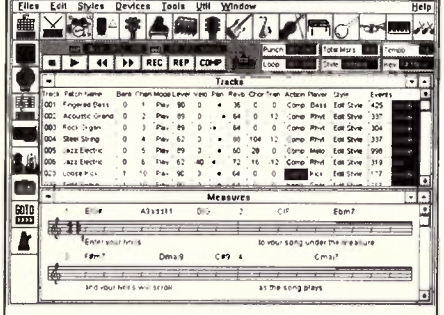
Featuring Sony's 1.3GB Half-height SMO-F521

CIRCLE 95 ON FREE INFO CARD

World Radio History

BE A RECORDING ENGINEER
★ TRAIN AT HOME ★

Learn to become a professional recording engineer at home . . . at a fraction of the cost of most resident schools.
Easy Home-Study practical training in Multitrack Recording including the latest in Digital and MIDI.
Join the Audio Institute's successful working graduates or learn how to build your own studio. Career guidance. Diploma. Job placement.
SEND FOR FREE INFORMATION
Audio Institute of America
2258-A Union Street, Suite AN
San Francisco, CA 94123
For A Sound Education ™
CIRCLE 10 ON FREE INFO CARD

LEIGH'S
MIDI Mail Order
Fall Special
the JAMMER Professional ™ for Windows
ONLY $ 159.00
Take a seat in the Producer's chair and get ready to create a musicial masterpiece. Built in Studio Musicians create original drums, drum fills, bass parts, rhythm guitars, keyboards and melodies for you in a 256 track sequencer. You control it all.
Made in the USA by Soundtrek

To Order Call LEIGH'S MIDI Mail Order
(USA) 800-321-6434 (CANADA)
Ph: 215-658-2323, FAX: 215-896-4414
144 W. Eagle Rd., Havertown, PA 19083
CIRCLE 44 ON FREE INFO CARD

Microphone B into the console. Route it to yet another multitrack bus for observation. Adjust this signal on the console for 0 VU. If you don't have a loud enough signal, increase the level of the tone being sent to the loudspeaker until you do. If you increase the signal level going to the speaker, repeat steps one and two. Be careful not to overload the amplifier, speaker, microphone, or — most importantly — room frequency response. Now all three signals should be at 0 VU.

The meter monitoring the oscillator's input will reflect any change in level from the oscillator as you sweep through various frequencies. Microphone A's meter shows the loudspeaker's frequency response and will indicate any change in level due to frequency. These first two signals are the "control" and will reveal any flaws in the signal source, whether in the oscillator or speaker.

If the oscillator or speaker level changes each time you select a new test frequency, start with the oscillator and adjust it again for 0 VU. Then go to the input for Microphone A and do the same. This eliminates any incorrect results due to imperfections in the signal source. With the oscillator and Microphone A signal always at 0 VU, the room's response will be whatever difference is shown on the bus meter for Microphone B. Plot these changes on a graph (fig. 3).

4. Being careful not to overdrive your system, begin the test by sending a low frequency (such as 50 Hz) through the loudspeaker. Again, be sure the meters for the oscillator and Microphone A read 0 VU. If they don't, adjust them until they do. Now look at the bus meter for Microphone B and plot on the graph the change above or below 0 VU.

You can continue to do this in whatever fashion you like. For instance, you can now tune to 51 Hz and repeat the procedure or increase the test frequency 5 to 10 Hz at a time. Modes tend to be more separated at low frequencies. They will be easy to miss with large increments in test frequency. It is best to be as precise as possible in choosing test frequencies, but you can overdo it. You will not be able to build a 125.33 Hz trap for instance. In fact, your trap will be resonant over a range of frequencies. Continue testing until you get to 300 Hz —the frequency at which almost all rooms are free of excessive resonant energy.

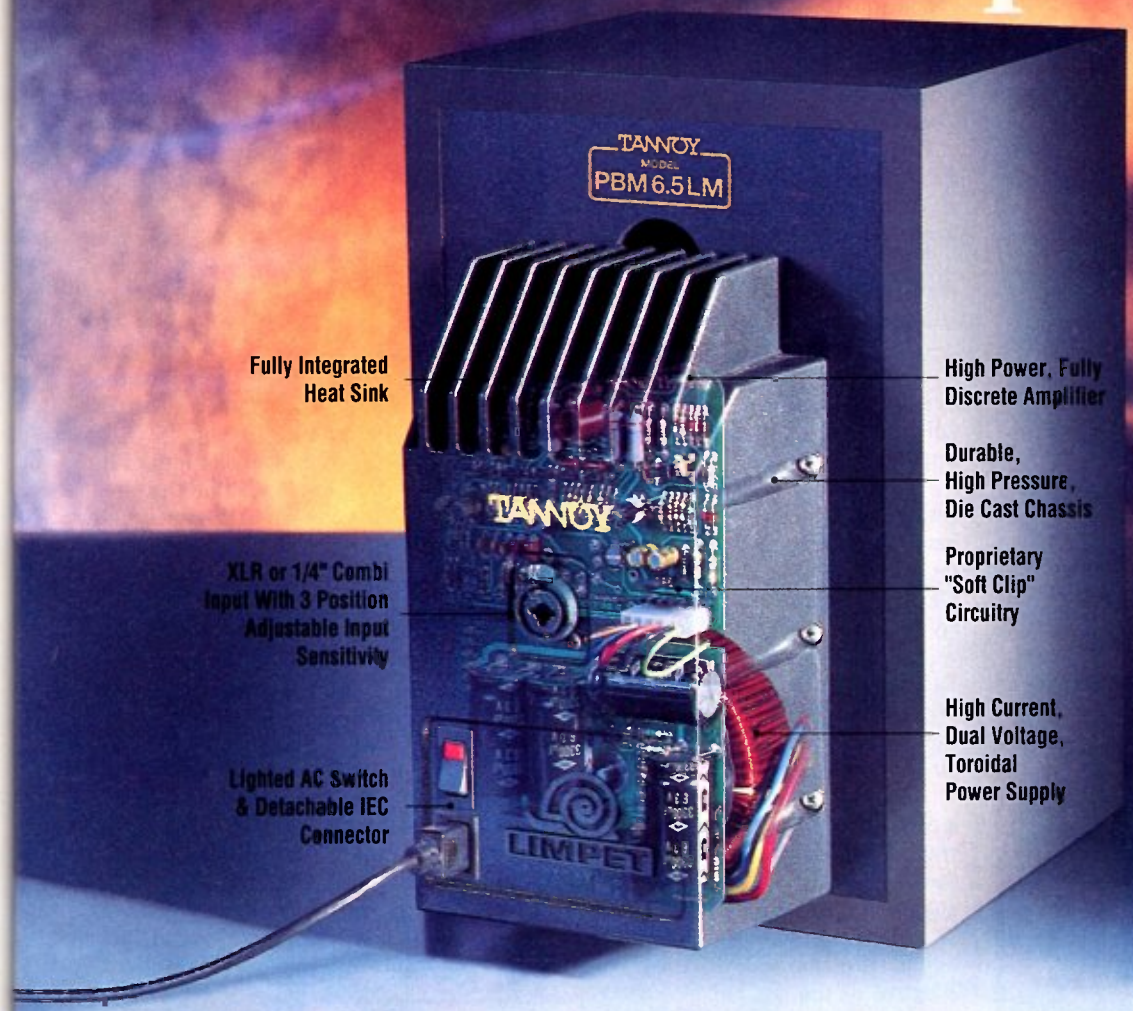
You should now have a good idea of what the troublesome frequencies are. They are the large "peaks" on the graph. In addition to some "hot spots" you probably graphed a few "cold" ones. Just as the resonant frequencies were peaks, the gaps in the room's response were valleys — unexcited frequencies. This is natural at low frequencies and isn't a problem when they are distributed evenly though the low frequency spectrum. Problems occur when two or more modes are closely spaced, creating a "superpeak." It's the peak room modes you want to smooth out. They give the room its "sound" and color the recordings that are made in it.

If the studio has closely grouped low-frequency modes (boominess),

FIGURE 4: Lining the trash can with fiberglass.

World Radio History

They Call Him "Mr." Limpet®



■ Every once in a while a product comes along which not only meets the ever increasing demands of the market, but one whose smooth commercial styling, ergonomics, durability and outstanding performance demands respect. Introducing MR. LIMPET. ■ The LIMPET is a unique, compact design that combines a very high current toroidal power supply, fully discrete amplification stages, and ultra wide (10 Hz to 80 kHz) bandwidth capabilities in a very affordable system. ■ Built using a one piece high pressure die-cast metal housing, the LIMPET is not only very rugged electrically and mechanically, its internal construction takes advantage of the industry's most advanced assembly techniques. ■ The LIMPET amplification system can be used with a wide range of TANNOY professional reference monitor systems, and provides the user with a number of improvements in both the performance of the loudspeaker system, and its flexibility. ■ Each single channel LIMPET system delivers an enhanced stereo image because the channels are fully separated - no power supply sagging due to inter-channel coupling, no crosstalk, no interference. Almost any kind of input level and connector can be used, since the LIMPET offers a balanced or unbalanced "combi" connector that can utilize either 1/4" or 3 pin jacks. ■ The ultra-low noise input section can accommodate either 0.775, 1.0, or 1.5 volt drive levels with no performance sacrifice. ■ The LIMPET's universal power supply, equipped with an industry standard IEC connector easily deals with almost any voltage, making the LIMPET a true global traveler. Finally, you can take your monitors wherever your work takes you, and not have to worry about cumbersome and troublesome adaptors, power converters, or strange electrical systems. ■ In addition, the unique and proprietary soft-clip circuitry and the significant reserves in the power supply ensure that no damage will occur to the drive units while providing the headroom needed for even the most demanding requirements. ■ The LIMPET is ideal for professional recording, broadcast/post production facilities, remote and live recording reinforcement applications, and finally gives the private/home recording studio truly reference quality performance unequaled at twice the price. ■ Instead of settling for the ordinary, get a LIMPET and get a real grip on your reference monitor performance.

TANNOY
HEAR BELIEVE

TANNOY/TGI NORTH AMERICA INC. • 300 GAGE AVE., UNIT 1, • KITCHENER, ONTARIO, CANADA • N2M 2C8 • (519) 745-1158 • FAX (519) 745-2364

CIRCLE 96 ON FREE INFO CARD

World Radio History

PRICE+QUALITY+
SELECTION=
FULL COMPASS
SHURE
beyerdynamic
SONY
AKG
Ev
Fostex
dbx
ATARI
Nakamichi
lexicon
MACKIE
RANE
KRK
Studiomaster
Drawmer
Symetrix
RAMSA
SOUNDTRACS
audio-technica
APHEX
SYSTEMS
marantz
MTX
DENON
ART
3M
CLONE TONE
lowel
BASF
apollo
AMPEX
Ampex
Vega
Zoom
ETA
QSC
Ness
Altman
AKAI
NEUTRIK
crown
TASCAM
SENNHEISER
Panasonic
GE
Technics
AUDIO • VIDEO • LIGHTS
OVER 350 PRODUCT LINES!
1-800-356-5844
FULL COMPASS
5618 Odana Road, Madison, WI
CIRCLE 38 ON FREE INFO CARD

then a bass trap is certainly in order. The TrapCan in its standard configuration will help. For troublesome higher frequencies, you can modify the TrapCan to become a tuned "Helmholtz" absorber.

BUILDING THE TRAPCAN

While you can certainly build the TrapCan in a more sophisticated and costly manner than described here, the following construction details will give you an effective, attractive tool. Remember you're doing all this for under $250! Here are the step-by-step instructions:

1. By reading the plot of room modes, determine the low frequency (frequencies) you want to control. It is important to keep in mind that it's going to be tough to control anything much below 100 Hz.

2. Find the quarter-wavelength of the frequency. If there is a resonant band of frequencies, calculate the quarter-wavelength of a frequency in the middle of the band. The formula is: QW–1130/4f, where QW is the quarter wavelength, 1130 is the speed of sound (at normal room conditions), and f is the frequency you are trying to control. As the equation shows, f should be multiplied by four before dividing it into 1130.

For example, the quarter wavelength of 100 Hz is 2.85 feet. To convert decimal inches (i.e., .85), multiply the number by 12. In this example, the answer is approximately ten inches.

The TrapCan needs to be at least as tall as the quarter-wavelength to be effective at the desired frequency (100 Hz). You can work the formula in reverse if you already have a can and want to know its resonant frequency. Multiply the can's height by four and then divide that into 1130 to obtain the frequency.

3. If you want to duplicate the 100 Hz trap we built, buy a rigid rubber trashcan. It is important to get as rigid a can as possible. Be sure to buy the lid! Our can was bright yellow and came from a "wholesale club" warehouse. The cost was about $18 with tax. You can modify the TrapCan by building it in a larger can, but remember, it's the height of the can that determines the resonant frequency.

4. Buy a paper "surgical mask" at the hardware store so you won't inhale any fiberglass. You might also want to wear gloves to prevent handling it directly. If it has a paper backing you can leave that on. Place the paper side against the can. One roll of R-13 insulation will make two 32-gallon trap cans (see fig. 4).

5. Line the wall. Tear a length of R-13 fiberglass so that it will line the interior walls of the can when the fiberglass is laid on its edge (side). If the can's height requires it, place another piece along the can's interior walls atop the previous piece. Adjust the fiberglass's height so that the can's sidewall lining is even with the top of the can. Two standard widths of fiberglass were just right for the trash can we used.

6. Tear a patch of fiberglass large enough to cover the can's interior bottom. Place it so there are no gaps between it and the piece lining the can's side.

7. Tear two sheets of fiberglass so that each is long enough to extend from the bottom of the can to within three inches of the top when stood vertically. Remove any paper backing. Stand the first sheet upright so that there is an airspace of a couple of inches on one

FIGURE 5: After placing the two vertical pieces of fiberglass, place another piece on top.

World Radio History

THIS TIME IT'S PERSONAL

The new PRSII in~ear monitoring system is a discovery that every performer can afford to make.

For less than the cost of a monitor speaker system, artists can hear themselves with a clarity and precision that blows away traditional set-ups.

Each performer's monitor mix is delivered in stereo, via a powerful UHF transmitter and receiver, directly to his or her earpieces. The artist is liberated, free to perform.

PRSII is also a personal investment, safeguarding the performer's most precious assets, his ears and his voice.

Volume is controlled by the artist, protecting against voice fatigue and conserving hearing. And it costs less in the long run: quick and simple set-up, minimal transport expense, easy to store.

PRSII. Take it personally.

In~ear Monitoring Technology by Garwood

GARWOOD

The Firehouse,
176 Norman Avenue,
Brooklyn NY 11222
Tel: 718. 383 5606
Fax: 718. 383 8004

Manufactured in the UK & Eire by Garwood.

CIRCLE 94 ON FREE INFO CARD

World Radio History

THINK PINK: Installing the two vertical fiberglass sheets. Note the spaces between pieces.

side of the sheet and a larger space on the other. Install the second sheet, leaving a few inches between the first vertical sheet and the side of the can.

8. Tear another sheet large enough to lay across the top of the vertical fiberglass sheet and within the side sheets (fig. 5).

9. For a more finished look, lightly sandpaper the can's exterior and spray it with paint. A textured paint (available in craft stores) offers the most attractive finish, giving a "stone" or "marble" appearance upon drying.

10. After allowing the paint to dry, cover the can's top with a loose weave material, such as burlap. Neatly cut enough to tightly cover the top and allow a couple of inches to extend down on all sides.

11. Secure the burlap to the can using a child's "Chinese jump rope." Wrap the jump rope around the burlap and the can (at the top) as you would with a large rubber band. Finish trimming the burlap for a neater appearance.

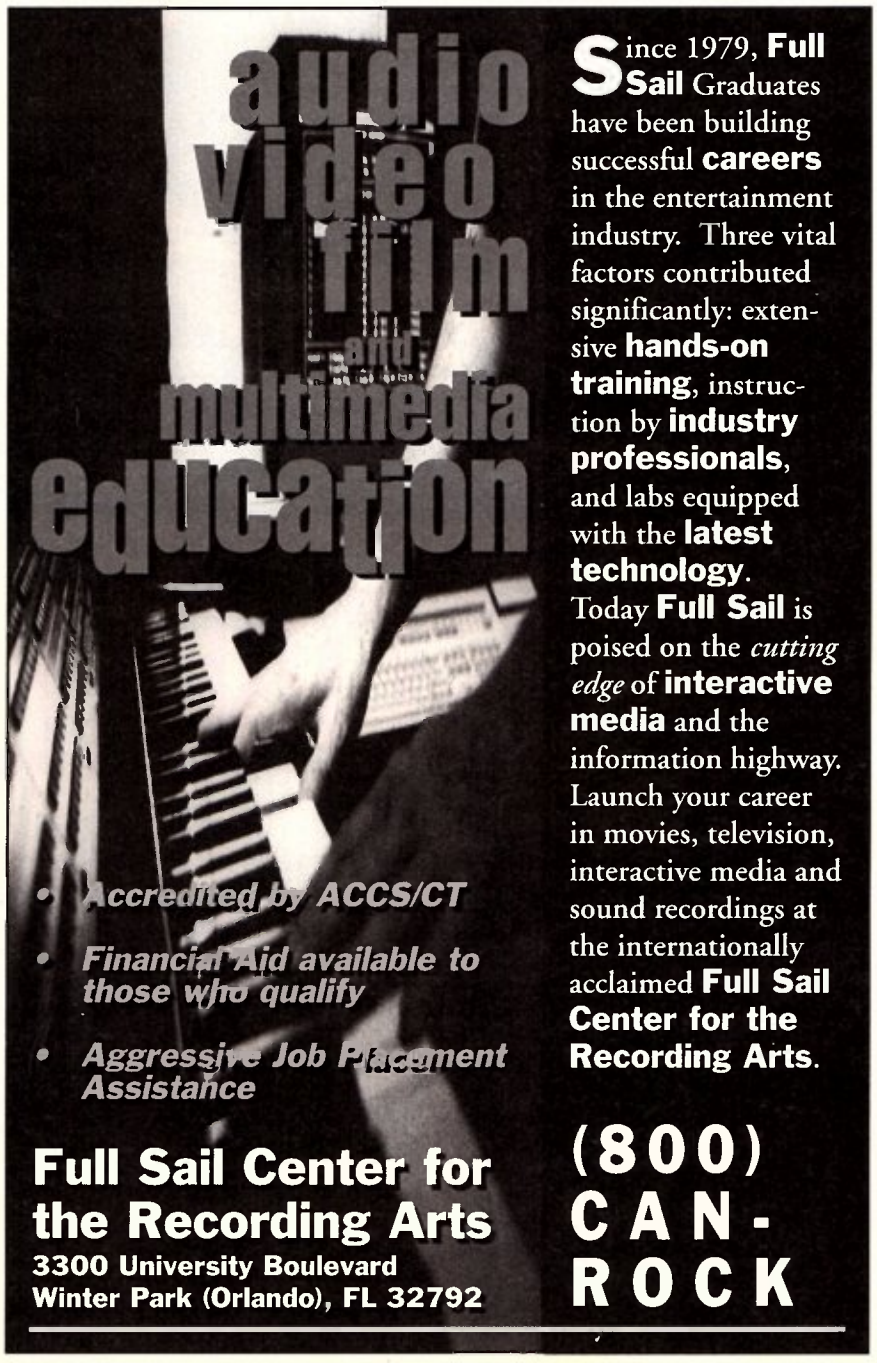
12. Set the finished TrapCan into a corner of the room (where mode pressure is greatest). Put one TrapCan in each corner and experiment with the exact placement for maximum effect. Mark their final location so they can be easily repositioned if moved.

THE REST IS UP TO YOU

Your imagination and your willingness to experiment are the only limits. There are still a great number of TrapCan variations. You can cut the can in half vertically and use it as a diffuser, or build a HelmHoltz resonator. Glue acoustical foam to one half of the can's body for an absorbent side while leaving the other side reflective. Glue irregularly shaped wood to the bare can to aid diffusion and increase its visual aesthetics. Rotate the cans to change the amount of diffusion and absorption.

The authors thank F. Alton Everest, acoustic musician, author, and educator. His books make acoustics understandable, enjoyable, and have left a lasting impression on us. His creativity in solving acoustical problems was the inspiration leading to the TrapCan. EQ

Barry Hufker is an assistant professor of Media Communications at Webster University, St. Louis, MO. Scott Shepard is the president of Bear Communication, St. Louis, MO, a firm specializing in acoustical consultation and sound system design.



CIRCLE 97 ON FREE INFO CARD

World Radio History

THINK OF THEM AS YOUR MUSICAL INSTRUMENTS.

If a studio guitarist showed up strumming a plastic ukulele, you'd laugh. Not out loud. But you'd laugh.

On the other hand, if the same guitarist caught you recording on anything other than Sony media, he wouldn't be amused. Not one bit.

You are as important to the final sound of every cut as the artists themselves. They rely on your expertise. And the best way to prove it to them is through your choice of recording products —your professional instruments, Sony's pro audio digital line.

We pioneered the entire digital movement and invented metal technology. Others have copied it. Sony has forged ahead.

Using the foremost knowledge, vision and design in the digital audio world has resulted in the most reliable, accurate reproduction of any original source.

Be it a classic six-string guitar—or a toy ukulele.

And no matter where you're working—in the control room, on location or in your basement, Sony has everything you need to capture every inspired sound. DASH, DAT, DTRS and Disc.

After all your work's done, write an acceptance speech.

With Sony's digital audio products, you'll have all the necessary tools for a 'Best Sound Engineer' award. Or even better—'Musician of the Year.'

SONY

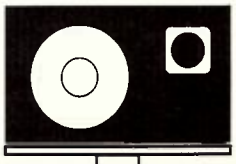
A COMPLETE LINE OF DIGITAL AUDIO MEDIA PRODUCTS

© 1994 Sony Electronics Inc. Reproduction in whole or in part without written permission is prohibited. All rights reserved. Sony is a trademark of Sony Electronics Inc.

World Radio History

Introducing
Max Speaker Stands™

Specifically designed for critical monitoring applications!



Isolated vibration absorbing monitoring platforms. Speakers achieve better definition without the problem of console resonance or buzz.

All overdone welded steel construction.

Sand fillable for maximum isolation.

Spike feet for minimum sound/vibration transmission.

40 inches tall with 3 adjustable feet for easy leveling. 12 X 12 foot print & platform.

Accomodates most popular near-fields.

Mid-field stands & Mains stands, all with the same heavy duty construction and elegant finish.

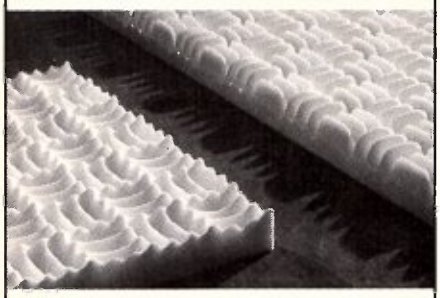
Satisfaction Guaranteed! Return them within 30 days for a no questions asked refund.

$299.99
Cod Visa/MC or Pro-Audio Dealers everywhere.

305.669.1330
Fax 669.1279
Dealers inquires welcome.

CIRCLE 47 ON FREE INFO CARD

SONEX IS NOW BETTER.



Now SONEX is available in a new space-age material that delivers better performance plus is completely fiber-free and noncombustible. Check it out today.

illbruck
Minneapolis, Minnesota
1-800-662-0032
(612)520-3620

CIRCLE 40 ON FREE INFO CARD

WOODWINDS

continued from page 50

so you can move around a little more. I have an AKG 414 that I recorded my album on; it's a very good overall mic. I'm not real knowledgeable about different kinds of mics. I know that a lot of woodwind players like this mic, and I tried a bunch, and this has worked for me. But it's almost as bad as trying to find a reed.

You know what the good engineers do? You'll see the engineer come out, and he'll say, "Play," and he just listens. He stands in front of you and by his ear he tells where the sound is ideal for him to place his microphone. If I go into a studio that isn't as used to miking woodwind players as one of the major studios, then I will tell the engineer or the second where to place the mic. Most of the seconds or the engineers are wide open to suggestions. They know that you know your instrument, and you know where to place it.

When you're sweetening as a horn player you have to wear earphones. But it's essential to listen back through the speakers, because things sound totally different in the headphones. You can't tell intonation, you can be out of tune, or it sounds good in the headphones until you take it off and say, "Oh wow. I'm a little flat. I'm a little sharp." Something happens acoustically, I don't know what.

EWIS OLD AND NEW

I'm playing the original EWI that Nyle Steiner invented just because I like it better. The Akai EWI doesn't have the same feel as the original. It's the same instrument, but the blowing part is different. The old original is almost like blowing into a marshmallow; you can get more emotion, more feeling. The Akai EWI is a little more in your face. I'm sure if I had never played the original and just started playing the Akai, I would have been fine and I wouldn't have noticed any difference. When I first started (and I still play out of the original box) I had two oscillators and no presets, just knobs. So if you were on a session, you couldn't preview any sounds in the middle of a cue. If someone asked you to go from a trumpet sound to a flute sound, you had to know approximately where the knob had to go. You didn't have a mute button to hear yourself, and you would pray that when you made your next entrance while you were doing the take, that the sound was somewhere near what you wanted.

WIND'S HIS BAG: Fred Selden and his EWI.

When I first started playing the EWI it was technically a very difficult instrument to play. It has eight octave keys so you have the range of a piano. It's touch sensitive — you have no moving parts. Because of the range, you have to read in bass and treble clef. As a woodwind player, I was used to only reading in treble clef. I had to do a lot of wood-shedding in the bass clef so that I was just as conversant in that. At first it was a real challenge just learning how to play the instrument. The vibrato is made mostly by biting on a rubber mouthpiece. Inside are two wires: when you bite you're actually bringing those two little wires together, creating the vibrato. A saxophone player can relate to that because you're using your jaw for a vibrato on the saxophone. You can actually get a diaphragm vibrato (like you use on the flute) on the EWI, but it's not quite as effective. And for volume, keyboard players have to use a volume pedal, whereas I just blow louder or softer. So the expressiveness of the instrument is pretty amazing.

THE TWENTY YEAR RULE

As a rule of thumb, it takes maybe twenty years to really become a master of any instrument. After twenty years or so when you're sitting with something it becomes a part of you. And the EWI, at one point, became a part of me. And then, the sounds started becoming a part of me until finally the whole thing merged. It gets to that point where it's a part of you, and it becomes automatic. That's where the creative, intuitive force takes over. That's the difference between someone who just plays and someone who's really playing it and it's a part of them. EQ

Photo by Suzie Katayama

World Radio History

EQ SHOPPER

SAMPLE CD'S COST TOO MUCH!

The Classic Loop Collection

Full Length CD of Drum Loops, Hip Hop Grooves, Rare Beats, Jungle, House, Rave & Industrial

Break-thru Pricing

ONLY $19.95

A Superb Groove Library worth 5 times the price!!

** Top Rated Stereo Imaging **

The positively superior sonic quality you're looking for

For Producers, Writers, DJ's, Rappers etc.

(We're not greedy, just committed to providing YOU with the highest quality at the fairest price)

VISA 1 (310) 421-3303

Or send payment plus $6 shpng/hndl. (total $25.95) To: LOOP SOUP 4141 Ball Rd. #433, Cypress, CA 90630

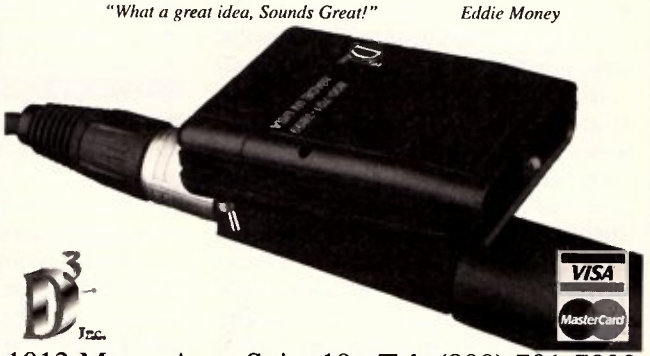
CIRCLE 85 ON INFO CARD

Look Ma, No Hands!

Introducing the **IR1**, the world's first automatic microphone switch. The **IR1**'s body sensing technology keeps mics off until performers are within an adjustable range. Now you can mute unwanted sources of stage noise & feedback, increase system headroom, & clean up any mix without using your hands! The simple to use, compact and affordable **IR1** is compatible with most mics. Call and order the **IR1** today, in singles or our handy six-pack.

"This innovation truly provides a large improvement in a live mix for a very small price." Geoff Ganiford, FOH Eddie Money Band

"What a great idea, Sounds Great!" *Eddie Money*



D3 Inc.

VISA MasterCard

1012 Morse Ave., Suite 19 Tel: (800) 701-7899
Sunnyvale, CA 94089-1634 Fax: (408) 745-7897

You Work the Audience...We'll Work the Mic!

CIRCLE 86 ON INFO CARD

The New American Classic

Since it's release in the fall, the 52270 has become an instant hit with independent engineer/producers and project studios. The secret is in the classic ingredients .... Discrete Class "A" Amplifiers ... Transformers ... Inductors. Designed & built in the U.S.A.

- TWO 52270 MICPRE/EQ'S
- 4 SPACE ROAD CASE
- POWER SUPPLY
- XLR CONNECTORS

COMPLETE.....$2395.00

Available Through:
AudioTechniques .... New York
Cutting Edge Audio Group .... San Francisco
Professional Audio Design .... Boston
Ray Benson's Bismeaux Studio .... Austin
or direct from .....

GEOFFREY DAKING & CO., INC
2401 PENNSYLVANIA AVE.
WILMINGTON, DE 19806
302-658-7003

AMERICAN EXPRESS® CARDS WELCOME

CIRCLE 87 ON INFO CARD

REACH 50,000+ READERS!

ADVERTISE IN

EQ SHOPPER

Our New Showcase Section Gives Manufacturers & Dealers the Opportunity to Expose their Products & Services to Every Recordist in the United States!

Contact Christine Cali
212-213-3444 Ext.155

Photo by Suzie Katayama

World Radio History

AMP AMPISO

continued from page 110

transformer that is smaller, lighter, quieter, and less expensive than the one I used in the '70s. The review unit, Series 300, was not much bigger than a couple of house bricks, weighed only 4.4 kgs (9.63 lbs), and provided isolation for loads of up to 300 watts. Mechanical noise from the unit became noticeable only when the unit was running under a substantial load. Even then, the unit never got hot to the touch.

The front of the AMPiso Series 300 has an on/off switch and a power indicator. The rear panel has two orange U-ground (Edison) AC receptacles and a captive 2 meter (7-foot) power cord. Two larger versions, Series 500 and 1000, handle loads of up to 500 and 1000 watts, and have four and six AC receptacles, respectively. The AMPiso Series has CSA approval, and will be available at authorized AMP dealers (such as electronic suppliers) in the U.S. by the end of 1994, pending UL approval.

The AMPiso decouples your system from the incoming AC power (see fig. 1). This allows the transformer to be filtered to prevent its passing noises along, and also grounds the neutral right inside. Suddenly the neutral leg of the AC power line is not conducting the strange bits of noise that are induced by various AC malefactors. In live sound, the most infamous of these is the lighting dimmer, which can produce nasty triangle waves and other ugly things on the neutral that are not completely blocked by some audio gear's power supply. The AMPiso cleans all that up. Few AC line protection units do anything about noise on the neutral. If you are in doubt about the protection system you have now, ask the manufacturer.

A standby power supply (often erroneously referred to as a UPS) offers battery backup power for personal computers and workstations during a brownout or blackout. Many low-cost units produce square waves instead of sine waves when they switch to battery power. These square waves sound really awful when powering audio gear. The AMPiso can almost reshape the square waves back into (only slightly distorted) sine waves and, in a pinch, can keep the audio gear on-line. If you use this type of backup power for computer-based audio production, then a device like the AMPiso may also be required.

There was the occasional click and a whining motorlike noise that would appear in the monitor loudspeakers of my personal studio. When I placed the AMPiso between my studio equipment and the wall outlet, all these sounds disappeared. It was also reassuring to know that my audio gear wasn't directly connected to every refrigerator, power tool, and fan motor in the neighborhood.

Susceptibility to noise on the AC power line varies from one piece of audio equipment to another. Digital audio devices may behave strangely if transients creep into the power supply. Often the most sensitive devices are those with the most gain — mixers and power amplifiers. If they are producing strange intermittent noises, the new AMPiso series of isolation transformers may be one of your least expensive solutions and may also prevent disasters caused by lightning strikes (unless the strikes are really close!) and sudden jumps in AC voltage caused by car/power-pole accidents and other utility problems. Using the AMPiso is like closing the studio door: you hear a lot less of what's going on outside. **EQ**

Don't Forget Your Lunch!

The **api** *4 or 6 Position "Lunch Box" Powered, with XLR or 1/4"/TT Jacks*

North American Console Sales	708-653-4544	Dallas - **Studio Supply**	214-358-0050
New York - **Studio Consultants**	212-586-7376	Canada - **Coast to Coast**	416-221-0721
Nashville - **Studio Supply**	615-391-0050	Western Europe - **API International**	+4471-379-7600
Southeastern US - **Harris Audio**	305-944-4448	Eastern Europe - **SI International**	+483-865-3621
Central/Midwest US - **Milam Audio**	309-346-3161	Japan - **Timelord**	+813-3721-4431
Los Angeles - **Westlake Audio**	213-851-9800	Taiwan ROC - **Linfair**	+8862-321-4455

api audio products, inc. Corporate Office: 7655-G Fullerton Road • Springfield, VA 22153 • (703) 455-8188 • Fax (703) 455-4240

CIRCLE 99 ON FREE INFO CARD

World Radio History

DISTANT MIKING

continued from page 129

your ears. Close one ear with your finger. Listen to the instrument with the other ear and move around until you find a spot that sounds good. Put the microphone there. Then make a recording and see if it sounds the same as what you heard live. *Caution: This method is not recommended for kick drums or screaming guitar amps!*

AMBIANCE EFFECTS

Miking distance affects more than tone quality; it also controls the amount of ambiance or air. A close mic picks up mainly direct sound, which sounds "close." A distant mic picks up mainly reflected sound, which sounds "distant." Mic close to achieve a tight, present sound; mic farther away for a spacious sound with more depth.

The farther a microphone is from its sound source, the more the microphone picks up room acoustics, background noise, and leakage (off-mic sound) from other instruments. So mic close to reject these unwanted sounds; mic farther away to add a live, loose, airy feel to overdubs of drums, lead-guitar solos, horns, etc.

There's another way to add airiness to a close-miked instrument: mix in a distant ambiance mic placed about 10 feet away. A popular microphone for ambiance is a boundary mic taped to the wall. If you mix it with the usual close-placed microphones, you'll add an airy or spacious feeling to the sound of the instrument being recorded. You can use two for stereo ambiance.

Give distant miking a try. Chances are you'll need less EQ and less artificial reverb to get a natural sound. And when you combine distant and close miking in the same recording, you'll open up the sound and create a more enjoyable listening experience. EQ

E-MU MORPHEUS

continued from page 125

"jump to the next segment only if a footswitch is depressed").

You can also set up layers, splits, and zones in Morpheus (in what are known as "hyperpresets"), and you can also create up to 32 "MIDIMaps," which contain preset or hyperpreset assignments for each of the 16 MIDI channels, as well as an effects setting. There are two onboard effects processors (which can be configured in series or in parallel) for the generation of reverb, early reflection, delay/echo, chorus, flanging, phasing, distortion, and ring modulation. Morpheus effects are stored only with the MIDIMap, so that as you scroll through the various presets and hyperpresets you do not hear them with an optimized effect — only with the global effect in use by the current MIDIMap. To change a sound's effect, you have to edit the MIDIMap, not the sound itself — something I found to be counterintuitive. Also, the only way to change effects remotely from a sequencer is to call up a new MIDIMap by transmitting a system exclusive message — not something that most users want to have to deal with.

The Morpheus owner's manual is lengthy and somewhat heavy on technical details, but is well-organized, despite a few typos. A training video is provided free when you return your warranty card.

Much like that recipe that combines tried-and-true ingredients in unique ways to make a great new dish, Morpheus takes a fresh approach to sound synthesis. If you aren't afraid to take the less-traveled road, the potential here is enormous. —*Howard Massey*

CIRCLE 100 ON FREE INFO CARD

World Radio History

EQ CLASSIFIED

AUDIO SCHOOLS

ri-'kord! (record) Learn to do it Professionally

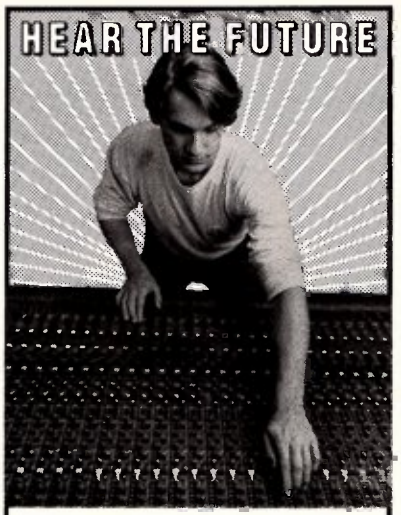
Recording Engineer Training

10-week Recording Engineer Programs
Extensive Hands-on Training with the Latest Techniques and Equipment
Job Training, Financial Aid and Housing
Full- or Part-time Schedules

12268-HS Ventura Boulevard
Studio City, CA 91604
(818) 763-7400

Call for a Free Full-Color Catalog

LOS ANGELES RECORDING WORKSHOP



BE A RECORDING ENGINEER

Learn Recording and Mixing, Signal Processing, MIDI, Digital Audio and more. Intern at a top NY studio and benefit from lifetime job placement assistance. Ask about the special summer program for college students and the new VIDEO TECHNOLOGY PROGRAM.

800-544-2501
NY, NJ, CONN 212-777-8550
Lic. by NYS Education Dept / HS or GED Required
App. for Vet. Training / **Financial Aid if Eligible**

Institute of Audio Research
64 University Place, Greenwich Village, New York, NY 10003

CALL CHRISTINE CALI AT (212) 213-3444 ext. 155 TO PLACE AN AD

BOOKS/PUBLICATIONS

Looking To Buy Or Sell Used Gear?

Check Out *The* Publication Some Major Recording Mags Dont Want You To Know About!

Why? Because ***Pro-Audio Marketplace*** beats the pants off their ad rates, quantity of gear advertised *(1000+ pieces per issue)*, & fast publishing time *(every 4 weeks)*.

Pro-Audio Marketplace is the only nationwide classifieds publication dedicated to recording/MIDI/pro-audio gear - sold by individuals, home/project & major studios, etc.

- ***$25 subscription*** includes 12 issues and 1 FREE ad per issue.

Call now for a FREE copy!

408/247-5250

Pro-Audio Marketplace

467 Saratoga Ave. #440-E • San Jose, CA 95129
24 hr. FAX 408/984-1030

DEMOS WANTED

Get Your Music To Major Record Labels and Publishers.

When you find out how we do it, you'll wonder why nobody's ever done it before.

Call right now, before you get distracted!

1-800-458-2111 (24 hours)

RECORDING SCHOOL FACTS:

The Audio Career & Education Handbook, 2nd Edition is *the* comprehensive reference to the world's best sound recording programs. 285-pages.

"I love it. I'd like to have a nickel for every time I have been asked the questions this book answers." – Bruce Swedien

$25 US/CAN, $30 World, New Ears, 1033 Euclid Syracuse, NY 13210-2661 USA, ph: 315-425-0048

COVERS/CASES & RACKS

OMNIRAX

STUDIO FURNITURE for the discriminating musician

800-332-3393
P.O.BOX 1792 SAUSALITO, CA 94966

Tailor-Fitted Covers

Keyboards • Mixers • Amps
Choice of Colors • *Fast* Service
Free Brochure • Monthly Specials!
"One Size does not fit all"
Satisfied Customers since 1988

Call Our Workshop for Details at:
1-800-228-DUST(3878)

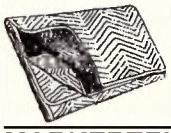
The Le Cover™ Co.
1223 Kingston •Schaumburg, Il. 60193

SALE! PLUS FREE ADHESIVE!

MARKERFOAM™ ACOUSTIC FOAM GIANT 54" x 54"

Immediate Shipping

2" Reg. $29.95 **Now $19.99** • 3" Reg. $39.95 **Now $29.99! KILL NOISE QUICK!**
High performance, full-size sheets of super high density Markerfoam. EZ mount. Blue or gray. Super-effective sound absorption for studios. Markerfoam offers best value, looks professional & is proven in studios worldwide. Request Foam-Buyers Guide/Catalog, specs & free samples today. VISA, MC, AMEX, COD, PO's, QUANTITY DISCOUNTS.



MARKERTEK JUMBO SOUND ABSORB BLANKETS
Heavy-duty 72"x80" padded blankets absorb sound wherever they're hung or draped. Fabulous for stage, studio & field use. Top professional quality at a super saver price! Weight: 6 lbs. Black, **$19.99.**

MARKERTEK BLADE TILES™
HIGH PERFORMANCE
LOW, LOW COST!
$3.49 per tile, 16x16x2". America's best acoustic tile value, only from Markertek! Charcoal. Also available 16x16x3" as shown, **$4.49** each.

MARKERSTIK™ foam adhesive. FREE with any Foam purchase in this ad! Limited offer. A **$5.95** per tube value.

SONEX
All the colors and sizes plus great prices!

Get our FREE 149-page catalog of over 6,000 exclusive and hard-to-find supplies for audio & video.

800-522-2025
FAX: 914-246-1757
America's most unique catalog for audio & video!

MARKERTEK™ VIDEO SUPPLY
4 High St., Saugerties
New York 12477 U.S.A.

Tired Of Bad Sound?
Let Us Give You A Few Pointers.

Studiofoam™ Sound Absorbent Wedges
Our most absorbent. Uniform cut for cleanest installation (no innies & outies). Up to 60% more effective than other name-brand foams that can cost 5 times as much! Passes California firecode; is 48% more flame retardent than Sonex. Available in 1", 2", 4" & 12" (bass trap) sizes in sheets that measure 2'x4'. Long-lasting; doesn't crumble like other brands can. Wide range of colors available. Min. 1 Box. 1"-$8.99 • 2"-$11.99 • 4"-$22.99

Sonomatt™ Convoluted Acoustic Foam
Cut in the industry-standard "eggcrate" shape. 4'x8' or 2'x4' sheets, 2" thick, charcoal gray. Super-affordable, yet outperforms other companies' premium brands that can cost up to 5X as much! 85% as effective as Studiofoam Wedges, but made of the same stock, so it's just as flame retardent & long-lasting. 4'x8' sold in pairs only @ $37.99 per sheet. 2'x4' minimum 1 box of 12 sheets @ $10.99 per sheet.

USERS: Ford Motor Co. • Warner Bros. • Opryland USA • Kodak • Dennis DeYoung (Styx) • Bell Research Labs • MTX • Editel • Hitachi • Rockwell Int'l • Baldwin Pianos • Martin Marietta • Pat Woodland (Late Show With D. Letterman, Disney) • US Govt • G. Welsh (TBN, WalMart) • NJJ (NFL on Fox, Coke) • MPI (ABC News)

USAFoam • Box 20384 • Indianapolis IN 46220
1-800-95-WEDGE

World Radio History

EQ CLASSIFIED

REPAIR SERVICE

MCI/ARMS/ARMS II AUTOMATION USERS

Expert Repair Services For Your Automation System
Sound Workshop/Otari Approved
Quick Turnaround
Sales — Exchange

MUSIPLEX AUDIO
404-321-2701

SAMPLE/SOUNDS

Intense support for a few synthesizers!

- **T1/T2/T3:** 25 disks of new sounds. (Reviewed, KEYBOARD, Oct., '92 & Sept., '93, pg. 120): ". . . an excellent, inspiring collection." "★★★★★ ★★★★★ ★★★★★" (Perfect Rating)
- **DW-8000:** Over 640 sounds available. Turbo-DW plug-in expansion on sale: $149.95. (Split, layer, transpose, local-off, 512 patches, etc.) (Reviewed, KEYBOARD, Sept., '90, pg. 146.)
- **TX81Z:** *"These sounds are great."* — Mark Grey, KEYBOARD, June '93 "★★★★★ ★★★★★ ★★★★★" (Perfect Rating)

VISA — *Angel City* — MasterCard
2 Liberty Place, Middletown, CT 06457 (203) 347-5166

POP FILTERS

The Studio POP Filter

A Great Improvement on a Good Idea!
Open up the sound of your vocals and voice overs without annoying "POPS" ruining your best take!

Only $24.00 with optional clamp and Goose-neck $4.95 plus shipping

Standard mic stand adaptor with threaded brass insert
• Improved, new double screen • One year guarantee
ONE YEAR GUARANTEE

AUDIO VISUAL ASSISTANCE
VISA
565 SHERWOOD ROAD
SHOREVIEW, MN 55126
MasterCard
PHONE: 612-481-9715 (voice or fax)

JINGLE PRODUCTION

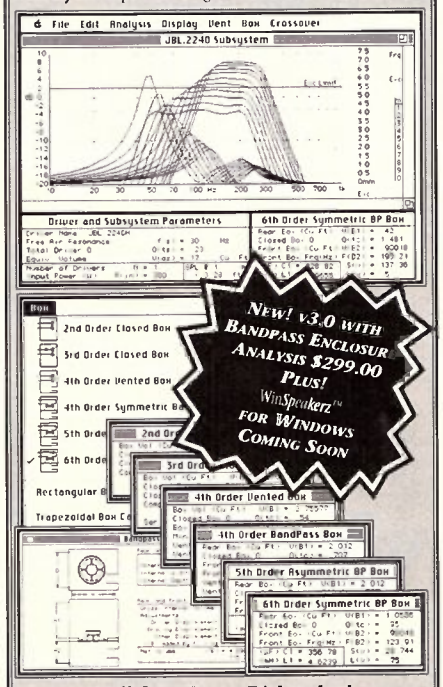
JINGLE PRODUCTION

Would you like to learn how to make a fortune in the Jingle Business?

Call 1-800-459-9177 **for a FREE RECORDED MESSAGE 24 HOURS** and learn how. I'm a 17 year veteran with jingles in every state. My complete jingle course shows you exactly how to do the same. Part-or-full time, locally-or-nationally. **CALL NOW** This information will save you years of trial and error. Make the money you want with your music today.

LOUDSPEAKER SOFTWARE

The Speaker Design Toolbox®
Friendly Loudspeaker Design Software for the Macintosh®

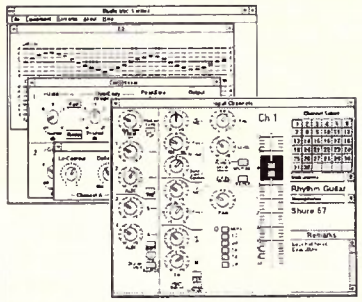


Call for a Demo Disk today!
MacSpeakerz from True Image Audio®
349 West Felicita Ave., Ste. 122, Escondido, CA 92025
Phone 1-800-621-4411, Fax (619)-480-8961
Outside the U.S. Phone/Fax 619-480-8961

CUSTOM SOFTWARE

STUDIO MIX©

Studio Mix is custom software for Windows to help keep a permanent visual record of your recording or live equipment controls.



Studio Mix is custom made for each individuals setup. Macintosh version available soon. For a fully working demo send ($5.00 S&H) to:

StudioVisions
P.O. Box 493, Rocklin, CA 95677
(916) 624-1615

RIBBON MICROPHONES

COLES 4038 RIBBON MICS
THE BEST IN THE WORLD

SALES–SERVICE–PARTS

Call Wes Dooley
(818) 798-9128
FAX (818) 798-2378
1029 N. Allen Avenue
Pasadena, CA 91104

AUDIO UPGRADES

ADAT UPGRADES
MIC MODS

Component level upgrades for mixing consoles, tape machines, mics, and all outboard gear. Also, high speed mic preamps. Step up to the 90's and hear what high speed electronics can do for your studio.

AUDIO UPGRADES
6410 Matilija Ave.
Van Nuys, CA. 91401
(818) 780-1222 (818) 346-2308 FAX

LA-2A LA-3A OWNERS

Before you by a new T4B optical attenuator, have it rebuilt at a fraction of the cost. Also stock OPTO's.

ANTHONY DEMARIA LABS
914-256-0032
See Us At NAMM Booth #906

EVEN SMALL ADS WORK!!

SAMPLES

SAMPLES ON DAT: 900+ KILLER SOUNDS FOR YOUR SAMPLER!

Drums, guitars, saxes, brass, synths, drum machines, sfx, MUCH MORE!
$29.95 (plus $2 s&h) payable to:
SAMPLE SOLUTIONS, Dept.Q
356 Ladybird Dr. Nashville, TN 37217

IT PAYS TO ADVERTISE IN EQ

World Radio History

DUPLICATION SERVICES

1000 COMPACT DISCS

$2150

Complete Package, Many other packages available • Visa/ Mastercard Accepted
Sub & Glass Master • Typesetting • Design & Layout • Color Proof • Color Seps • 2- Color Label Film
4 Color 2 Page Booklet with Black & White Back & Tray Card • Jewel Box with Shrink Wrap
UPS ground on prepaid orders. No hidden costs

Compact Discs, Cassettes & Records

atr 902 N. Industrial Blvd Dallas 75207
214-741-2027 Toll Free 1-800-527-3472

PIERCE RECORDING
1-800-200-2629

- Real time cassette duplication on synced Nakamichi MR2 decks.
- Guaranteed lowest price in Unites States for real time duplication.
- Guaranteed quality or your money back.

SPECIAL SUPER SAVER
- 100 cassettes *(real time)*
- J-Cards
- on shell printing
- box and wrap

$269.00 up to a C-40

Shipping address:
Pierce Recording
5836 N. 11th St.
Arlington, VA.
22205

Transfers to Compact Disc Starting at $35

DSR RECORDING
Tel: (800) 660-3499 Fax: (215) 653-7917

MAXELL XL II CHROME HIGH BIAS BULK

QTY	C-10	C-20	C-30	C-40	C-50	C-60	C-70	C-80	C-90
100	.37	.42	.48	.55	.62	.68	.80	.87	.96

BASF CHROME SUPER HIGH BIAS BULK "CD QUALITY"

QTY	C-10	C-20	C-30	C-40	C-50	C-60	C-70	C-80	C-90
100	.42	.50	.59	.67	.73	.78	.90	.96	1.03

A MINIMUM OF 100 CASSETTES PER ORDER
LENGTHS MAY BE COMBINED TO MEET MINIMUM
ALSO AVAILABLE NORELCO AND SOFT POLY BOXES
CASSETTE LABELS AND J CARDS IN WHITE & COLORS
SHAPE MARK 10 SHELL AVAILABLE, ADD .10 EACH

WE CARRY A FULL PRODUCT LINE OF:
3M
AMPEX
BASF
MAXELL
PLASTIC REELS AND BOXES, ETC.

AUDIO, VIDEO & DIGITAL TAPES

IN NYC 718-435-7322
24 HOUR FAX 718-853-2589
1-800-221-6578

CELEBRATING 27 YEARS!!

4212 14th AVENUE • BROOKLYN, NY 11219
ANDOL

VISA MASTER CARD AMEX DISCOVER

RELEASE YOUR OWN CDs!

500 CDs and 500 Cassettes
only $2,590
with B&W inserts

• FREE Graphic Design • Ready In 3 Weeks
• Major Label Quality • Money Back Guarantee

DISC MAKERS
1-800-468-9353
Call today for our FREE full color catalog
Outside USA (215) 232-4140 • FAX (215) 236-7763

DIGITAL FORCE™

MASTERING
REPLICATION
PRINTING
TOTAL PACKAGING
GRAPHIC DESIGN STUDIO
POSTERS
PERSONALIZED EXPERT SERVICE

COMPLETE CD AND CASSETTE PRODUCTION

The Power of Excellence℠
212 - 333 - 5953

330 WEST 58TH ST. NEW YORK, N.Y. 10019

CUSTOM COMPACT DISCS
Affordable single copy CDs starting at $35.
Write, call or fax for information.
46 PRODUCTIONS
42W557 Hawk Circle
St Charles, IL 60175
TEL (800) 850-5423 FAX (800) 203-1725

CALL CHRISTINE CALI AT (212) 213-3444 ext.155 TO PLACE AN AD

Audiomation

Compact Disc Cassette Manufacturing
Call us before you order your CDs and Tapes, we will ***save*** you money.
1-800-375-2060

REAL-TIME DUPLICATION
Brand new Sony decks, HX Pro, inserts, on-shell printing, shrinkwrap, Great service and the best prices around.
CUSTOM LENGTH CASSETTES
The finest materials available, loaded to the length you need. Special pricing to duplicators.
SoundSpace Inc. (513) 767-7353

SINGERS! REMOVE VOCALS!
Unlimited Backgrounds™
From Standard Records & CD's with the Thompson Vocal Eliminator™ Call for Free Catalog & Demo Record.
Phone: (404)482-4189 Ext 28
Singer's Supply, Dept EQ-1
7982 Hightower Trail
Lithonia, GA 30058
24 Hour Demo/Info Request Line (404)482-2485 Ext 28

Singer's Supply - We Have Anything & Everything For Singers

Factory Direct.. Best Value!

EUROPADISK, LTD.

All Manufacturing In Our Plant!

SPECIALS - "With This Ad Only"

500 - Promo CD's - $995
Delivery in 15 Business Days!
Promotional Package includes: CD-R Reference, One Color CD Label with Layout, Typesetting & Film (to 63 Min.)

500 - Cassettes - $715
(1,000 Cassettes - $1,025)
Retail Ready: *FULL COLOR* J-Card, Test Cassette, Graphics & Layout, Typesetting & Film, Cassette Label, Norelco Box & Shrink-Wrap (to 50 Min.)

500 - Color CD's - $1,995
(1,000 CD's $2,265)
Retail-Ready: *FULL COLOR* Front & Tray Card, 2-Color CD Label with Layout, Typesetting & Layout, Jewel Case & Shrink-Wrap (to 63 Min.)

500 - 12" Vinyl - $1,105
(1,000 12" Singles - $1,510)
Complete Package: Direct Metal Mastering, 5 Test Pressings, Label Layout & Printing, Plastic Sleeve, Black or White Die-Cut Jacket, Shrink-Wrap (to 14 Min. per side)

Best Values In The Industry!

Call For Our Complete Catalog

EUROPADISK, LTD.
75 Varick Street, New York, NY 10013
☎ (212) 226-4401 FAX (212) 966-0456

World Radio History

DUPLICATION SERVICES

:OASIS: RECORDING INCORPORATED

NOW OFFERING

1,000 CD'S AND 500 CHROME CASSETTES, 4-PAGE BOOKLETS WITH FULL COLOR PRINTING ONLY $2,870

800-697-5734

Φ Flux Audio/Video

Custom Made CD-R -starting at $45
Up to 74 minutes / Includes Postage
Features FREE Color Tray Card and Insert / Any Source format

1-800-423-FLUX

COMPACT DISCS/CASSETTES

500 CASSETTES FULL COLOR $755.00

COMPLETE PACKAGES NO HIDDEN COSTS!

500 CD's FULL COLOR $1787

REAL-TIME CASSETTES • HIGH-SPEED CASSETTES
MACINTOSH BASED DIGITAL EDITING AND MASTERING

Free Brochure — Whitewater Recording — Since 1995
9 Busbee View Road Asheville, NC 28803
VISA 704-274-0956 MASTERCARD

Compact Disc & Audio Cassette Production

(802)453-3334 FAX (802)453-3343

ESP

EASTERN STANDARD PRODUCTIONS, INC.

37 JOHN GLENN DR. BUFFALO, NY 14228
(716) 691-7631 • FAX (716) 691-7732

NEW CASSETTE & CD COMBO PACKAGES!

CALL TOLL-FREE
1-800-527-9225
FOR A FREE BROCHURE

DAT to CD Mastering for only $79.50 *

CD LABS will put your music on CD Masters for the lowest price in the industry!

Instead of a1630 tape, we transfer your Dat to a Master CDR. Plays on any CD player & saves you hundreds of dollars.

Here's why we're the choice of studio professionals for mastering to CD, editing & quantity CD replication:

Same or next day service on Master CD
Lowest Mastering Prices in the Industry
EQ & Level Correction Service
Every Disc Unconditionally Guaranteed
Digital Editing and NoNoise ™ Service

SPECIAL DELUXE CD PACKAGES
1000 CD's w/4 page 4 color inserts.....ONLY $1975
500 CD's w/4 page 4 color inserts.....ONLY $1495

SPECIAL DELUXE CD/CASS. PACKAGES
500 ea.w/4 page 4 color inserts.....ONLY $2195
1000 ea w/4 page 4 color inserts.....ONLY $2895
Also available 500 or 1000 CD's $995 & $1150 respectively

THE ABOVE PRICES INCLUDE DAT TO CD MASTERING w/PQ LOG SHEETS, CD & CASSETTE LABEL IMPRINTING, JEWEL BOXES & 2 FREE MASTER CD'S

*2 Disc Minimum

CD LABS ™

Direct to CD Mastering

12517 CHANDLER BLVD., STE. 107
NO. HOLLYWOOD, CA. 91607
(818) 505-9581--(800) 4 CD LABS

2000 CD's for $3,515 Jan - Feb Special or, 1000 CD's for $2,315
Includes: Sonic System mastering to PMCD, 2-color label film, 2-page brochure, 4 color front, 1 color back, 4 color inlay, all film seps & printing, replication & shrinkwrap to jewel case.

Good Vibrations — RJR DIGITAL

San Diego 619-267-0307
1-800-828-6537 • FAX 619-267-1339

IT PAYS TO ADVERTISE IN EQ

MASTERING • MANUFACTURING • PRINTING

DIGI-ROM™

FOR COMPACT DISCS • CD-ROM
REAL TIME & HIGH SPEED AUDIO CASSETTES

COMPLETE PACKAGES • COMPETITIVE PRICING
GRAPHIC DESIGN STUDIO • PERSONALIZED
EXPERT SERVICE • FAST TURN-AROUND

MasterCard **CALL (800) 815-3444** VISA
(212) 730-2111

130 WEST 42ND STREET • NEW YORK, NY 10036

CUSTOM MADE CD's

only **$59**

- 63 minute CDR
- **DISCOUNTS** for multiples
- **FREE** printed traycards
- DAT or cassette
- FAST turnaround

call: **615-367-9242**

write: **GREEN DOT AUDIO**
PO Box 290609
Nashville, TN 37229-0609

DRT MASTERING

- You *will* have the big, punchy major-label sound that sells discs... or the work is free!
- Why settle for a DAT transfer when real, high-end mastering is affordable? Call us first!
- Free evaluation of your DAT by serious, experienced ears
- 1630 or CDR. 24hr rush work.

603-924-2277 (fax 924-4384)

VINYL • CASSETTE & CD PRODUCTION • DESIGN/SEPS/PRINT

Quality! 1•800•869•6561

CALL FOR FREE CATALOGUE / CUSTOM QUOTE

INDIE EXPERTS • PACKAGE DEALS • QUICK TURN • DROP SHIPPING

ALIGNED AUDIO INCORPORATED

World Radio History

DEALERS

BE A PART OF THE LEGEND AT MANNY'S MUSIC

From Jimi Hendrix to Guns N' Roses, Manny's has been the first choice of legendary musicians for almost 60 years.

Experience the tradition of Manny's legendary service, expertise and extensive equipment selection.

Call 212/869-5172 or write for your FREE product catalog today and become part of THE LEGEND.

(Add $2.00 shipping and handling outside Continental U.S.)

Manny's Mailbox Music

48th Street At Your Doorstep

156 W. 48th Street NY, NY 10036

Hours 10:00 a.m. - 6:00 p.m. EST M-F

USED GEAR BY MAIL

THE CHEAPEST WAY TO OUTFIT YOUR ENTIRE BAND!

Daddy's JUNKY MUSIC

...when you're ready to rock!

THE WORLDS LARGEST USED EQUIPMENT DEALER

5 - 6 MILLION DOLLARS OF Used & New Guitars, Amps, Drums, Keyboards, Pro Audio Gear, Effects and MORE!

MONEY BACK GUARANTEE!

Now Offering A Huge Selection Of ROCK MEMORABILIA!

Call or write today for your FREE catalog:

Daddy's Junky Music
Used Gear By Mail
P.O. Box 1018 EQ
Salem, NH 03079

CALL: 603-894-6492
FAX 603-893-3517

ATTENTION MUSIC DEALERS

SELL EQ MAGAZINE

THE MONEY-MAKING READ FOR YOUR RECORDING & SOUND CUSTOMERS

(312) 427-6652

CARL FISCHER

312 SOUTH WABASH AVENUE
CHICAGO, ILLINOIS 60604

EQUIPMENT DEALERS

Don't Get Beat

When you need equipment call

8TH STREET MUSIC

(800) 878-8882

Philadelphia's Largest Musical Instrument Dealer!!!

8th Street Music, 1023 Arch St. Philadelphia, PA 19107

We Suck Less

1-800-264-7625 (ROCK)

ROCK N' ROLL MUSIC, INC.

CALL US - We'll Deal!

Sound Deals Audio

Home & Pro Recording Gear
Synths, Samplers, & Software
All Major Brands - Best Price & Service
250 Old Towne Road, B'ham, AL 35216
205-823-4888 Voice 979-1811 Fax

800-822-6434

CARUSO MUSIC

SAVE THOUSANDS OF DOLLARS BUYING YOUR NEW & USED EQUIPMENT FROM US

20 BANK STREET • NEW LONDON, CT 06320
203.442.9600 • 203.442.0463 (FAX)

IT PAYS TO ADVERTISE IN EQ

World Radio History

EQ CLASSIFIED

VINTAGE EXCHANGE

MIC HEAVEN
Tube • Condenser • Vintage Mics
Mic pre-amps • EQ's

NEUMANN • AKG • SCHOEPS
NEVE • ANTHONY DEMARIA LABS
API • MICROTECH GEFFEL
WANTED: USED & VINTAGE MICS. NEVE, API, TRIDENT MODULES

Call for *"In Stock"* Voice Message 201 656-3936 or Fax 201 963-4764

EXPERIENCE!
Besides providing the best audio gear available, 21 years brings experience and knowledge you can't find anywhere else!
Akai Digital • Alesis • Aphex • API • AVID • B&K • Drawmer • Eventide • Hafler
Klark-Teknik • Lexicon • Soundcraft • Summit • Tannoy • Timeline • & MORE!

Specializing in professional audio and video post equipment for Professionals!

Pyramid Audio Inc.

- Custom Installations
- In-house technical staff
- After-the-sale support

Serving Chicago & the Midwest for over 21 years.
708-339-8014

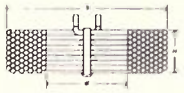
LOUDSPEAKERS

SOLEN SPEAKER COMPONENTS

DAVIS ACOUSTICS · DYNAUDIO · LPG · LA PASSION DU HAUT-PARLEUR AUDAX · vifa · FOCAL · CERATEC · scan-speak · seas · morel · Peerless · AIRBORNE

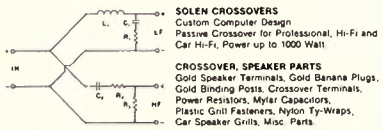
CROSSOVER COMPONENTS

FAST CAPACITORS
Metallized Polypropylene (Non-Polarized)
Values from 1.0 mfd to 220 mfd
Voltage Rating 250 VDC / 150 VAC



SOLEN INDUCTORS
Perfect Lay Hexagonal Winding Air Cored
Values from .10 mH to 30 mH.
Wire Sizes from #20 AWG to #10 AWG

HEPTA-LITZ INDUCTORS
Seven Strands Litz-Wire Constructions
Values from .10 mH to 30 mH
Wire sizes from #16 AWG to #12 AWG



SOLEN CROSSOVERS
Custom Computer Design
Passive Crossover for Professional, Hi-Fi and Car Hi-Fi, Power up to 1000 Watt

CROSSOVER, SPEAKER PARTS
Gold Speaker Terminals, Gold Banana Plugs, Gold Binding Posts, Crossover Terminals, Power Resistors, Mylar Capacitors, Plastic Grill Fasteners, Nylon Ty-Wraps, Car Speaker Grills, Misc. Parts

SOLEN INC.
4470 AVENUE THIBAULT
ST-HUBERT, QC J3Y 7T9
CANADA
TÉL.: (514) 656-2759
FAX: (514) 443-4949

Computer Aided Design for enclosure and crossover available to customer
CATALOG $6.00 REFUNDABLE

Get Your Free Issue of EQ at the Winter Namm Convention Jan. 20–23

EQUALIZER

The New American Classic
The 52270 Mic Pre/Eq
All Discrete & Transformer Balanced
Designed & built in the U.S.A. by
Geoffrey Daking & Co. Inc.
302-658-7003

See Our Ad on Page 127

AUDIO/VIDEO EQUIPMENT

Great Deals!
Used Audio/Video/Musical Equipment. In Stock!
Top Brands like:
Yamaha, JBL, Akai, E-mu, Sony, Panasonic, Tascam, DBX, Neumann, AKG
and many, many more!
CALL–WRITE–FAX for our Catalog Listing and SAVE!

AD AVR
AUDIO VIDEO RESEARCH
the Boston area
617 924-0660
fax 617 924-0497
the Connecticut area
203 289-9475
fax 203 291-9760

EVEN SMALL ADS WORK!!

MUSIC WANTED

WANTED:
INSTRUMENTAL MUSIC
For Karaoke Discs

- Must be sequenced, voiced, and mixed.
- Vocals, guitars, and sax must be played live.
- All sequences must be your own, made "in house".
- Sequences that are "farmed out" or "bought from catalogs" will not be accepted.

Send demo tape, catalog, and letter of application to:

Program Director
362 Wandsworth Street
Narragansett, RI 02882

World Radio History

EQ CLASSIFIED

MAINTENANCE SERVICES

DAT Recorder Service

Fast, expert repairs on all DAT recorder brands and models.

Sony Authorized Warranty Service

Pro Digital Inc. 215.328.6992

CALL US TO GET THE SAME EXPERT ADVICE, SERVICE AND PRICES THAT WE PROVIDE TO SOME OF THE WORLDS BIGGEST ARTISTS. CALL OR WRITE:

R. I. MUSIC 96 BROAD ST.

PAWTUCKET, R.I. 02660 401-725-7829

ASC TUBE TRAP

Still...the one and only corner-loaded Bass Trap with treble range diffusion

AFFORDABLE STUDIO ACOUSTICS

Pete Townshend	Bruce Swedien
Recording Arts	MJJ Productions
Dave Abbruzzese	Robert Scovill
Willie Wilcox	MTV
Gino Vannelli	Oz Recording

partial user list

See Robert Scovill in "Room With A VU" this issue

for more information call

1-800-ASC-TUBE

(1-800-272-8823)

ASC ACOUSTIC SCIENCES CORPORATION

PO BOX 1189 EUGENE, OR 97440

ATTENTION MACKIE 8 BUS OWNERS!

Custom modifications performed by qualified personnel. Maintenance and tech services also available. On-site service in NYC area.

Rock-Tech: 718.318.3520.

DAT TECHNIQUES

We repair all pro & consumer models. Fast turn-around at reasonable rates. Your Sony and Panasonic Specialists.

1-800-D-TECHNIC/1-800-203-2151

NEW PRODUCT

RUSSIAN DRAGON

DRAGGIN' RUSHIN'

TIMING ACCURACY METER

NO MORE GUESSING ABOUT TIMING: Enables you to perfectly sync triggered samples & tracks(.1 ms accuracy); Reveals MIDI timing problems; Shows how closely a drummer plays to a click; Checks sync of virtual tracks & tape tracks; Checks delayed loudspeakers.

Rack Mount RD-R $499 Table Top RD-T $249

Call 800-880-8776 to try a Russian Dragon risk free for 2 weeks.

If you are not satisfied, return it for a full refund.

SALES: 800.880.8776 FAX: 210.344.3299 INFO: 210.525.0719

MUSICIANS CONTACT SERVICE

established 25 years, Excellent Reputation. Musicians call a 24-hour hotline to hear job listings of copy & original bands.

IT'S CHEAP, IT WORKS.

Call (213) 851-2333.

7315 Sunset, Hollywood, CA 90046

EQUIPMENT FOR SALE

Telefunken V72/76/77/78/U73, Neumann mics, Tele-funken Tubes UF14/EF14/EF8048/AC701, etc.

For actual list call:

Jean Hund Germany (0) 721 373622

or FAX (0) 721 373611

EQUIPMENT FOR SALE

Premium tubes developed specifically for audio by British audiophiles and engineers (formerly with M-O Valve, Mullard, and Brimar) in conjunction with tube factories world wide. Since superior sound can not just be measured for but must be designed in, all Golden Dragon prototypes are evaluated using subjective and objective criteria. All Golden Dragon power tubes pass a 36 hour high voltage test, while all Golden Dragon preamplifier tubes pass a 24 hour test and meet microphony tests twice as stringent as the NATO standard. All Golden Dragons are covered by a ninety day warranty.

Item	Each	Low Noise	Match Pair	Low Noise & Matched
12AT7A	16.00	26.00	42.00	66.00
12AU7A	16.00	26.00	42.00	66.00
12AX7A	16.00	26.00	42.00	66.00
6DJ8	22.00	37.00	66.00	96.00
12AT7A Gold Pin	22.00	32.00	54.00	78.00
12AU7A Gold Pin	22.00	32.00	54.00	78.00
12AX7A Gold Pin	22.00	32.00	54.00	78.00
6DJ8 Gold Pin	29.00	44.00	80.00	110.00
6SN7GT	20.00		50.00	
12BH7	22.00		54.00	
EF86 Gold	22.00		54.00	

Power Tubes	Pairs	Quads	Sextet	Octet
EL84/6BQ5	22.00	52.00	80.00	108.00
E84L/7189	29.00	66.00	101.00	136.00
6V6GT	42.00	92.00	140.00	188.00
EL34	52.00	112.00	170.00	228.00
E34L	64.00	136.00	206.00	276.00
6L6GC	42.00	92.00	140.00	188.00
5881	54.00	116.00	176.00	236.00
6550A	90.00	188.00	284.00	380.00
KT66	54.00	116.00	176.00	236.00
NEW KT66 Super	142.00	292.00	440.00	588.00
NEW KT88	120.00	248.00	374.00	500.00
NEW KT90	142.00	292.00	440.00	588.00
NEW KT90LX Titanium	164.00	336.00	506.00	676.00
807	64.00	136.00	206.00	276.00

Power Triodes				
2A3	110.00	228.00	344.00	460.00
211	148.00	304.00	458.00	612.00
NEW 300B Super	354.00	716.00	1076.00	1436.00
NEW 4300B (300B)	368.00	744.00	1118.00	1492.00
NEW 4300BLX (300B Titanium)	552.00	1112.00	1670.00	2228.00
811A	60.00	128.00	194.00	260.00
845	184.00	376.00	566.00	756.00

Rectifiers	Each
5AR4	23.00
GZ34	23.00
5U4G	19.00

VAC/Tubes by Design

P.O.Box 48865, Sarasota, FL 34230 Tel: (813) 925-3483 Fax: 813-925-1220

World Radio History

EQ CLASSIFIED

EQUIPMENT FOR SALE

ODYSSEY PRO SOUND

Supplying new, used and vintage quality recording equipment

- D&R Orion 51 frame, 32 dual in-line, 8 dual stereo,96 inputs on mix.....Mint...Call
- Roland SDE3000 digital delay + Urei LA-3A limiter/compressor, each $750.00
- Otari MX5050 B2 1/4"+ MCI JH-110B 1/4", 3 speeds, MRL tape, each $1,250.00
- NEW Audio Technologies TMA-1 switchable dual tube mic-preamp.....$1,300.00

Plus...other quality recorders, consoles, mics, signal processors, etc.

Please call/fax for availability MC/Visa accepted

Tel 508-744-2001
Fax 508-744-7224

COVERS

PHONE 717-623-2700 FAX 717-623-3100

Designed *BY* musicians *FOR* musicians!

Cloud 9 COVERS

AMERICA'S LARGEST CUSTOM COVER COMPANY

is an aggressive and innovative manufacturer of custom made protective covers. Using creative design tactics and the finest materials known to man, are not the only reasons we're known as the best!

Designed *BY* musicians *FOR* musicians!

We keep our eyes and ears wide open to the music world- we know the equipment and we understand your needs.

We feel our greatest strength is our desire to give you the best product in the market place today.

Please feel free to give us a call and find out why we're known as #1 in our industry.

We use 1000 Denier Cordora Nylon Exterior applied to our own special Transtex padded interiors. This helps repel impact and protects from outside damage.

We also offer the industry's most comprehensive warranty.

A ***LIFETIME GUARANTEE***

CLASSIFIED ORDER FORM

To place an ad directly call Christine Cali at (212) 213-3444 ext.155, or fax (212) 213-3484

Please print or type in capital letters or lowercase. There are 7 lines to an inch, $90 per inch, one inch minimum.

Payment by check, money order or charge must accompany ad. Deadline for each issue varies, so call for next deadline date.

ALL ADS MUST BE PREPAID

Categories are: (pick one)

__ For Sale __ Sources & Services
__ For Rent __ Equip. Rental
__ Miscellaneous __ Bus. Opportunities

Or Create Your Own Headings

Name _____

Company _____

Address _____

_____

Phone _____

I am paying by:

☐ VISA ☐ MC ☐ AMEX ☐ Check (enclosed)

Card #_____Exp. date _____

Signature _____

Check Amount _____

Mail to:

EQ Magazine/Classified Dept.
2 Park Avenue, Suite 1820
New York, NY 10016
Attn. Christine Cali

ALL NEW!

ANDERTON'S UTILITIES

MIDI master and *EQ* west coast editor Craig Anderton has decided to tell all with the first version of his **Anderton's Utilities Disk.**

Here's a taste of what you'll find on this stuffed 800k Mac disk:

- Test sequences and MIDI terminal programs to diagnose and streamline your system
- Drum loop constructions set– lots of drum patterns so you can cut and paste your way to a cool drum loop
- Custom music-oriented file icons
- Controller library (which is a file with pre-programmed vibrato, tremolo, fade ins and fade outs, and so on)
- MIDI terminal programs to diagnose your system
- AIFF test tone files and AIFF Minimoog samples
- Forums for track sheets, DAT takes, backups, etc.
- Useful information and formulas
- Reprints of selected *EQ* articles

Plus more! All sequences are Standard MIDI Files and all documents are MacWrite and MacPaint compatible.

Order now and get **Anderton's Utilities Disk** at the special introductory price of $29.95.

To get your copy fill out the coupon below and send it along with a check or money order to:
Silk Media
PO Box 966
Ukiah, CA 95482

Name:_____
Address:_____
City:_____
State:_____ **Zip:**_____
Phone:_____
Number of copies:_____
Occupation:_____

World Radio History

ACROSS THE BOARD

continued from page 154

allowed a producer to ship one disc that could be used with Macs, PCs and CD-I players. The Orange Book laid down the laws for CD-MO (magneto-optical) and CD-R. Don't forget the Blue Book. This is the book that the finance companies use to tell you that your car is not worth as much as you thought it was.

Getting back to the original point of all this (as if I could remember the original point this long), CD-ROM applications are going to be an ever-increasing market for music software. Making your mixes sound better than the next guy may give you the edge in landing the contract to provide music for the next hit video adventure game. It's something to think about.

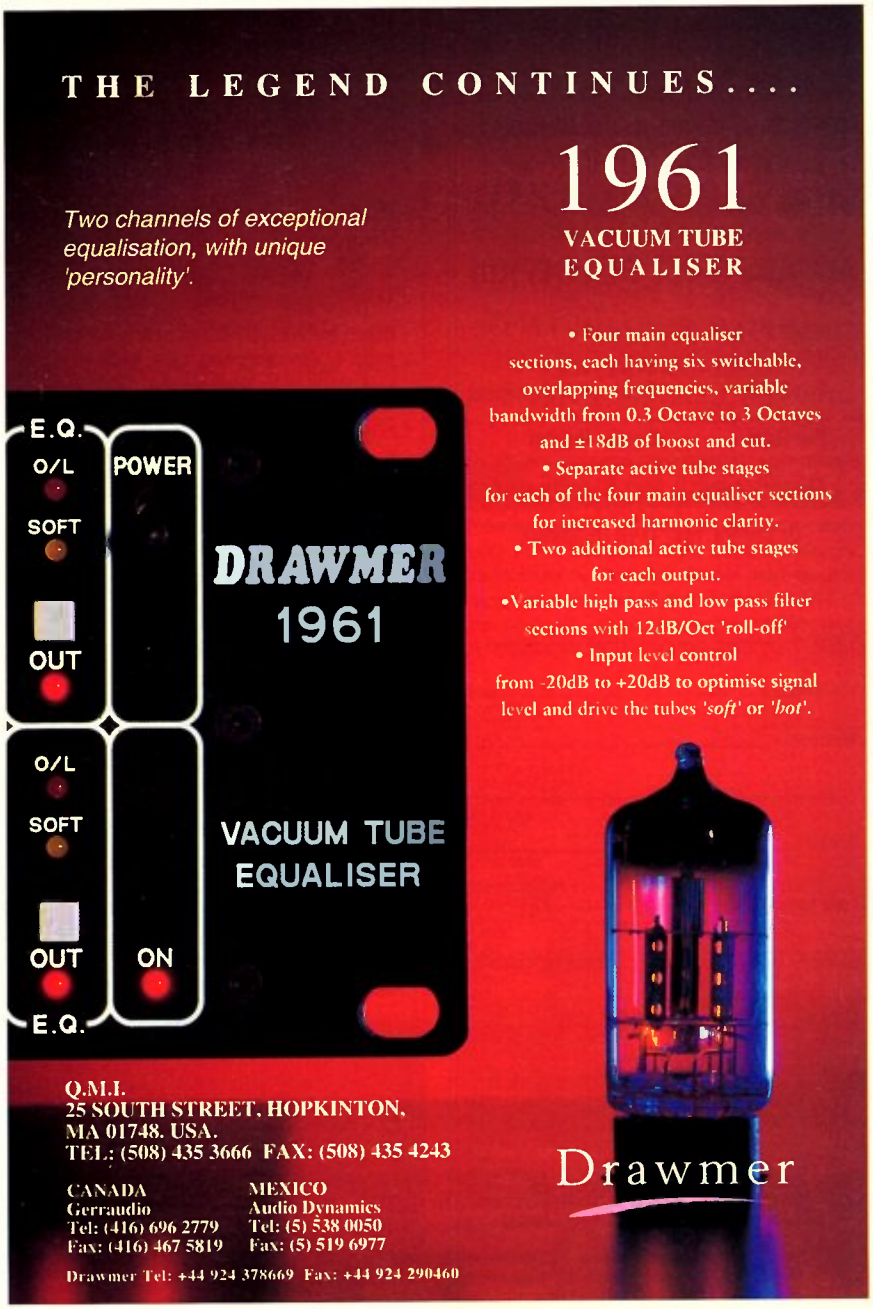
NOW WHAT

Wow! After a few paragraphs like that, I get Brain Frost, like when you eat ice cream too fast, or stick your nose in a dish of liquid Nitrogen.

I have come up with a great way to cut down on the amount of time it takes to drive long distances. Well, actually it is just a way to make you think that it didn't take much time. A month ago I was driving from Los Angeles, California to Nashville, Tennessee, a distance of about 2100 miles, while listening to the CDs that I made for my car. I was thinking about mixing records and about how many times you have to hear the same song over and over. You go into the studio about 10 o'clock in the morning and start working on a particular tune. You play it over, and over, and over, and over, and over, and over, and over, and over, and over...well you get the idea (and I get paid by the word). Pretty soon, somebody walks in and says that it is midnight and you should start thinking about continuing the next day. You look startled and wonder why the time went by so fast. I guess you go into some sort of hypnotic trance and forget all about time. I went into the studio one day to work on a Donald Fagen song, and by the time I looked up at the clock, my daughter had gone all the way through high school without me noticing.

Anyway, I thought that if this works in the studio, then it should work on the highway. I was heading east out of Phoenix, Arizona and I selected a song I liked on the CD player and pushed the REPEAT button. The song started playing over, and over. The next thing I knew, I was in El Paso, Texas. Where had the time gone? This was great. I pulled off to gas up and was again on my way east. I selected another song and said, "I should be in Dallas, Texas before this song ends." I was. It works. I may be on to something. I'll be rich! Oh, yes, I now have 12,000 miles on my CD-R with no signs of wear. I am going to re-calibrate my speedometer to read out in CD sectors/mile. 55 miles per hour works out to be 4909.0909 CD sectors/mile. Or you could look at it like Nashville is 25.9459 CDs away from Los Angeles. Or, if it takes a day and a half for a chicken and a half to lay an egg and a half, how long does it take for a rooster to hatch a hardware store out of a door knob?

I went by a record store yesterday that was advertising a New Years Day sale. All CDs specially priced at $19.95. I bought four CDs before I realized the price was going to drop back to normal after the sale was over. Must have been the Brain Frost. Or maybe it's time to check in to the Home For the Digitally Deficient out near Chatsworth. EQ



CIRCLE 101 ON FREE INFO CARD

World Radio History

GAND PRO AUDIO Presents the Fifth Annual

MIDWEST DIGITAL AUDIO RECORDING EXPO

Thursday & Friday • February 9 & 10

Merchandise Mart • Conference Center
350 N. Orleans St. • Chicago, Illinois

Featuring

- ***Alesis ADAT System 4***
- ***Avid AudioVision***
- ***Digidesign Pro Tools III***
- ***Digital Audio Labs V8***
- ***E-mu Emulator Four***
- ***Fostex Foundation 2000RE***
- ***Roland DM800***
- ***Sony PCM800***
- ***Spectral Prisma Music***
- ***Tactile Technology M4000***
- ***Tascam DA88 System 3.03***

... And More!

FRIDAY SEMINARS

11:00 am Keynote Speaker: Roger Nichols
World-famous recording engineer known for his work with Steely Dan and contributing editor for EQ Magazine. Learn from this expert on digital recording
Sponsored by EQ Magazine, Digital Audio Labs & QMI

3:00 pm "Studio Acoustical Design"
John Storyk of Walters-Storyk Design Group
Winner of Three TEC Awards for Recording Studio Design
Sponsored by Gand Pro Audio

SPECIAL GUEST ... STEPHEN ST.CROIX
Demonstrating Spectral's new Prisma Music

ADMISSION $10.00
For tickets and information,call Bob Tjarks, Pro Audio Manager

All the digital data you can process.

See and hear the latest in:

- Digital Audio Workstations
- Digital multitrack recorders
- DAT recorders
- Digital effects
- Sample rate converters
- Digital mixing
- Digital video editing
- A/D-D/A Converters
- CD recorders

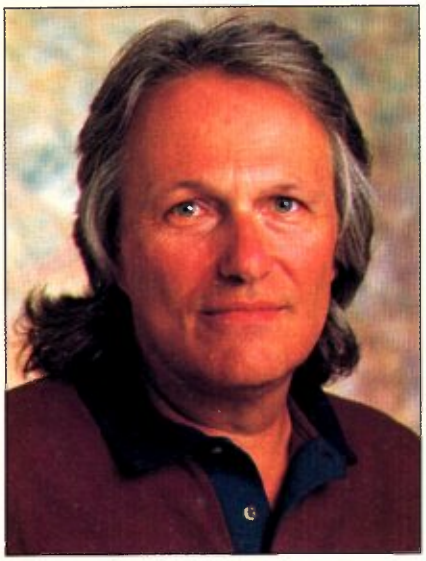
GAND PRO AUDIO

780 FRONTAGE ROAD
NORTHFIELD, IL 60093
708-446-TECH

Co-Sponsored By:
EQ
ALESIS
FOSTEX

World Radio History

Orange, Yellow, Red Book, Blue...



So Many CD Formats, I Don't Know What To Do!

BY ROGER NICHOLS

I can remember when you went into the studio to mix an album for vinyl records. You would mix all of the tracks to sound the way you wanted on the album, and then maybe change a few things for the single that would make it stick out a little better on the radio. Oh, and if you remembered, you would print TV mixes. TV mixes were the ones with the lead vocal left out in case the artist performed the song on television. The vocal would be added live during the taping of the TV show. That was about the size of it. Today, you have to think about the main mixes for your album, primarily for CD release in the United States, as well as the possibility of mixing alternate versions for a myriad of other uses.

One alternate mix version is for European and Japanese markets. Because of the widespread import problem, the only way to get the Japanese to buy the Japanese version of your CD is to include versions of the mixes that aren't available in the United States. The same alternate versions could probably be used for the CD singles that are released in the U.S. The record companies think that people are more likely to buy the single if it contains versions that are different than the album. Sometimes the version of a song that is released as a single and gets tons of airplay is not the same version as the one released on the album. I ran into this when I bought the Babyface album that contained "When Can I See You Again". The version on the album was just vocal and acoustic guitar. The version played on the radio was only available on the CD single.

Another version that you have to start thinking about is for CD-ROM products. More and more artists are coming out with CD-ROMs containing the album material along with low-res versions of their music videos, interviews with the band, tour information, fan club information, horoscopes of the roadies, and other meaningful data. The audio that is placed on these CD-ROMs may not be the same quality as that of an audio-only CD. The sample rate may be 37kHz with 8 bit resolution instead of 44kHz with 16 bit resolution. Sometimes the lower resolution requires that a different mix be used to "get the point across".

There is a product out there called "Rock, Rap and Roll" that allows the user to edit together segments of a song in any order he sees fit. When the user plays the song back he can play guitar licks, horn solos, keyboard parts, vocal phrases and a number of other instruments along with the track. Basically, the user is jamming along with the band. In the studio, the producer and the artist had to mix a version of the tune without the lead instruments and cut them into four or eight bar segments with pre-determined edit points so that any segment could be connected to any other segment. The lead instruments then had to be edited into one or two bar phrases that could be played by the user pressing a button on the mouse or a key on the keyboard. This sort of product is becoming very popular and is going to require some thought on the part of the artist to come up with mixed material that will work well in this environment.

COLOR(ING) BOOKS

Philips and Sony printed the specs for Compact Disc Digital Audio and named it the Red Book. Red Book CDs are 16 bit PCM encoded at 44.1kHz. For now, that is all you need to know about the Red Book. (Actually, if I told you any more, I would have to go look it up, and I'm too lazy to get out of my chair.)

The Yellow Book covers CD-ROM and CD-ROM/XA. Mode 1 tracks are for computer data. Mode 2 tracks are for compressed audio. The XA extension to the Yellow Book spec allows for computer data and audio data to be interleaved in the same track. The important part of the Yellow Book spec, as far as mixing audio for CD-ROM is concerned, is that there are five different stages of audio compression allowed. They are: ADPCM Level A sampled at 37.8kHz 8-bit; ADPCM Level B sampled at 37.8kHz 4-bit; ADPCM Level C sampled at 18.9kHz 4-bit; Digitized 22kHz with 8 bit samples; and Digitized 11kHz with 8 bit samples. There is a wide range of audio quality possibilities for CD-ROM audio, and it would be great if the mixes could be tweaked to sound the best they could under these sub-CD quality conditions.

Just to round out the Rainbow of Books, next came the Green Book which described CD-I, the interactive CD designed for the dedicated player introduced by Philips. The White Book spec allowed CD-I information to be recorded on CD-ROM/XA discs. This

continued on page 152

World Radio History

Gain

MD 511/512

MD 515/516

MD 518

BF 1051

Gain. Get more than what you pay for. With a ProForce microphone, you get Sennheiser's award-winning sonic superiority, and gain that reaches incredible levels before feedback. Plus, a unique combination of new high tech materials that ensures rock-solid durability.

Laser-age manufacturing techniques keep the cost of ProForce mics low. But their sound and ruggedness are uncompromised Sennheiser. Grab a ProForce mic... and gain complete control of your performance.

New! MD 504

This little wonder will change the way you mic!

MD 515 SENNHEISER

SENNHEISER®

PROFORCE®

6 VISTA DRIVE, P.O. BOX 987, OLD LYME, CT 06371 • TEL: 203.434.9190 • FAX: 203.434.1759
IN CANADA: 221 LABROSSE AVE., PTE CLAIRE, PQ H9R 1A3 • TEL: 514.426.3013 • FAX: 514.426.2979

CIRCLE 67 ON FREE INFO CARD

World Radio History

SR SERIES II, THINK OF IT AS FREEDOM OF CHOICE.

There's a little something for everyone in SR Series II™. From small combo vocal reinforcement to large club systems, from mobile DJ and recorded music reproduction to stage monitoring, front fills and main PA stacks in concert applications. SR Series II has evolved to be the first choice of musicians and sound engineers world wide. Here's what this evolution has produced.

MORE MODELS

You have a greater number of configurations from which to choose. With more systems containing large format compression drivers plus a dual 18-inch subwoofer system, SR Series II is sure to have the loudspeaker systems to fit your needs.

OPTIMIZED APERTURE™ TECHNOLOGY

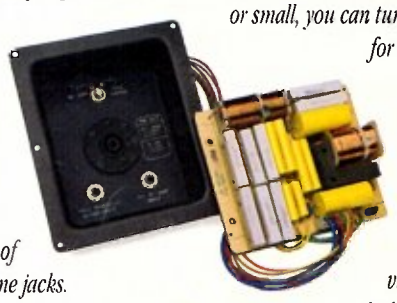
Our newest horn technology, available in five models, yields outstanding pattern control (90° X 50°) and exhibits the lowest midband distortion we have ever achieved in large format systems. Equally important, the 2447J compression driver extends high frequency response well above 18 kHz, virtually eliminating the need for a separate tweeter.

INNOVATIVE COMPONENT DESIGNS

Many of the models incorporate recent breakthroughs in component design. The 2119H has been engineered for extra output power capability in dedicated midrange applications. Our 2417H small format compression driver incorporates the lightest diaphragm we have ever made, resulting in exceptional transient response, enhanced high frequency clarity and crisp, clear vocals.

ROADWORTHY CONNECTORS & CROSSOVER NETWORKS

You now have the choice of Speak-On® connectors or phone jacks. Speak-On's permit the use of multi-conductor cable for quick and reliable set-ups. Or you can choose the simplicity and convenience of 1/4-inch phone jacks. The input terminal cup is made of heavy gauge steel to endure years of road use and abuse. A heavy-duty rotary switch makes selecting Passive or Bi-amp operational modes quick, easy and reliable. Crossover networks have been re-engineered to survive years of road work and offer outstanding acoustic performance. Highest quality close tolerance capacitors, high power resistors and low insertion-loss inductors assure the smoothest possible acoustic response. Regardless of your application, large or small, you can turn to SR Series II for the most reliable sound reinforcement solutions. For complete technical information via fax, call the FlashFax number below. Better yet, stop by your local JBL Professional dealer for a personal demonstration.



JBL

JBL Professional
8500 Balboa Boulevard, Northridge, CA 91329
(818) 893-8411 FlashFax™: (818) 895-8190, Reference 512

A Harman International Company

World Radio History