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MODERN RECORDING & MUSIC

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Vol. 7 No. 11
August 1982

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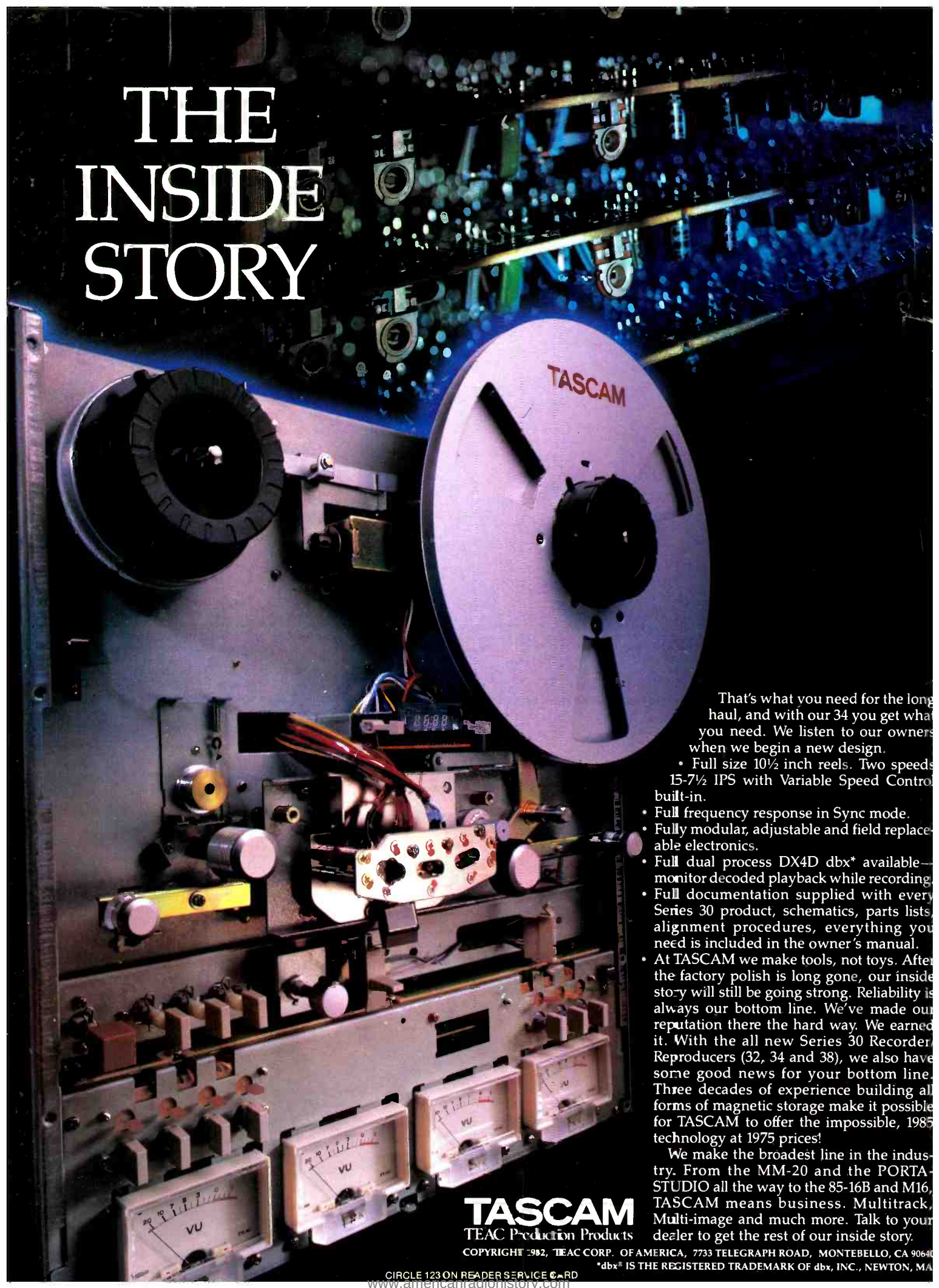
NOTES:
MXR Delay System II

New Products
Record Reviews

THE INSIDE STORY



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- Full documentation supplied with every Series 30 product, schematics, parts lists, alignment procedures, everything you need is included in the owner's manual.
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We make the broadest line in the industry. From the MM-20 and the PORTA-STUDIO all the way to the 85-16B and M16, TASCAM means business. Multitrack, Multi-image and much more. Talk to your dealer to get the rest of our inside story.

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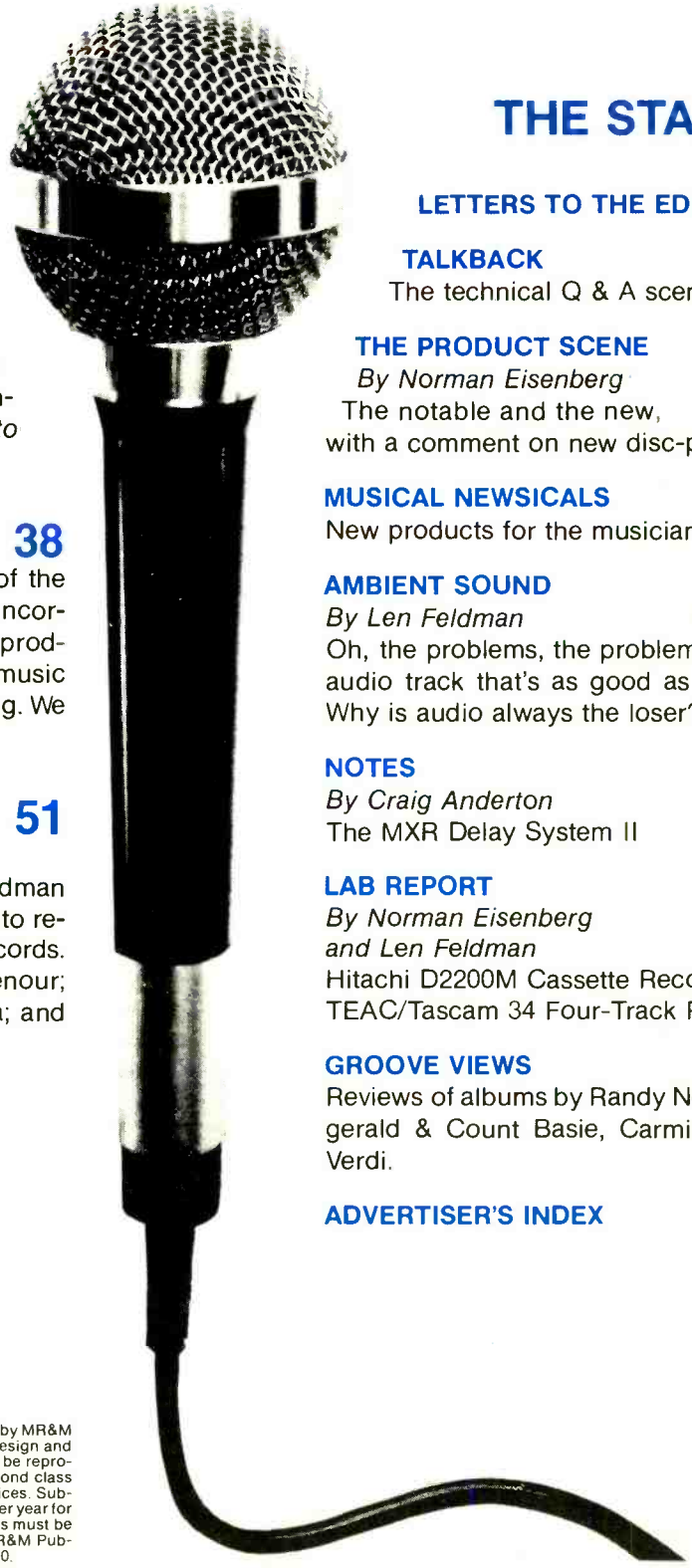
CIRCLE 123 ON READER SERVICE CARD

MODERN RECORDING & MUSIC

AUGUST 1982
VOL. 7 NO. 11



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COMING NEXT ISSUE!
Squeeze "Live!"
Recording Techniques, Part VI
Producer Teo Macero

THE STAPLES

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LETTERS TO THE EDITOR

More Defense of Fostex

Here we have another letter in our continuing series of Fostex letters. What we thrive on is controversy, so we appreciate any comments, arguments, defenses, or support that you have to offer. It seems that our lab report column of May 1982 allows many of you out there to write to us and we hope that more of you continue to do so.

So, if you can contribute to the annals of Fostex *, then write to our* Letters to the Editor *column, vent your spleen, or show your support. Fostex may yet generate more letters than the famed* "Footswitching Your Teac" *series in* Talkback.

I have, not a real criticism, but rather a "side to add" regarding the Fostex A-8 Lab Report (May '82). The report was accurate, but as the reviewers predicted, they did indeed miss the point of the product.

I compose and record alone. I play a myriad of instruments (including drums, piano, synthesizer, guitars, bass, etc.) and sing all my own vocals. My main enjoyment is in audibly realizing my ideas. I love what I do for its intrinsic value. All my gear is semi-pro stuff.

As a solo operator, I would never dream of recording more than two tracks at one time, so the so-called "misnomer" of "8-track" is meaningless to me. I am satisfied to monitor the incoming signal as I record, and am grateful that I did not pay for two heads when one does nicely. I am very happy with the sound quality of the A-8, although I would not be opposed to rolling off below about 60 Hz to avoid low-end noise if I felt it was necessary (I don't). Also, since low frequencies are very non-directional anyway, I don't really see the point in criticizing low-end channel separation, especially in a deck like this. I've never recorded a piece more than 20 minutes long, and would much rather save the expense of 10" metal reels; I'm even happier to avoid the cost of ½-inch tape. I record with all the effects as they will be in the final version (that's called "judgement through experience"), and so I only need the inexpensive Fostex line mixer on the way out. I have always wanted this type of machine, because it allows for many more chances to overdub without having to go more than two generations (you can go almost two dozen tracks even if the first six are in stereo).

The key: I know my equipment well, so I can get out of it more quality sound than most people get out of much more expensive systems. For me, and people like me, the Fostex A-8 is an ideal deck. I dreamed of multi-channel recording 20 years ago (I'm 30), and it's finally here and affordable. I've used "fine" 4-channels for many years, and feel that the quality of the A-8 is very comparable indeed. I do know the difference between quality and trash, and feel that the Fostex is definitely not trash. "The point" of the product, to me, is not to record an hour-long orchestrated symphony by using all 8 channels, but rather to allow the "one or two tracks at a time, mix on the way in" solo artist, like myself, to experiment with and enjoy the benefits of

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*The ADM 256 offers 256ms of delay at full bandwidth. Also available is the ADM 1024 with over 1 full second of delay (full bandwidth) for under $700.

8 fairly good-quality channels of tape for a VERY reasonable price both in terms of initial cost and tape costs. I'm glad that someone making tape decks keeps in mind people like me. Thanks, Fostex!

—John Bartelt
Paso Robles, CA

Recommendation

I have been reading your magazine for about five years now. I have built an eight track studio in my basement and have Teac/Tascam 80-8, 2 track and cassette recorders, along with eight track and two track Ampex.

I would like to rebuild my studio and control room for better acoustics. I have purchased several books on acoustics that are way over my head, what I need are plans or blueprints that if I use in building will result in a very good acoustically designed studio and mixdown room. I find I am not alone with this problem. Anything you could recommend to help would be appreciated.

—Walter Brassell
Chattanooga, TN

What I can recommend to you is a book entitled, "Building a Recording Studio," *written by Jeff Cooper, and published by the Recording Institute of America, New York, New York. Write to the Recording Institute of America Press, New York, New York, 10023. This book will most likely not be over your head, is quite clear, and will probably be helpful to you in your endeavors. We wish you good luck.*

Getting A Charge Into Music

Could you give me a little background on the invention of the electric guitar? When was it developed, and who was responsible for changing the basic idea of a guitar into an electric wonder?

—Thomas McCullers
Richmond, VA

You'd actually be better off going to your local public library and referring to the music section or asking a librarian to help you find the DEEP background. But for now, allow us to say a few words.

In 1927, Les Paul, who was, at that time, a young jazz musician, had an interest in the field of electronics. He mounted a ceramic phono pickup directly onto his guitar and connected it to an amplifier. This basically, was what we know of as the electric guitar. Improvements were made on this basic model by using better quality amplifier circuits and more sophisticated pick-ups. The electric guitar of today, though, is essentially what was developed by Les Paul.

Dokorder Service

We have received many letters in the past months regarding Dokorder machines and requests for information as to where to send units for repair. Perhaps we can stop this flow of letters by printing an address and phone number now. Any requests should be sent to:

Dokorder Service Center, Inc.
1117 West 190th Street
Gardenia, California 90247
Phone: 1-213-515-1798

Once you send them a machine for repair, they will send you a short form indicating charges for parts, labor, shipping, and estimated time of repair. All repairs are performed to factory specs, and unless authorized by the customer, repair will be restricted to the specific complaint.

Active/Non Passive Do-It-Yourself Fan

Speaking for myself, construction and equipment modification articles are what I look forward to most in *Modern Recording & Music.* With that in mind, I would like to offer a Suggestive Encounter of the Technical Kind. How about readers being able to submit construction articles of their own? I'm unaware if a policy regarding this currently exists or not, so this is my proposal. The following criteria would need to be met;

1) The project must be cost effective.
2) The circuitry must be fully tested and de-bugged.
3) A working prototype would be provided to the Modern Recording & Music staff for evaluation and testing.
4) The accompanying article should be well written, interesting, informative and understandable to the average hobbyist. Included in this text should be circuit concept, brief circuit analysis, calibrating/testing procedures, possible modifications (if any) and construction/trouble shooting tips.
5) A schematic and parts list must be included, drawn clearly and checked for accuracy.
6) A tested printed circuit board layout and components placement guide along with a chassis drilling template and packaging suggestions if applicable should be included.
7) A respectable photograph(s) of the completed unit and/or printed circuit board would be required to augment the article.
8) The circuit should not be designed around any components so exotic that they are unattainable through normal channels.
9) A parts availability source must be included and/or provided.

Possibly even an incentive (payment for the article) could be considered. I myself have just recently completed designing and prototyping such a project. So what do you say, anyone interested?

—Jeffrey A. Schnaidt
Starstruck Audio
Custom Audio Services
Carmichael, California

We suggest that if you have ideas you'd like to submit to mail them in to us. We will consider articles on construction and equipment modification. Anyone out there who has something worthwhile to share with other readers might just as well give it a shot. There's probably a lot of undiscovered writing talent out there, too. So... yes. Your idea is fine. Submit, submit!

The EV SH15-2 Speaker System

The all-new EV SH15-2 horn-loaded, two-way speaker system is America's answer to the Yamaha 4115. It's loaded for full-range, high-output action. And we mean action. The SH15-2 is capable of filling the air with a solid, audience-rousing 120 dB. And with an efficiency that is unmatched by most comparably-sized systems.

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The low frequency section of the SH15-2 features a 15-inch speaker mounted in a vented horn enclosure. This offers the double advantage of wide frequency response and low distortion, plus the "blow-them-away" sound pressure levels that make your audience want to stay for all your music, for all your action.

IT FILLS THE AIR WITH MUSIC, THE SEATS WITH PEOPLE, AND THE HOUSE WITH APPLAUSE.

And if the excitement and the action get tough, the EV SH15-2 is built to take it. Like all EV speaker systems, the SH15-2 comes packaged in a rugged ¾-inch cabinet, covered in spill-proof, scratch-proof, stain-proof black vinyl trimmed with an edge-protecting aluminum frame.

Whatever your sound, whatever your music, whatever your action, catch the EV SH15-2 in action at your nearest Electro-Voice dealer. Hear for yourself how it outperforms the Yamaha 4115 and the rest of the competition as well. And while you're there, be sure to check out EV's full family of "Sound in Action" systems and equipment, from mikes to monitors and everything in between. Or write to us directly for a free copy of our brochure, "Instruments and Sound Reinforcement Systems." Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107

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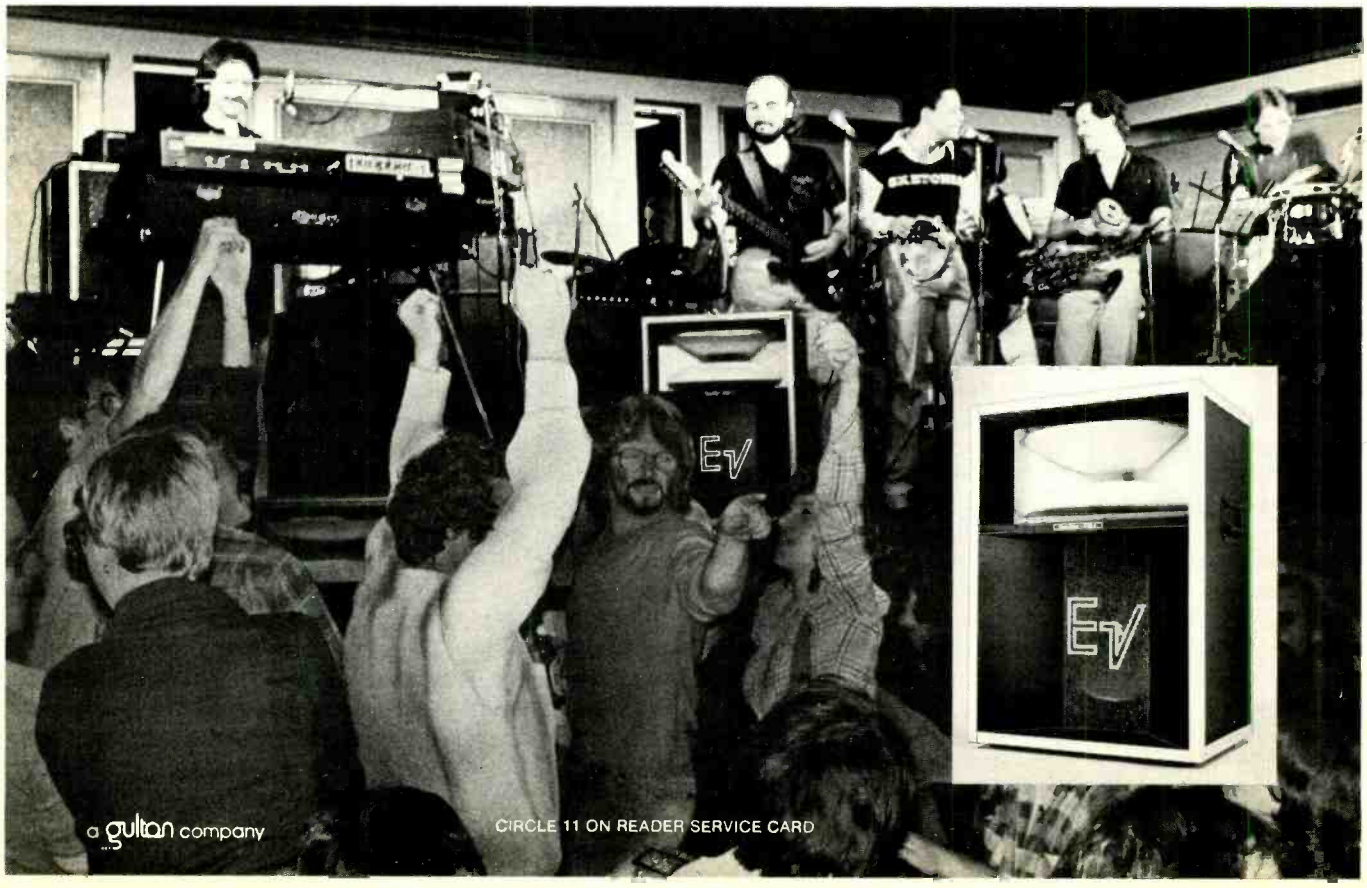


CIRCLE 11 ON READER SERVICE CARD

TALK BACK

"Talkback" questions are answered by professional engineers, many of whose names you have probably seen listed on the credits of major pop albums. Their techniques are their own and might very well differ from another's. Thus, an answer in "Talkback" is certainly not necessarily the last word.

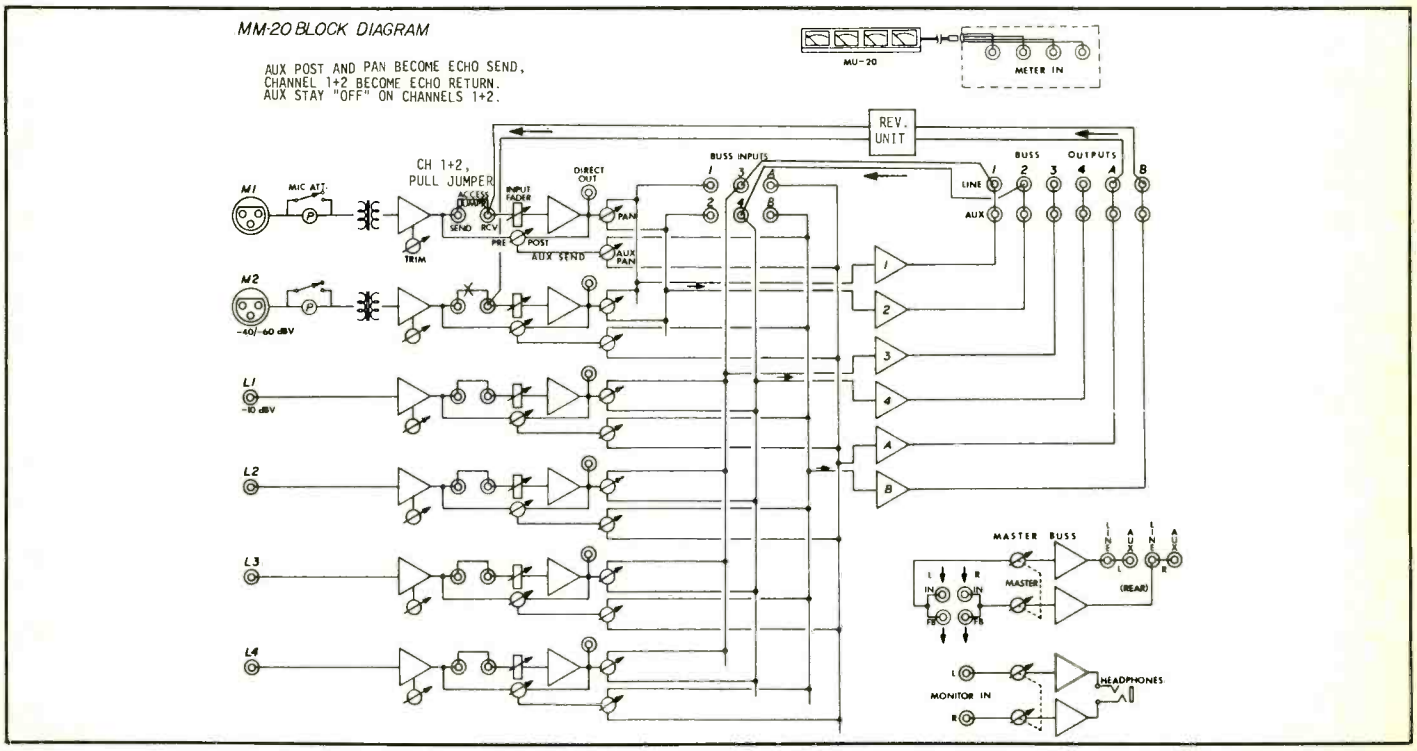
We welcome all questions on the subject of recording, although the large volume of questions received precludes our being able to answer them all. If you feel that we are skirting any issues, fire a letter off to the editor right away. "Talkback" is the Modern Recording & Music *reader's technical forum.*

Question for Teac

I just thought I would write to say how much I enjoyed Craig Anderton's article on the Tascam MM20 system. At the time the MM20 came out I was in the market for my first mixer to go with my TEAC 4-Track. I had some reservations about buying a mixer that required patching—half the battle with recording seems to be in acquiring an organized system of procedure. I didn't need anything complicated. After much debate I purchased the Tascam system, (excluding the Expander unit), and after several months, I'm totally pleased with it. For the money, I think it's the best mixer available. Patching isn't all that complicated once you understand the system, and it gives you the ability to skip amplifiers, (for a cleaner sound), meter at several different points, and lots of other things. In fact, part of my problem is that I haven't discovered the MM20's complete potential. The manuals are fairly comprehensive, but they definitely take some study. Also, as Craig mentioned, the equalizer doesn't seem to do everything I wish it would, although it's certainly a good piece of equipment for the dollars.

I did have a question for the Tascam folks, concerning reverb and equalization. So far I have been adding reverb as I lay the tracks down. Would it be possible to set up the System 20 so that a signal could be sent to the chamber, and part of that signal returned back to the mixer to be combined with the dry signal? In other words, can I set up my mixer to function like a Reverb Send/Return seen on more expensive units, so that I could control the amount of Reverb for the four channels during mix-down?

My other question concerns the equalization controls. I have discovered that I can improve my signal-to-noise-level by recording at



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

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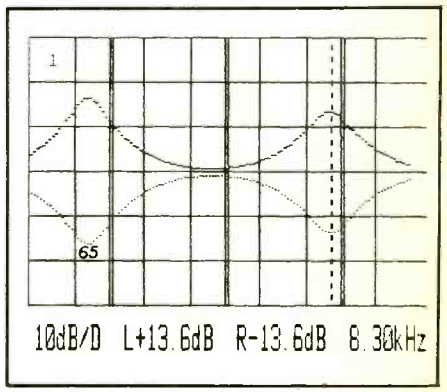
CIRCLE 12 ON READER SERVICE CARD

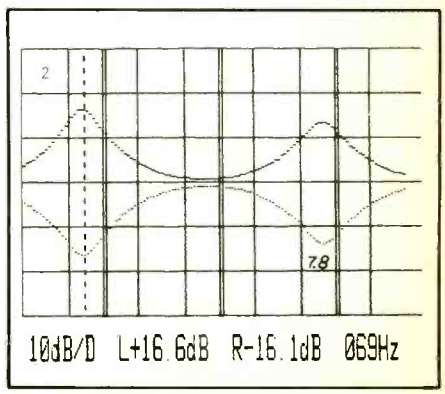
15 IPS, then slowing my TEAC down to 7½ IPS, slowing my other machine down to 7½ IPS, and mixing down. After the slow-motion mix, I raise the speed of the mix back up to 15 IPS. I know this is kind of strange, but until I can afford DBX, this functions as a sort of compression, since it drops the peaks an octave and allows more signal onto the tape. And it sounds quite natural. The problem is that I can't equalize during mix-down if I do that. I think it would be possible to cut the equalization numbers in half (for instance, if I needed to boost at 5k at 15 IPS, I would boost at 2.5k at 7½ IPS and get the same relative boost. I think. However, to do so I would need to know what each of the marks on the frequency knobs on my PE20 stand for. The knobs only list the highest and lowest frequency affected. Could Tascam supply that information? Or is this one of the most bizarre and stupid questions anyone has asked lately? I can see the owners of 24 track studios busting a gut at the idea of slow-motion mixdown, but 4-Track is the father of invention.

I heartily recommend the MM-20 and thank you for your time.

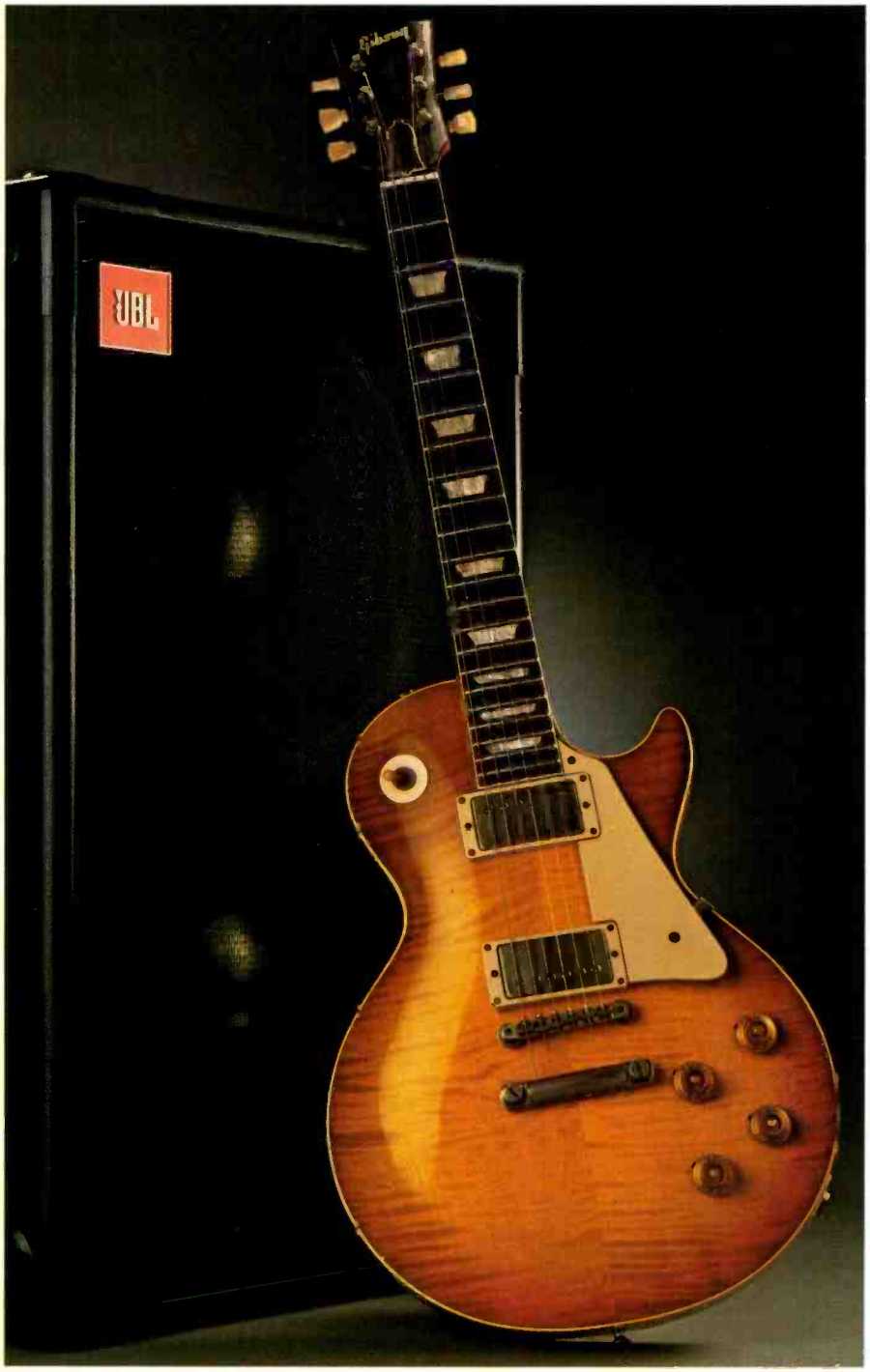
—Jerry Stoddard
Morton, TX

I have re-drawn the block diagram of the MM-20 mixer unit with the hookup you would use to send and return echo/FX like the mixers with dedicated effects rails. As you see, the signal route is quite straightforward, and if your reverb device is set internally for approximately unity gain, that is, the output equals the input and is somewhat proportional, you will get enough reverb back through the stereo mix bus (3+4) to be obnoxious, or any amount short of that. If you have effects devices with their own output level controls, it is also possible to get into the stereo mix bus through the access receive points on the mic channels. Since any bus "out" on the MM-20 can be plugged into any bus "in," you





Some people think our Cabaret Series is too expensive.



In 1959, some people thought this guitar was too.

In 1959, this Gibson Les Paul Standard carried a suggested list price of $283. An amount that many considered outrageous for an electric guitar. Yet for those who could appreciate the value in the guitar's craftsmanship, tone, and playability, the price was more than justified.

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So before you buy a new sound system, ask your JBL dealer for a demonstration of the Cabaret Series. It may cost a little more, but the best investments usually do.

James B. Lansing Sound, Inc.,
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1959 Gibson Les Paul Standard "Sunburst" serial number 9 0823 courtesy of Norman's Rare Guitars, Reseda, California.

See the complete line of Cabaret Series guitar, bass, keyboard, and vocal reinforcement systems at your JBL dealer.

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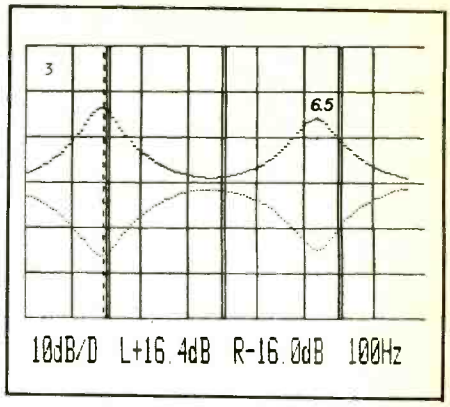
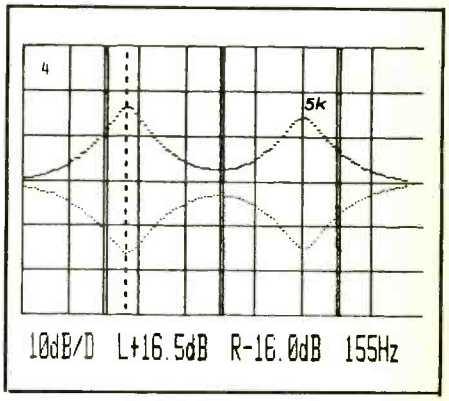
CIRCLE 14 ON READER SERVICE CARD

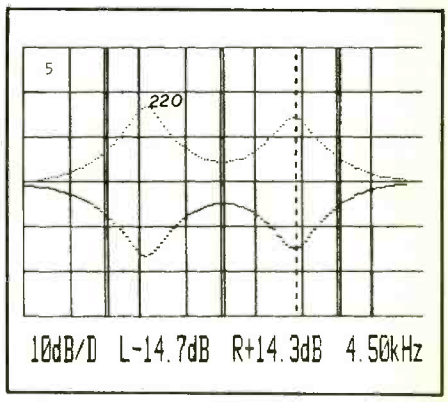
can build and cascade signal processing chains.

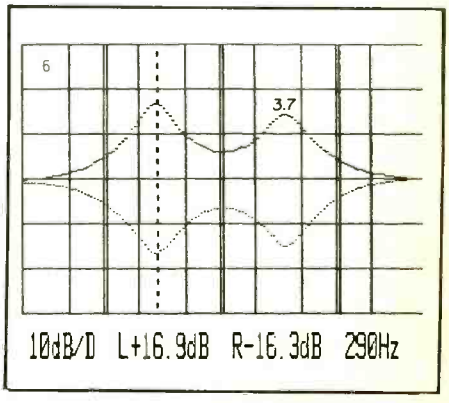
The diagram assumes your reverb is a stereo unit, with no level controls—like the big studio units, EMT's, and Echoplates, etc. Many professional effects devices have either screwdriver-adjustable gain controls, or none at all, and so the faders come in handy to adjust reverb/FX return from such devices. If you have a Fender amp with touchy controls, you will appreciate not having to touch them when you use this setup.

About your slow-motion mix, it is bizarre solutions to individual problems or artistic needs that produce many of the designs of signal processing equipment in the audio industry. All you need to do is take a look around the Audio Engineering Society's convention exhibits, and you will see de-









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Thanks Lexicon!

Steve Morse
songwriter, producer, artist
"The Dregs"

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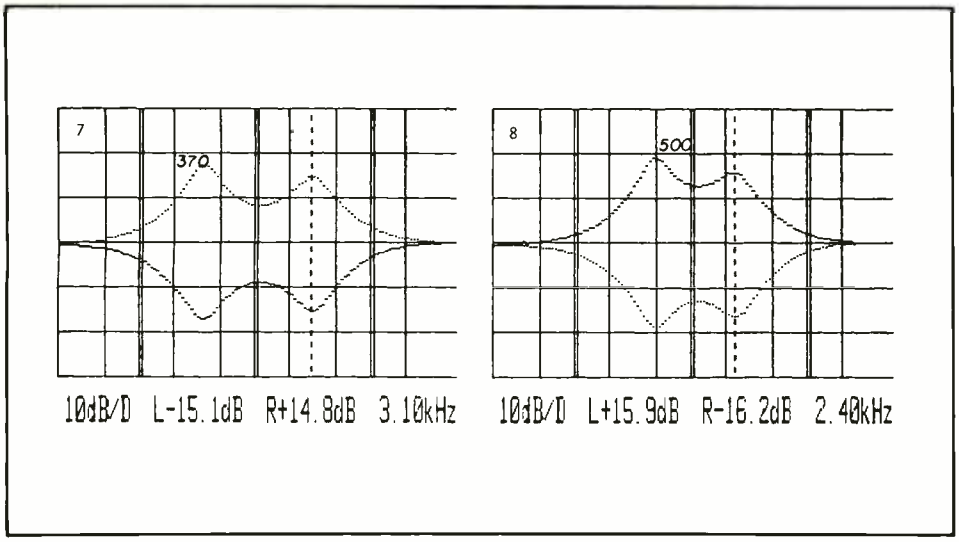

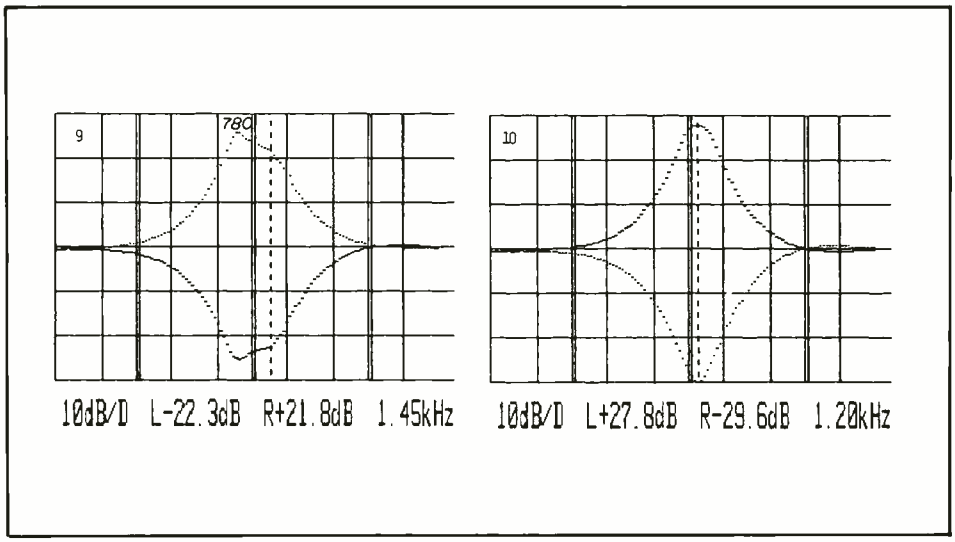

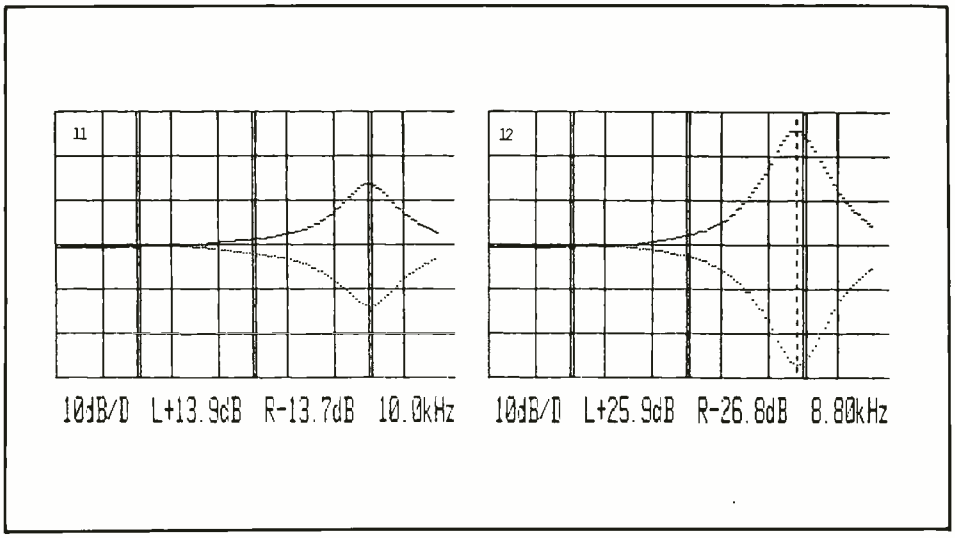

vices that slow down or speed up the recording without changing the pitch, devices that add controlled amounts (or in some cases uncontrolled) of distortion, devices that squeeze, fold spindle and mutilate, the list goes on: Your solution to temporary noise reduction is elegant and astute.

I ran a PE-20 through the analyzer and have listed all the frequencies on the dial marks. Some notes on these: The graphs show only the mark settings, and start with the frequency extremes, converging a mark at a time on each—low and mid—until they overlapped. You will notice one setting omitted due to the fact that the only change between it and the setting before it was less than 8.4% in frequency. This was at the point where the frequency bands overlap at max. (lo) and min. (mid) frequencies.

Curve II shows the HF control by itself, and curve 12 shows the HF and mid controls added together at the highest mid frequency setting. Curves show all the good and bad points of devices like these, but remember you set equalizers by ear—not by numbers—under usual circumstances. In your case I hope these numbers will help.

—Drew Daniels
Applications Engineer
Tascam/Teac Production Products
Montebello, CA

Finding a Driver

I'm in the process of trying to build my own plate reverb. I've got a 5′ x 3′ sheet of steel. I've framed it, and even have some small Dean Markley pickups. But I can't seem to find a decent driver for the plate. I've tried speakers and old guitar pickups, and whatever I could get my hands on to drive the plate. However, no real luck. I've heard that Radio Shack carried a transducer that was placed on walls to turn a wall into a speaker. This would seem to be a perfect driver for the plate. The trouble is that no one carries the Radio Shack driver (as far as I've found out). Do you or any readers out there know where to find one of these "wall drivers"? Please put up a search if you can. I'm going to continue looking, and I will try to inform you of my progress.

—Matt Wallace
Moraga, CA

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For the stage, the powerful SM-60 stage monitor speaker system. For the studio or stage, the equally powerful RS-21M reference mini-monitor. Both as small and as rugged as we could engineer them—without compromising the performance you need for accuracy and higher power-handling. They're everything you've always wanted in smaller, high quality monitors. And less. Less bulk and less set-up hassles.

Our SM-60 is a full-range, dual transducer speaker system with a rated input of 70 watts.* It features a sensitivity of 90 dB SPL—for operation at levels that really cut through. The frequency response is 110Hz to 16kHz—extended top and bottom to cover a broad musical range. And instead of cheap plastic or flimsy wooden boxes, we enclose the SM-60 in a tough, extruded aluminum shell with solid cast end panels.

When you make your set-ups with an SM-60 you've got options too. The adjustable mounting bracket will securely attach the monitor to the top of the mic stand or anywhere along the stand itself. And when a speaker cable is stepped on, you're not going to lose the show because the connections are terminated with our exclusive positive-locking, ¼" phone jack.

The RS-21M is a closed enclosure, full-range reference monitor that can handle a rated input of 35 watts.** It gives you a sensitivity of 88 dB SPL (1W@1m) and a frequency response of 100Hz to 17kHz. The RS-21M is designed to fit right where you usually need it the most—right on top of the meter bridge of our RX Series boards.

Both new monitors can take the toughest, continuous high power use on stage or in studio. They're companion systems that join our compact RX Series consoles and the extension of our philosophy that professional sound gear doesn't have to be bulky, unsightly and a drag to set-up.

The SM-60, the RS-21M and our RX Series consoles—they're big on performance and stingy on space, the kind of studio equipment designed to perform where you need it the most.

*16 ohms **8 ohms

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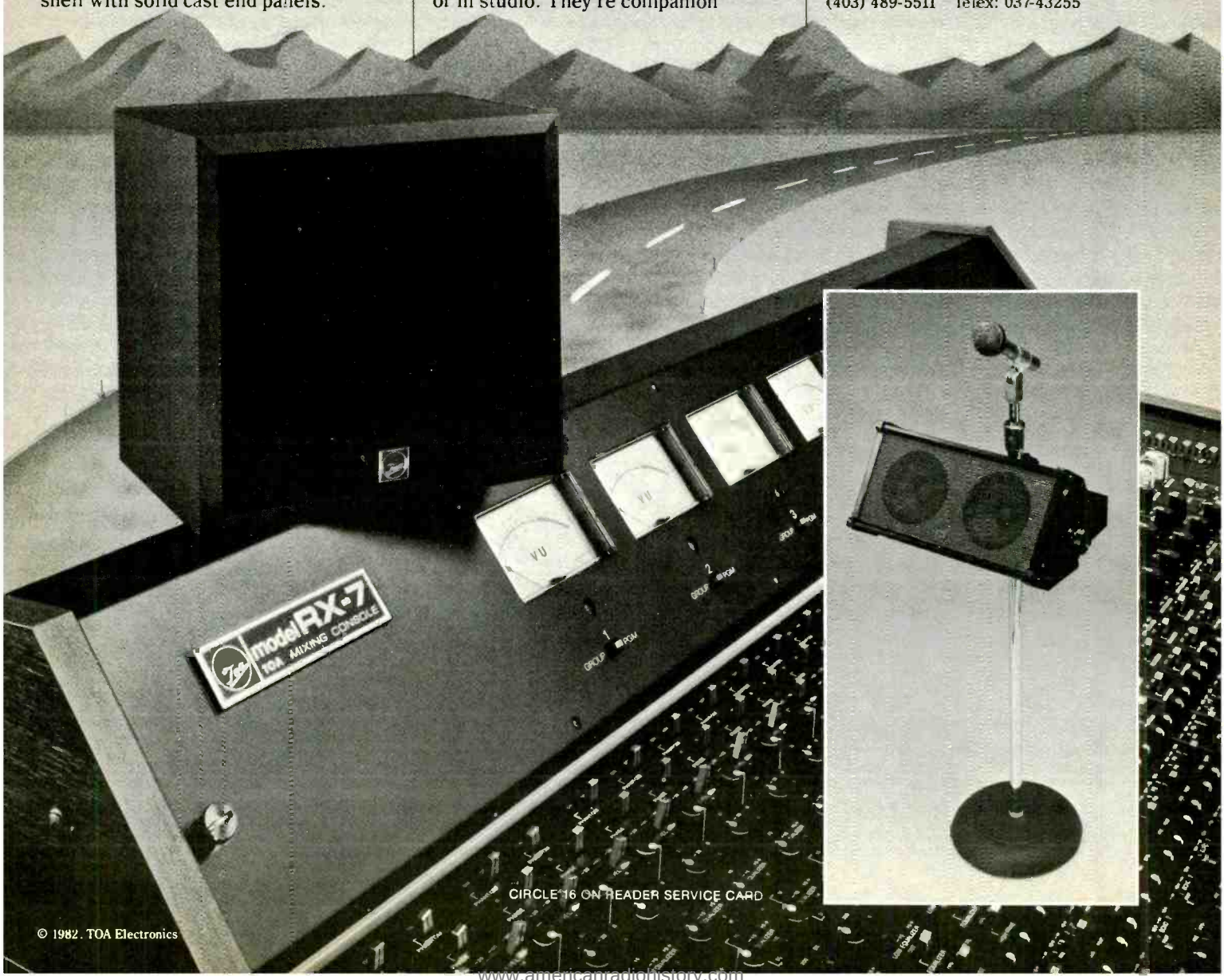


CIRCLE 16 ON READER SERVICE CARD

We spoke to some people at Radio Shack who came up with a few suggestions. (They no longer carry the driver you are looking for.) What you need is a "mass" driver. You could try taking a metal P.A. horn speaker. They have metal surfaces that vibrate in such a way that can be passed along to a steel plate. Try Shure for this type of product.

Or, you could use a buzzer. Mount the buzzer to the plate and run audio to the buzzer through a separate amplifier. There is a limited frequency response to this solution, though. It was suggested that you try a number of different buzzers, running them all at once to see which is the most suitable. If you're not looking for high fidelity on reverb, then that should do.

If none of these solutions work for you, then try P.A. and stage size speaker houses. Good luck.

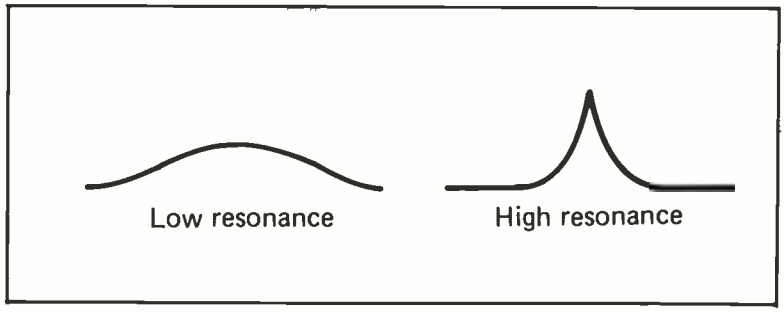
Resonance and EQ

Craig Anderton, in his evaluation of the Tascam System 20 (see Notes, March 1982 issue, pages 60-66), refers to the lack of a resonance control on the system's EQ section (page 61). I have seen this term used in advertisements for various graphic and parametric EQ's. We, in our small studio, are now dealing with the subject of depth in recordings. I was wondering if resonance as it relates to equalization could help us with our problem.

(By the way, we think *MRM* is *it!*)

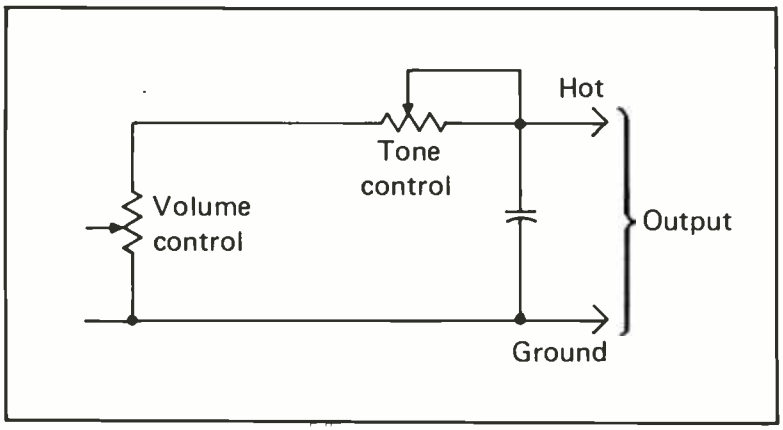
—Nick DiFabio
New York, N.Y.

Before answering this question, remember that Notes is written primarily with musicians in mind, and therefore, whenever possible I use musically-related terms. The word "resonance" is often used in conjunction with synthesizers, wa-wa pedals, and filters, but perhaps the more technical types could relate to the concept of "bandwidth" better. The resonance or bandwidth of a filter determines the sharpness of the boosting or cutting effect; the figure below shows examples of a low resonance and a high resonance boost.



The reason why I feel resonance is an important control with respect to equalizers is that sometimes you want a broad boost or cut (wide bandwidth/low resonance) to subtly shape a sound; in other cases, you'd want a very sharp boost or cut. One example of this would be notching out hum using equalization, where you wanted to cut out the 60 Hz hum and leave everything else

As far as getting "depth" in recordings, I think you're talking more about *ambience*, which we'll define as the relationship of a sound to the acoustical space in which it is recorded. Since small studios may not have the best acoustics in the world, ambience is often added artificially with time shifting devices such as flangers, reverb, echo, chorusing, etc. These devices can give a feeling of depth to an instrument by simulating the effect of being located in an acoustical space. Equalization is not really helpful in creating a feeling of ambience, although there are isolated instances where it could be of use. (For example, in an acoustical space echoes generally lose high frequencies as they decay. So, by putting a high frequency cut in the feedback path between output and input of an echo unit, each successive echo will have slightly less highs).



I hope you find this answer useful.

—Craig Anderton
Contributing Editor
Modern Recording & Music

Now it's easy for Bose PM-2 Powermixer users to obtain the expanded performance capabilities of the Super-Bose System. Just stack a second pair of Bose 802 Loudspeakers on top of the first, and connect them all to the PM-2 with the Bose SB-2 Series Box. You'll get extra projection and bass response, without the need for additional amplifier power. And you'll realize the fullest potential of the PM-2's unique design features, including 3-band Para-Graph™ parametric EQ and built-in 802 speaker equalization.

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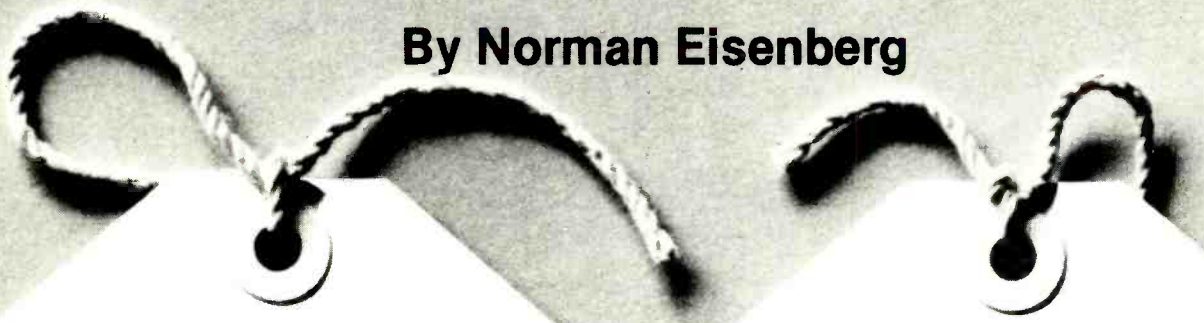
THE PRODUCT SCENE

By Norman Eisenberg



SHORT TAKES

New literature from Crown International includes a White Paper on the company's Multi-Mode™ circuit, plus two brochures describing the PS-200 and the PS-400 professional power amps and various accessories available for them. Copies are available from Crown pro dealers or by writing to the Advertising Dept., Crown International, Inc., 1718 W. Mishawaka Rd., Elkhart, IN 46517.

CIRCLE 60 ON READER SERVICE CARD

A new slant on what constitutes "pro" grade equipment was suggested recently when we learned that New York City's municipal station, WNYC, was using a Technics RS-M95 cassette deck for airing music on its "Audiophile Showcase" series. Program co-hosts John Beck and Victor Campos also have been using Technics R&B series SL-1025 turntables for playing high-tech recordings. Besides pleasing listeners, an avowed goal of this series is to develop an in-studio system that will enable the average station operator to broadcast high-tech recordings with maximum fidelity and minimum compression. Says Campos: "If you were to broadcast these recordings with conventional commercial FM transmission methods with heavy limiting or compression,...some...would sound as if they have gone through a meat grinder."

CIRCLE 61 ON READER SERVICE CARD

The micro-cassette (that's the one about 2¼ by 1⅜ inches) may be in for a new phase of its so far sketchy career. Sony, which expects "tremendous growth" in this product area, has announced a metallic micro cassette that uses finer and denser magnetic particles than found in its earlier MC-60. The new tapes offer 8 dB improvement in maximum output level at 315 Hz, and 9 dB more MOL at 10 kHz. The new micros will be available in 46 and in 60 minute lengths. Also offered is the CM-1K accessory cassette for cleaning the heads of micro-cassette recorders.

CIRCLE 62 ON READER SERVICE CARD

BASF has announced the availability of its pure chromium-dioxide video tape in the Beta L-750 format, priced at $29.95. Says BASF, this tape offers an extremely low noise level, smoother tape surfaces and freedom from magnetic signal losses. BASF also offers chrome video tape in Beta L-500 and in VHS T-120 sizes.

CIRCLE 63 ON READER SERVICE CARD

The burgeoning video tape field has been joined by Kenwood with a full-feature VHS-format model KV-901, priced at $1,200. The top-loading VCR offers capability for recording up to two and six hours, with playback of two, four and six hours. Playback speed selection is automatic, and the deck includes a "vue-search" high-speed visual monitoring system operative in both forward and reverse modes. Microprocessors control the built-in timer with presets for up to two weeks in advance; the logic-controlled transport buttons; and the automatic rewind. A VHF/UHF 14-channel pretunable electronic tuner is built-in.

CIRCLE 64 ON READER SERVICE CARD

NEW DEPARTMENT HANDLES NEW LINE

Loudspeaker products designed specifically for motion picture theater sound systems, to be available through a new department at the firm, have been announced by Cerwin-Vega. The line contains new full-range systems, special units for surround sound, compact modules for smaller multi-cinemas, as well as the more familiar line of electronic products such as amplifiers, mixers and equalizers for use in theatres and in auditoriums. The speaker offerings include one-cabinet systems as well as larger multi-driver and horn systems.

CIRCLE 65 ON READER SERVICE CARD

CONDENSER MIC PREAMP

An addition to existing AKG C-450 microphone components (except for the CK-9 and VR-2) is the new C-460B preamplifier. Said to provide sound pressure levels of 140 dB/SPL over the full frequency range, the preamp also boasts low self-noise (spec'd as 15 dB re IEC 179-A); minimum current use when connected to any powering voltage from 9 to 52 volts; stability of specifications even under extreme conditions; and built-in switching for 50, 70 and 150 Hz rolloff, and for 0 and -20 dB attenuation. Supplied with the C-460B is an electrically conductive rubber adapter ring to enable the use of existing capsules such as the CK-1, CK-22, CK-8, etc. AKG claims that this preamp "is at the leading edge of technology" and that it brings AKG's C-450 system into the digital age. The photo shows the C-460B housing, both sides of the newly designed circuit board, rubber adapter ring and two new capsules. At the lower right is the new CK-3 hypercardioid capsule which is said to provide improved separation for multitrack recordings as well as increased gain before feedback. At the left is the new CK-1X capsule designed for use with a flexible cable assembly. A CK-2X omnidirectional capsule is also planned.

CIRCLE 66 ON READER SERVICE CARD

EXPANDED PRO MIC LINE

The two Pro-Series microphones from Audio Technica (the PRO-1 and the PRO-5) have been joined by four new models to bring the line up to six microphones. The four new mics—all dynamic with an off/on switch—include two with integral cables. These are the PRO-2 and the PRO-3. The former is a hi-Z unidirectional vocal/instrument mic offered at $62. The latter is a unidirectional H-Z vocal mic at $97. The other mics are the PRO4H and the PRO4L. The H version, a unidirectional hi-Z vocal mic, comes with separate cable with XLR/A3F connector and phone-1 plug output. Price is $125. The L version is lo-Z; its cable has the XLR/A3F connector and an XLR/A3M output connector; price is $125.

CIRCLE 67 ON READER SERVICE CARD

IN-LINE TRANSFORMER

For matching professional low-impedance balanced microphones to audio cassette tape recorders or to video cassette recorders, Sescom, Inc. of Las Vegas has introduced its model TR-125 in-line transformer. The device matches a 150-ohm balanced 3-pin female XLR connector to the 600-ohm mini-phone unbalanced connector on an 18-inch cable assembly. Claimed to provide full frequency response and low distortion, the TR-125 costs $27.75.

CIRCLE 68 ON READER SERVICE CARD

DUAL OCTAVE EQUALIZER

A recent addition to the professional product group of MXR Innovations is the model 170 equalizer. Each of its two channels provides up to ±12 dB adjustment on ten frequency centers, spaced an octave apart, from 31.5 Hz to 16 kHz. Sliders are detented at center position. Additional controls are

provided for level adjustment, and for switching an 18 dB/octave high-pass filter. Differential quarter-inch inputs and single-ended quarter-inch outputs accept either balanced or unbalanced lines. Described by MXR as being of professional quality with low noise, the model 170 is offered for use in sophisticated recording and sound-reinforcement applications.

CIRCLE 69 ON READER SERVICE CARD

NEW TAPE FROM YAMAHA

Yamaha sends news of its own line of recording tape, available in four formulations and in both 60- and 90-minute cassette sizes. Prices range from $9.03 for a 90-minute metal cassette down to $3.40 for a 60-minute ferric-oxide cassette.

CIRCLE 70 ON READER SERVICE CARD

ANALYZER/EQUALIZER

A real-time analyzer, pink-noise generator, and 10-band graphic equalizer are combined in the new EQ-One announced by AudioSource of Foster City, Ca. Supplied with the device is a calibrated electret microphone. The RTA display consists of 92 LEDs with a display range of ±8 dB or ±16 dB. The EQ section is a two-channel system, with ten sliders

on each channel. Octave frequency centers run from 31.5 Hz to 16 kHz. EQ defeat and subsonic filter controls are provided. The pink-noise output level is 100 mV; output impedance is 6 K ohms. Of standard rack-mount width, the EQ-One weighs 8.4 pounds. Cost is $400.

CIRCLE 71 ON READER SERVICE CARD

DELAY LINE/FLANGER

From Phoenix Audio Laboratory, Inc. of Manchester, Connecticut comes word of its new LOFT model 450 Delay Line/Flanger, said to use a new design technology to provide more musical and natural sounding results in both the delay and flange modes. Maximum bandwidth is 18 kHz; standard delay time is up to 160 milliseconds. Delay up to 320 milliseconds is possible with the addition of an EM-450 extender module. Rated for a S/N ratio of 90 dB, the device is said to have exceptional

control and flexibility in creating special effects (flanging, chorusing, double-tracking, slapback echo and others). Its musical instrument input provides up to 20 dB of gain. The rear panel has a foot-pedal jack. Both quarter-inch phone jacks and XLR connectors are provided on inputs and outputs. Level controls are calibrated, and headroom is shown by three LEDs on the front panel. In steel case, the unit fits 1¾ inches of standard rack mount.

CIRCLE 72 ON READER SERVICE CARD

PORTABLE AC POWER SOURCE

Designed exclusively for operating electronic entertainment products (video and audio tape recorders, communications gear, TV sets, personal computers, etc.) in remote locations is the new model 1250 from Powernetics, Inc. of Chicago. When connected to a 12-volt battery, the unit provides an output of 115 volts AC sine-wave voltage, with regulation of ±5 percent, 250 VA. Output frequency of 60 Hz is held to within ±0.01 percent. Indicators show overload and battery run-down warnings. Measuring 5 by 7 by 16 inches, and weighing 25 pounds, the model 1250 costs $395.

CIRCLE 73 ON READER SERVICE CARD

VIDEO CONTROL CENTER

The model MB-802, announced by Compuvid of Roslyn Heights, N.Y., is a video control center that combines complete image enhancing circuitry with a video stabilizer section and fader control. By providing the three functions in one compact case, the device is said to be space efficient while eliminating the need for costly add-ons. Its fader control features a video fade to black with synchronized audio fade, the method preferred for most professional applications. Also featured are a switchable three-position input selector and capability to handle up to four simultaneous outputs. Price is $450.

CIRCLE 75 ON READER SERVICE CARD

FOR THE RECORD— A NEW ITEM OR TWO

Record warps, jittery tone arms and/or pickup cartridges, and general instability often plague a disc playback situation whether it's a monitoring of a newly cut or pressed record, supplying sonic substance at a disco or restaurant or just trying to enjoy some stereo for yourself. To the rescue has come Luxman (its last product reviewed in *MR&M* was the M4000A power amp, October 1980) with an intriguing new turntable, the model PD-375. A fine single-play job on all counts, the PD-375 has an added fillip—a built-in vacuum suction system grabs hold of a disc via two holes in the platter so that warps are flattened out and the disc is held very securely in place.

I am watching this action, marvelling at the way previously difficult discs are suddenly made easily trackable, and thinking too of corny remarks ("This turntable sucks") while in the back of my mind there's a recollection of something familiar. Of course! Luxman's system is not unlike the vacuum suction used on a record cutter, where the air not only draws away chips from the blank disc as it is cut but also holds the disc in place, stabilizing it. Once again, a professional technique has been adapted from the recording world to improve things on playback.

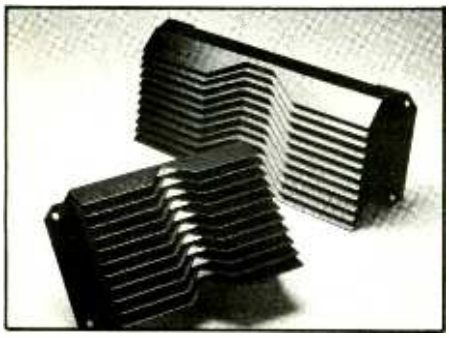
This concern about stability also figures in the newest version of Shure's V-15 pickup, now known as the Type V. There's that little shock-absorbing fiber gadget just ahead of the stylus which solves a lot of warp-related problems as well as discharging static electricity, and there's the "side-guard" protector that prevents stylus damage from careless handling. These features, plus some other high-tech design factors, make the new Shure a pickup of choice for any use to which you want to put it. As for response, I found that it comes closer to the ideal RIAA curve (the template supplied with the CBS STR 100 test record) than any pickup I have previously encountered. It sounds as great as this measurement indicates. It also overcomes a sometime annoyance of its predecessor, the Type IV—that is, they have managed somehow to provide a bit more space between the stylus tip and the underside of the cartridge, so there's no more bottoming on warps. With the new Luxman and the new Shure I think you can track anything under any conditions, including that latest blockbuster from Telarc Digital, "Encores a la francaise" played by Michael Murray on the organ at Boston's Symphony Hall (DG-10069) which does kick the 31.5 Hz marker on a real-time analyzer way up.

MUSICAL NEWSICALS

SPEAKER SYSTEMS

Celestion Industries has added two new all-metal acoustic lenses to its extensive line of sound reinforcement systems. Featuring eleven slant plates that act as "angle dependent delay lines," the lenses are said to open up the angle of dispersion for maximum sound pressure, giving a wide, flat-fronted coverage pattern. Capable of being flush-mounted to the tweeters with which they should be incorporated (via four screws), the lenses' optimal application is in short-throw situations such as clubs and small halls. One model, the AL-7, is designed to be used with Celestion's HF-50 (or similar bullet tweeter), and it opens up the horizontal polar pattern to 60-70/-6 dB, from 6 kHz to 16 kHz; cost is $42. The second model, the AL-12, is designed for use with Celestion's RTT-50 and has a horizontal polar pattern of 70-80 from 6 kHz to 16 kHz. Cost is $56.

CIRCLE 35 ON READER SERVICE CARD

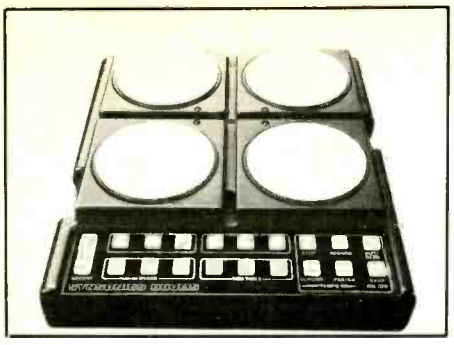


DRUM MACHINES

Following its very successful predecessor, the LM-1 Drum Computer, is the LinnDrum (from Linn Electronics of Tarzana, California)—a fully programmable drum machine which contains real drum sounds. Sounds which are actual digital recordings of drums and percussion stored in computer. Some of the real drum sounds stored in the unit are: bass drum, snare, sidestick snare, open and closed hi-hat, 3 toms, crash and ride cymbals, 2 congas, cabasa, tambourine, handclaps and cowbell. There are forty-nine rhythm patterns available in the unit and all are programmable with adjustable error correction (dynamics are also adjustable). The LinnDrum is in fact a 16-input stereo drum mixer with volume and pan sliders, and has 16 separate drum outputs. Other features include: data is retained with power off; unit can be synced to tape machines, sequencers and synthesizers. Price is a suggested $2,995.

CIRCLE 36 ON READER SERVICE CARD

Another drum unit now available is the Synsonics™ unit from Mattel Electronics. While not as extensively programmable as some of the other

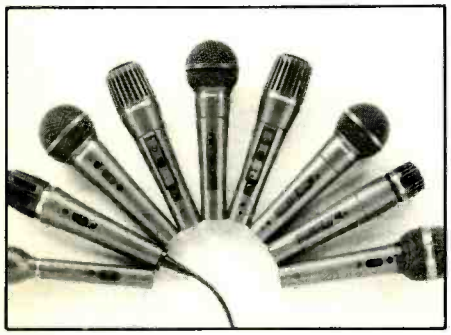


considerably more expensive units presently on the market, the Synsonics™ drums allow one to produce "professional sounding drum rhythms instantly." The system plugs into a home stereo system, guitar amplifier or recording component; it has four pressure-sensitive pads (snare, cymbals and two toms). One of the toms can be tuned over a five-octave range, while the other produces a deep floor-tom sound. The pads are dynamically set—the harder you strike them, the louder they sound. Three separate 16-beat memories provide full recording and playback functions; in the record mode, drum rhythms can be indefinitely layered. Headphone and aux jacks output jacks are provided, and six "C" size alkaline batteries are needed for operation. Approximate retail price is $150.

CIRCLE 37 ON READER SERVICE CARD

MICROPHONES

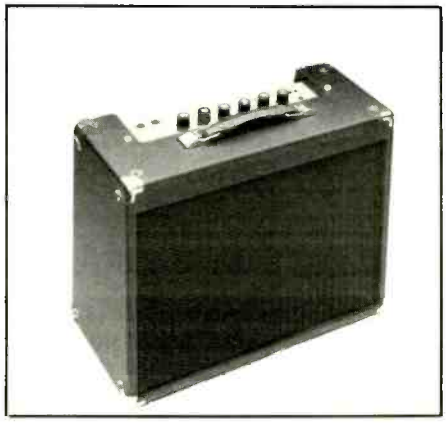
The latest word from Shure Brothers, Inc. is the new line of microphones, the Professional Entertainer (PE) Series. The series is designed to fit the many needs of the instrumentalist and the vocalist. The PE series includes four vocal microphones and five instrument microphones. Available in both low- and high-impedance models the dynamic mics include a locking or non-locking on/off switch; an internal anti-pop windscreen; and a built-in shock mount. The microphone model numbers and corresponding suggested retail prices (prices vary according to mics supplied with or without cables) are: PE9, $62.75; PE15, $89.50; PE25, $109.50; PE35, $118.50; PE45, $126; PE47, $145; PE65, $133.25; PE75/PE85, $144.75/$175. Also now available from Shure is a handy guide to the selection and placement of their mics. The booklet is available by sending $1 for postage and handling to: Shure Brothers Inc., Dept. H1, 222 Hartrey Avenue, Evanston, Illinois 60204.



CIRCLE 38 ON READER SERVICE CARD

GUITAR AMPLIFIERS

Rock Amps, the manufacturer of studio-grade guitar amplifiers, has introduced a series of portable "mini amps." The amps, the Super Mini 8 and the Super Mini 10 offer self-contained AC power at 16 watts RMS. The Mini 8 measures 16" by 11" by 7"; it weighs 15 pounds. The Mini 10 measures 16" by 12½" by 7"; it weighs 17 pounds. The amps can be plugged into any outlet and also operate on flashlight batteries. Other features include volume, bass, midrange, treble, master volume and reverb controls. Plus, an external speaker jack, headphone jack, reverb footswitch jack, input jack and accessory jack.



CIRCLE 39 ON READER SERVICE CARD

Mesa Engineering is now offering its Son of Boogie™ or S.O.B.™—the "second coming" (reissue) of its well-known original Mark I Boogie design. Featuring refinements in the original system, the Son™ is a 60-watt combo with two cascaded input channels and a Black Shadow 150-watt 12-inch speaker. Mesa Engineering recommends the amp for rock & roll applications. It will be available at presstime and will retail for $500.

CIRCLE 40 ON READER SERVICE CARD

GUITARS AND BASSES

A full line of guitars and basses is manufactured by O'Hagen Guitars (handled by the Jemar Corporation of St. Louis Park, Minn.) O'Hagen instruments feature solid maple and walnut construction; set-through necks; heel-less neck construction; humbucking pickups; single-coil pickups; gold or chrome appointments; six different finishes; active electronics. At least four series are offered: the Shark line; the Nightwatch line (single and double cutaway) the Twenty-Two line; and the Nightwatch special bass line.

CIRCLE 41 ON READER SERVICE CARD

Responding to the market demand, Gibson has decided to reintroduce the original "spec" Flying V guitar built from Korina wood. "Korina wood," Gibson states, "is a variation of the mahogany family...primarily known for its lightweight and distinctive wood grain pattern." The reissued guitar will feature a streamlined three-piece neck matched to a solid Korina body. The body's tapered lines provide complete accessibility to all six strings throughout the entire 22-fret range. The guitar's peghead is pitched 17 degrees for increased string down pressure across the nut, providing that "distinctive" Gibson feel and playability. Hardware is goldplated; fingerboard is of rosewood; strings are loaded through the body (as in the original); and twin humbucking pickups are used.

CIRCLE 76 ON READER SERVICE CARD

Recording Techniques Part 5

by Bruce Bartlett

Recording an electric guitar seems simple at first—a microphone in front of the guitar speaker provides an adequate pickup. But for the best control of the recorded sound, it helps to know the effects of several recording methods.

Before exploring these, let's review the elements of an electric-guitar system *(Figure 1)*. The guitar itself has one or more high-impedance pickups that produce an electrical signal when the guitar is played. This signal is fed via a guitar cord to an amplifier. Often, special-effects devices—such as phasers, fuzz or wah-wah—are connected between the guitar and the amp. The output of the guitar amplifier drives one or more speakers.

The amp and speakers contribute to the sonic character of the electric guitar. Often the amplifier adds distortion as a desirable part of the sound, and the frequency response of the amp and speakers is tailored to produce a characteristic sound quality. Owing to their limited high-frequency response, the guitar loudspeakers take the "edge" off the distorted sound from the amp, making it easier to listen to the sound.

You can take a signal for recording at several points in this chain. Each point provides a different sound:

- If you record directly from the guitar, the sound is clean and clear, with extended highs and lows. No effects or amplifier tone settings are picked up at this point.
- If you record directly from the output of the effects devices, you hear what these devices do to the guitar signal, but you do not pick up any guitar-amplifier distortion.
- If you record directly from the external speaker jack (the amplifier output), you hear the amplifier tone-control action and amp distortion. The sound ranges from clean to distorted, depending on the amplifier settings.
- If you record with a microphone in front of the speaker, the sound is natural—you hear the distortion and tonal coloration of the amp and speakers. You also will wind up picking up some leakage from other instruments.

Let's discuss in detail how to record from each of these points.

"For the best control of sound, know the effects of several recording methods..."

Recording Direct

You can plug an electric guitar or electric piano directly into a mixer or tape recorder by using a patch cord. No microphone is needed. But the resulting sound is likely to be dull and noisy because the high-impedance output of the instrument doesn't match the low-impedance microphone input of the mixer. You can get better results by using a *direct box*—a device that matches the output of the instrument to the input of the mixer. Some direct boxes are "passive," typically using a step-down transformer to

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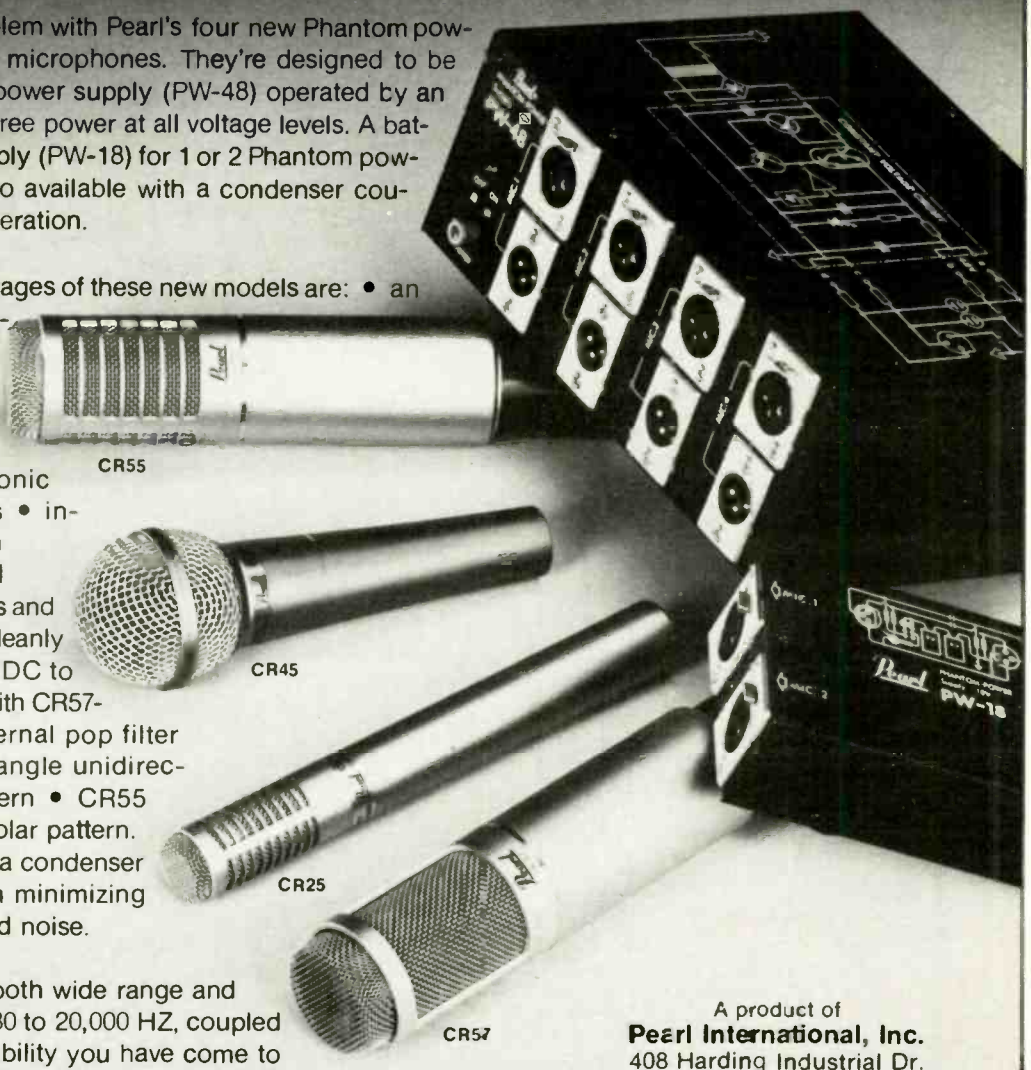

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match impedances; others are "active," using FET circuitry. Active direct boxes usually have a wider frequency response and affect the guitar sound less, but require a battery.

Most direct boxes have three jacks for connection to external equipment *(Figure 2)*. One goes to the instrument or amplifier output; another connects to the amplifier input so the player can hear himself; and one goes to a microphone input on your mixer. If you want to record the guitarist's special effects, patch the output of the effects boxes into the direct-box "instrument" input.

A direct connection to the external speaker jack (that is, the amplifier output) picks up amplifier distortion and tone-control action. Often the distortion at this point sounds too buzzy or sizzly. Why? As stated earlier, the guitar loudspeaker has a rolled-off high-frequency response that dulls the distortion of the amplifier and makes it easier to listen to. A direct connection to the amplifier output *bypasses* the speaker and so picks up too much of an "edgy" tone. To provide a more natural sound, some direct boxes include a high-cut filter to simulate the effect of a guitar speaker. Rolling off the excess highs on your mixing board is another alternative. It's often necessary to roll off some low end, too.

You can buy a direct box ready-made from your sound dealer, or build some direct-connection cables as shown in *Figures 3* and *4*. Use two for electric pianos with dual (stereo) outputs.

For minimum hum, power the recording mixer and the instrument amplifier from the *same* outlet strip, inserting the three-prong power-cord plugs into three-wire grounded outlets. That is, ground the mixer and the instrument amp to the same outlet strip. If that is not possible, ground the mixer and amp to different outlets. The circuits in *Figures 3* and *4* are designed not to create ground loops.

If the amp does not have a three-prong plug, flip the ground-polarity switch of the amp or reverse its power-cord plug to find the lowest-hum position (as heard from the guitar speaker). After that is done, do the same at the mixer, after connecting it to the guitar or amp. Listen for minimum hum from the mixer output.

These measures also reduce shock hazard. Electric-guitar players can receive a shock when they simultaneously touch their guitar strings and the metal parts of a microphone. This is because the guitar strings and the microphone often are at different potentials. The guitarist completes the circuit by touching both pieces of equipment.

If you have any doubts about shock hazard or hum pickup, connect a neon tester or voltmeter between the guitar strings and the microphone grille or case. If a voltage is measured, correct the situation as mentioned above before proceeding.

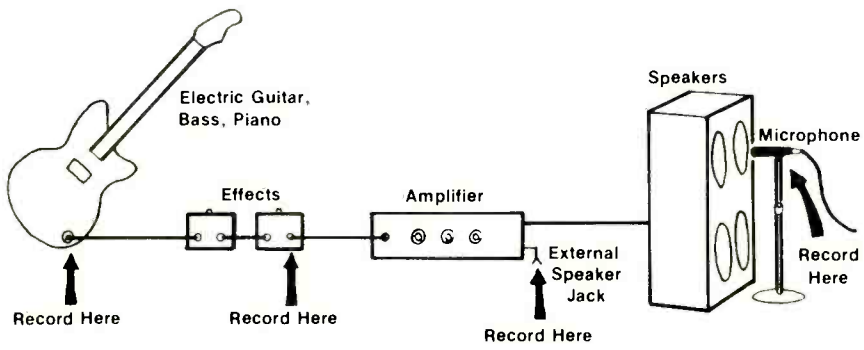
"Electric-guitar players can receive a shock when they simultaneously touch their guitar strings and the metal parts of a microphone..."

Miking the Amp

The most popular microphones used on guitar amps are cardioid dynamic types with a presence peak. The cardioid pickup pattern rejects feedback and leakage; the dynamic transducer withstands high sound levels without distorting, and the presence peak (a boost around 5 kHz) adds punch. Of course, you can use any microphone that sounds good to you.

As a starting point, aim the microphone at the center of one of the speaker cones, about 4" away. The speaker openings can be located by pressing on the grille cloth. If an amp has

Fig. 1 Amplified-Instrument System



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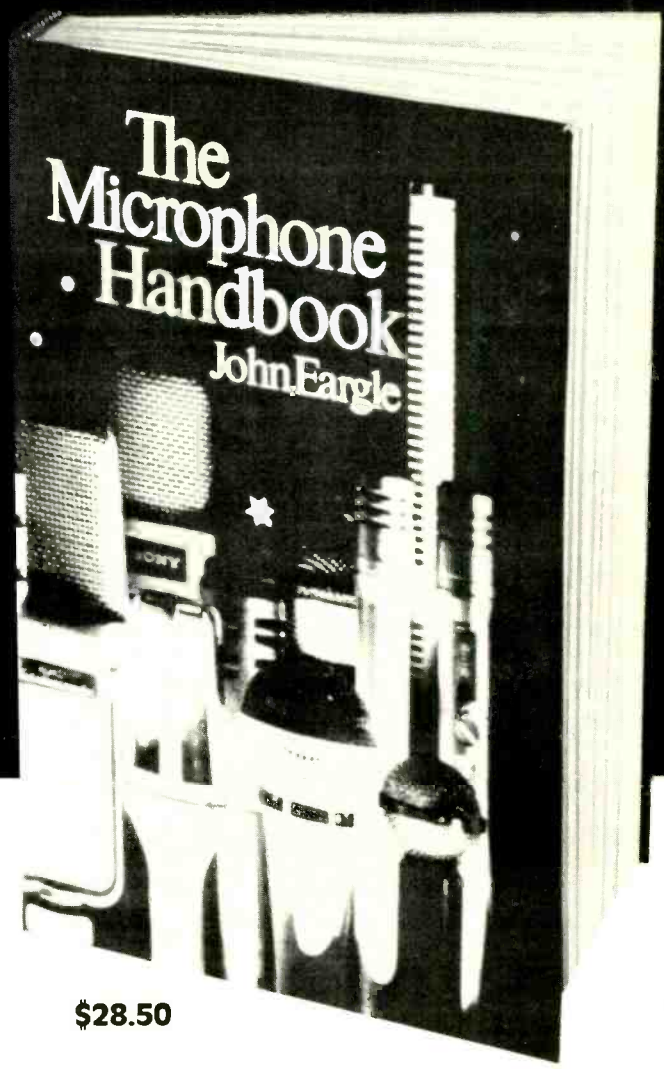

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several speakers, usually all produce the same sound, so only one speaker need be miked. Just be sure the one you choose is not defective. For guitar speakers with horns, find a compromise microphone position that sounds good. You may want to listen to the amp "live" with one ear, and move around until you find a good-sounding spot. Put the microphone there.

Aiming the microphone at the center of the speaker cone picks up the brightest sound; off-center placement sounds more mellow and reduces amplifier hiss. The closer the mic is to the speaker, the bassier the tone.

Placement also affects pickup of environmental sounds. The closer the microphone is to the speaker, the less room reverberation and leakage are recorded. So mic the amp 1" away and roll off some bass to reject leakage; mic several feet away to pick up room ambience (say, during overdubs). A microphone placed close to the speaker can be mixed with one farther away for an interesting coloration.

The recorded tone quality is affected by the instrument [and *how* it is played] as well as by microphone technique and equalization. New guitar strings sound brighter than old strings. Strumming the strings near the bridge or using the "lead" pickup gives a bright, thin tone; strumming farther from the bridge or using the "rhythm" pickup gives a fuller sound.

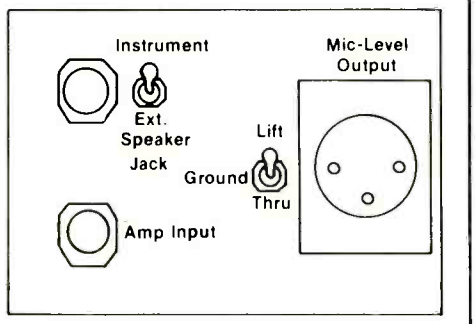
Reducing Hum and Noise

Guitar amps often produce annoying hum. It can be reduced by flipping the ground switch on the amp to the minimum-hum position. The same goes for the ground-lift switch on the direct box. In addition, the musician should rotate or move around until he finds a spot in the room where hum pickup disappears. Quality guitar cords with extra shielding reject hum. It also helps to turn up the volume control on the guitar to maximum, while turning down the guitar-amp volume control to the desired level. Small practice amplifiers are generally more suitable for recording than high-powered, noisy stage amps.

A chain of special-effects boxes connected between the guitar and its amplifier can add noise, unless connected in the proper sequence. Low-noise devices and treble-boost devices should go near the beginning of the chain. A suggested order is shown below, although it pays to experiment:

1. Guitar
2. Buffer preamp
3. Equalizer
4. Compressor or Limiter
5. Fuzz
6. Harmonizer
7. Phaser, Flanger, Delay, Chorus
8. Tape echo
9. Noise gate
10. Wah-wah
11. Volume pedal
12. Guitar amp

Fig. 2 Typical Direct Box



For minimum noise, use as few guitar-level devices as possible. Rely more on the lower-noise studio effects. Be sure to bypass devices not in use at any one time, and use short, shielded cables to interconnect the boxes.

Bass Guitar: It's important not to get a muddy, indistinct sound from the bass guitar. Muddy bass results partly from the bass-amp sound leaking into the microphones for the other instruments. Many rooms don't absorb bass well, so the low notes reverberate around the room and give a muddy, loose sound to the bass. One way to improve the situation is to turn down the bass amp—just loud enough for the other musicians to play with—or monitor the bass with headphones instead. It also helps to record other instruments direct, or to mic them closely and roll off some bass in their microphone signals.

The bass usually is recorded with a direct box for the cleanest possible signal. A mix of direct and miked sound is also popular. In this case, phase cancellations may occur that vary with miking distance—experiment to find a cancellation that sounds pleasing.

Some tricks applied to the electric bass can make it sound more clear or punchy. The player can mute the strings with the side of his hand and play with fingernails or a pick to make a tight, well-defined sound. A change to different strings or a different guitar can help. Clarity and definition can be improved through equalization either by dipping frequencies around 250 to 400 Hz or boosting around 1,500 Hz, or both. Cutting frequencies above 5 to 10 kHz reduces noise and leakage.

If the bass player hits the pickup with his fingers, you may be able to reduce the popping sound by rolling off all the top end, and then rolling off the extreme lows to restore a good tonal balance.

Organ with a Leslie Speaker Cabinet: The Leslie organ cabinet contains two speaker systems, each rotated by a motor to achieve a vibrato effect. A high-frequency driver is on top and a woofer is on the bottom. Louvers on the side of the cabinet enhance the sound.

The two speakers can be miked individually a few inches away. If you are limited to one microphone, just aim it into the top louvers. For a stereo effect, use two microphones on top, one on either side. Record these two mics on separate tracks. Pan their signals toward the left and right, and pan the woofer signal to the center.

You can run an electric guitar through a Leslie for a colorful sound. Or, using a Y-cord, plug the guitar into its own guitar amp (recorded on the right channel) and also into the Leslie (recorded on the left channel). A spacious, swirling effect is produced.

Drums: Recording the drums presents an exciting challenge. You can create all sorts of interesting drum sounds on tape—some even larger than life. The drum set puts out some of the lowest lows (bass drum) and highest highs (cymbals) of any instrument, and produces sharp attack transients that can saturate the recording tape if not controlled.

Tuning the Drum Set

The secret of creating a good drum sound lies in careful *tuning*. Getting a good sound on tape will be much easier if you tune the set to sound right in the studio before miking it.

First a word about drum heads. Plain heads have maximum ring or sustain, while heads with "sound dots" or "hydraulics" dampen the ring. Plain

heads provide a sharp attack, good sustain and weak projection. Thick heads have a duller attack, rapid decay and strong projection. Old, used heads tend to become dull and muffled, while new heads sound crisp.

The following is a suggested tuning procedure for tom-toms:

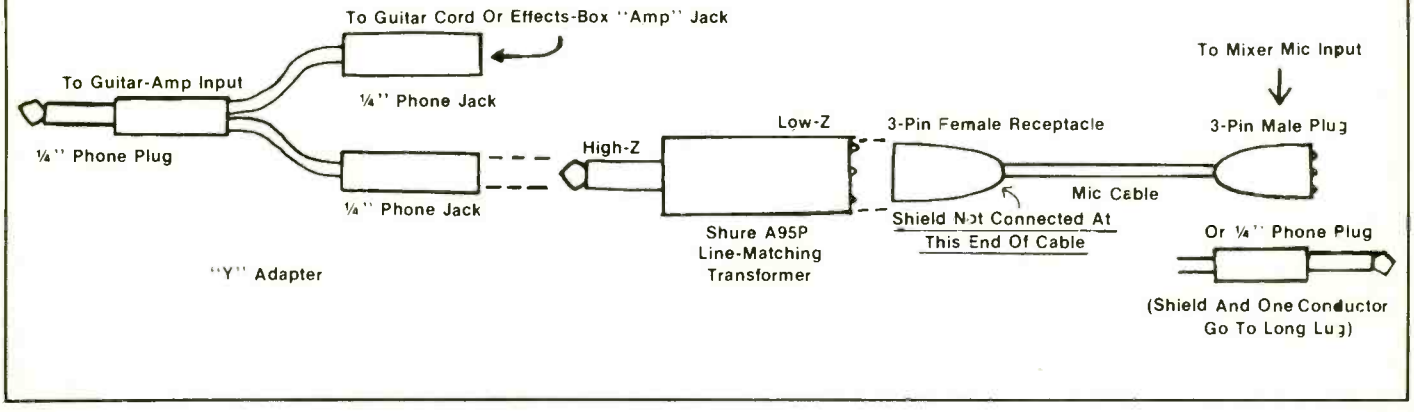
First, take off the heads and remove the damping mechanism—a possible source of rattles. Put just the top head on and hand-tighten the lugs. Then, using a drum key, tighten opposite pairs of lugs one at a time, one full turn. After all the lugs are tightened in this manner, repeat the process, tightening one-half turn. Then, apply heavy pressure to the head to stretch it. Continue tightening a half-turn at a time until you reach the desired pitch.

You'll get the most pleasing tone when the heads are tuned within the range of the shell reinforcement. One popular tuning sets the pitch just below the middle of the range of the drum.

Keep the bottom head off the drum if you want best projection and the broadest range of tuning. In this case, pack the bottom lugs with felt to prevent rattles.

You may want to add the bottom head for extra control of the sound. Projection is best if the bottom head

Fig. 3 Direct Connection To Guitar



is tighter than the top head, say, tuned a fourth above the top head. There will be a muted attack, an "open" tone and some note bending. If you tune the bottom head looser than the top, the tone will be more "closed," with good attack.

For the kick drum (bass drum), a loose head gives lots of slap and attack, and almost no tone. The opposite is true for a tight head. Tune the head to complement the style of music. A hard beater also adds attack.

Tune the snare drum with the snares off. A loose batter head or top head gives a deep, fat sound. A tight batter head sounds bright and crisp. With the snare head or bottom head loose, the tone is deep with little snare buzz, while a tight snare head yields a crisp snare response. Set the snare tension just to the point where the snare wires begin to "choke" the sound, then back off a little.

Sometimes a snare drum buzzes in sympathetic vibration with a bass-guitar passage or a tom-tom fill. You may be able to control the buzz by wedging a thick cotton wad between the snares and the drum stand. Experiment with the position and thickness of the wad for best results.

Damping: To control excessive ringing of the toms and snare, tape a handkerchief or gauze pad near the edge of each drum head. Put the tape on only three sides of the pad. Inside the kick drum, place a pillow or blanket against the bottom of the beater head to dampen the head vibration for a tight, well-defined beat. Excessive cymbal ringing can be controlled by (1) applying masking tape under the cymbals in radial strips from bell to rim; (2) using thick ride cymbals with small cups; and (3) using small, thin crash cymbals.

"Recorded tone quality is also affected by the instrument and how it is played."

The location of a drum set in a room affects its sound, too. On carpet, the set sounds relatively tight or damped, while on a hard floor, it sounds more lively. Corner placement boosts the bottom end.

One-Microphone Coverage: With the drums tuned and damped, you're ready to mic the set. Refer to *Figure 5*. Many home studios are limited in the number of microphones available for the drums. If you can spare only one, try aiming a cardioid condenser microphone down over the center of the set (or over the snare drum) at a height just above the drummer's head (*Figure 5*, Position A). The drummer can balance the sound of the set as he plays. Use a microphone with an extended high-frequency response to capture all the brilliance and "ting" of the cymbals.

Two-Microphone Coverage: If you have two microphones available for the drums, you can use one overhead and one in the kick drum. The kick-drum mic—a dynamic with a good low-frequency response—usually is placed a few inches from the beater head, about one-third of the way in from the circumference to pick up more overtones (*Figure 5*, Position B).

Recording with Three Microphones: Three microphones allow several possibilities for drum-set miking. One method is to put one microphone in the kick drum and two overhead for a stereo pickup. Space the overheads one or two feet apart and aim them straight down (Position C). The greater the spacing, the greater

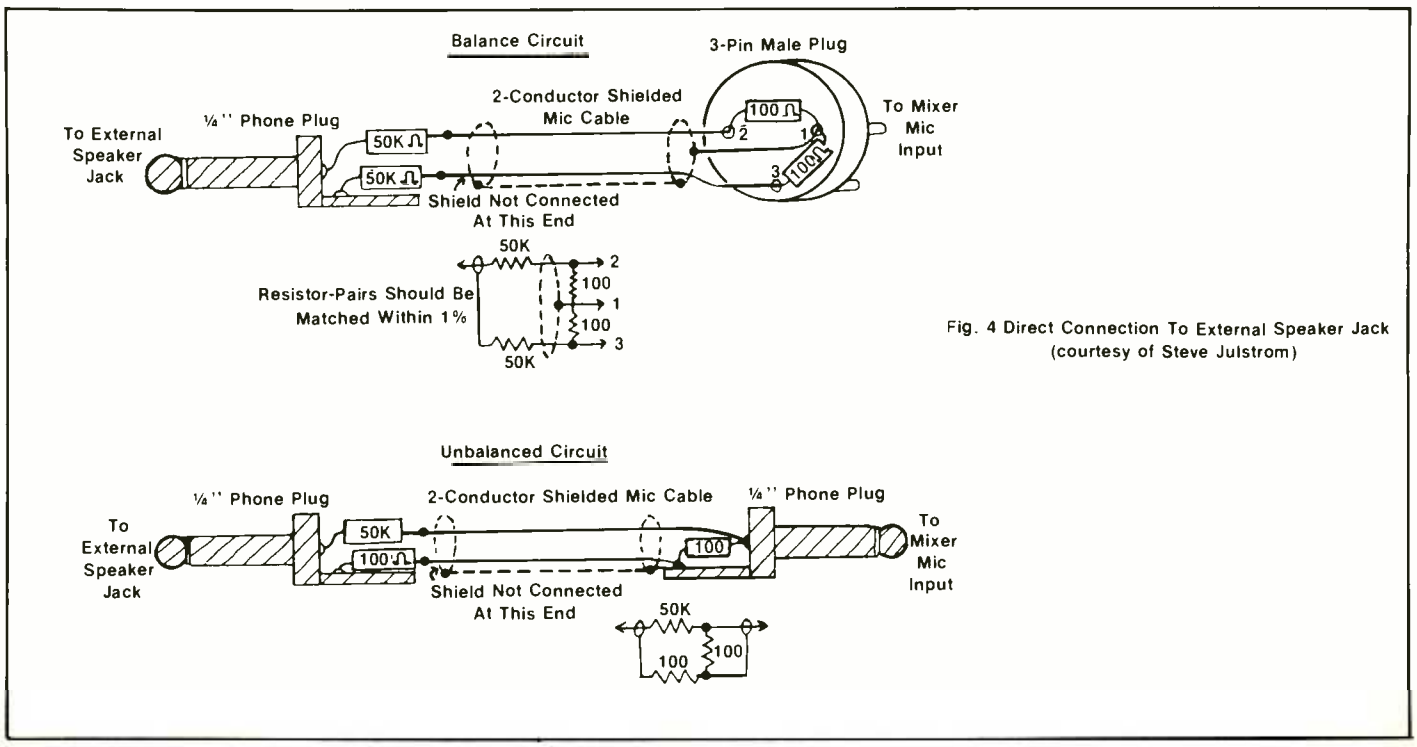


Fig. 4 Direct Connection To External Speaker Jack (courtesy of Steve Julstrom)

the stereo spread of the reproduced drum set. As an alternative, place the grilles of the two microphones together and angle the mics toward the left and right sides of the set (Position A). This arrangement minimizes phase cancellations if the set is reproduced in mono. It also provides sharper imaging and gives a narrower stereo spread than does the spaced-pair method. The greater the angle between microphones, the wider the stereo spread.

Another way to record the set with three microphones is to put one overhead, one in the kick and one near the snare drum. The snare microphone comes in from the front of the set on a boom, just off the top rim, aiming at the top head (Position D). You also could place the microphone underneath the drum, aiming at the snares, but the resulting sound is often too buzzy or snappy. Use a cardioid microphone with proximity effect on the snare drum for a fat or full tone; roll off the bass or use an omni for a more accurate sound. Either condensers or dynamics work well—just choose whatever sounds right for the song.

If you move the snare-drum microphone back from the snare drum a few inches, it will pick up more of the hi-hat, cymbals and one of the rack toms (high tom-toms). You can control the balance between these instruments by moving the microphone toward one or the other. Position the microphone, or the hi-hat cymbals, so that the puff of air forced out by the closing cymbals does not "pop" the microphone. Place the second microphone next to the top rim of the floor tom(s), but aiming *up* at the cymbals and the other high tom (Position E). The third microphone goes in the kick. This simple technique gives a tighter, smoother sound, with less leakage, than that provided by overhead microphones.

"Level setting is critical with drums and percussion instruments."

Four and Five Microphones: One method of using four microphones is to mic the snare and hi-hat, kick, rack toms (Position F) and floor tom (Position H). With five microphones, you may want to mic the hi-hat separately with a condenser microphone for a crisp sound. For best isolation, aim the microphone straight down over the hi-hat about 5″ away (Position G), rather than aiming it toward the rest of the set. Using small hi-hat cymbals with a half-inch gap between them reduces leakage into the snare microphone.

A typical layout of five microphones uses two mics overhead for cymbals and rack toms, one for both hi-hat and snare, another on the floor toms and the last one in the bass drum.

More Mics: With six or seven microphones, cover each pair of tom-toms with one mic between them, put two microphones overhead, and mic the snare, hi-hat and kick drum. With even more microphones, you can individually mic all the pieces of the

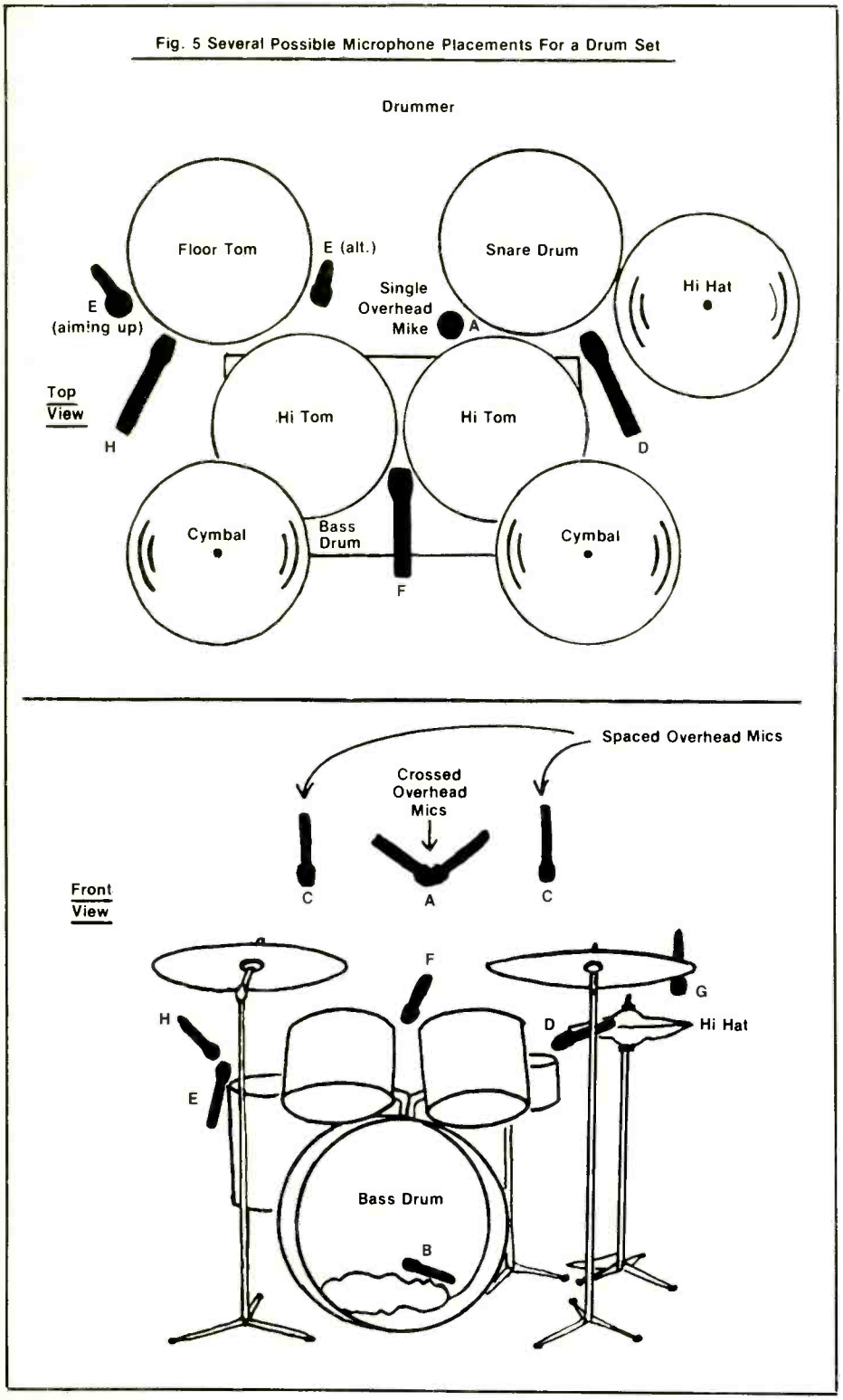
set. But it's better to use as few mics as you can get away with. This procedure reduces confusion and minimizes phase cancellations.

Try placing microphones inside each tom-tom from underneath. Try miking the snare top and bottom, with the mics out-of-phase. Try two microphones *way out* in the room for a distant effect. Try taping miniature condenser mics to cymbal stands and drum rims.

The musical style will suggest the number of microphones to use. For example, a drum set covered with eight mics may sound just right for a hard rock number, but may sound terrible on a simple country tune.

Equalization: Various EQ settings can enhance the recorded sound of the drums. Boost around 200 Hz for fullness on snare drum and high toms, and around 100 Hz on floor toms. Or use a cardioid microphone up close for its bass-boosting proximity effect. Roll off some bass on the snare for extra clarity. Boost at 5 kHz (or use a mic with a presence peak) on snare and toms for attack and crispness. Boost at 10 kHz or higher on cymbals for brilliance and sizzle. Filter out frequencies below about 500 Hz on cymbals to minimize pickup of low-frequency leakage. Boost around 2.5 kHz on bass drum for punch, and filter out frequencies above about 5 kHz on bass drum to reduce leakage from cymbals.

Fig. 5 Several Possible Microphone Placements For a Drum Set



Percussion

The transient clarity of a quality condenser microphone makes it a good choice for many percussion instruments, such as the triangle, tambourine and guiro. Mic them at least 1′ away.

Double drums, such as congas, bongos and timbales, can be covered with a single dynamic microphone between the pair of drums.

A popular mic technique for xylophone-like instruments uses two cardioid microphones (condenser or dynamic) aimed at the instrument about 1½′ above it, crossed at about 135°, *or* spaced about 2′ apart. This arrangement allows a stereo effect and provides good coverage of the entire instrument.

Level setting is critical with drums and other percussion instruments. The sharp transient peaks these instruments produce are too fast for the VU meter to respond accurately to them. If you record percussion at 0 VU or higher, the peaks are likely to saturate the recording tape and cause distortion. Lower recording levels, such as -10 to -3 VU, may be necessary to prevent tape overload. Some tape recorders come equipped with peak indicator LEDs—very useful for showing excessive peak levels. Allowing some tape saturation on drums, however, helps to limit the peaks and gives a fatter sound. Listen to the tape playback while experimenting with levels.

There you have some typical recording techniques for amplified instruments and drums. Try them out, and invent your own, too. Next time we'll describe some techniques for acoustic instruments and vocals.

Ambient Sound

By Len Feldman

Taking Care of It in the Mix

With stereo sound on TV "just around the corner" (well, perhaps down the block, judging by the speed with which our FCC operates), many audio-involved professionals are becoming concerned about the poor quality of audio to which TV viewers are subjected day in and day out. Viewers are receiving poor audio when they tune in to network TV, play back pre-recorded video cassettes and, yes, even when they tune in to "special" programs produced for and distributed by the TV cable operators around the country. Clearly, what good will stereo TV be, if the quality of sound heard on each of the two stereo channels is no better than much of the poor-quality monophonic audio to which we are subjected on TV and video sources today.

The problem of inferior audio quality in video was one of the subjects covered at the recently held Midwest Acoustics Conference at the Illinois Institute of Technology in Chicago. This all-day conference has become an annual event in Chicago and the most recent one was sponsored by the local chapters of the Audio Engineering Society, the Acoustical Society of America, the IEEE, the Chicago Acoustical and Audio Group and the Illinois Institute of Technology Research Institute. The theme of this most recent "MAC" conference was "Audio Technology for Video," and the guest lecturers covered such related subjects as stereo audio production technology for television; an update on multi-channel TV; the audio characteristics of consumer video hardware and software; future trends in audio technology for video (a panel discussion); a historical overview of audio for television and, perhaps most relevant for readers of *MR&M*, a presentation by Mr. Murray Allen, President of Universal Recording Corporation [Chicago].

An Audio Horror Story

In his presentation, Mr. Allen traced the step-by-step processes involved in the creation of the final audio tracks of a typical TV program. While the particular example used to illustrate his points happened to be a TV commercial, the sad tale of degraded audio quality could apply equally to any full-length program in which the audio leaves much to be desired when compared to the picture. Bear in mind that we're *not* talking about inferior audio circuitry in the TV receiver here, nor are we any longer concerned with poor audio transmission at the TV studio or between the studio and the transmitter. (These old deficiencies have long since been corrected, now that networks employ diplexing instead of phone lines for audio transmission, and public broadcasting stations employ satellite relaying for audio.) What Mr. Allen was concerned with were the almost unbelievably shabby production procedures used to create the "final" audio track on "professional" video productions. Here, as best as I can recall it, is the way things often happen.

Everything starts out nicely, with a 24-track or even a 32-track first-generation recording of all the sound elements that will be needed in the final sound track—dialogue, music (each track perhaps done separately or even at different times), sound effects, you name it. Upon first hearing, the "producer" (substitute the word "sponsor" if dealing with a commercial) decides that certain tracks need a lot of "EQ," especially the dialogue tracks which were made on location, in which background noises and poor mic pickups tended to reduce treble response. So, the recording engineer boosts the dialogue track at the treble end by 8 to 10 dB for "better intelligibility." In this first mix-down to a second generation master tape, other tracks are usually augmented with varying amounts of EQ as well—all of which tend to completely mess up phase relationships and any semblance of tonal balance.

It's at this point that the still-good audio tape recording is transferred to film stock. Often, this "third generation" audio production is put on the very poorest type of film stock—acetate based stripe-coated stock (as opposed to available full-coated magnetic stock). The reason: acetate stock is easier to tear by hand for splicing and editing!

Now the film mix is done on a three-track recorder; one track for dialogue, one for music and the third for sound effects. During this mix, the producer complains that the singers can't be heard because of the dominant sound effects and/or music. The solution? *More* high-end equalization, which by this time can amount to as much as 20 dB at 10 kHz! At the same time it is noticed that background sounds associated with the original dialogue tracks (which, you will remember, were recorded on location) have come up so much in amplitude (from all that EQ'ing) that, with the number of phase cancellations present because of the multiple mics used, they no longer sound like "real" background. So, someone finds an old NAB cart labelled "background noise" (which may have been recorded as a stock sound effect some fifteen years earlier) and this is substituted for the original, natural background sounds. And, oh yes, during all of this process, the film stock version of the sound may have been "played" on an old moviola machine (that's a gadget that is used to mechanically synchronize sprocketed magnetic film stock with movie film) whose tape head may not have been cleaned (or changed) in years and years!

Getting back to the mixing sequence, the new "background noise" so masks the subtle dynamics of the music that the producer now asks for some compression, so that the music can be heard above the background as we heard for generation *four* of the sound track.

It is at this point (usually) that the sound reaches a professional sound studio such as the one run by Mr. Allen. Now, everything is transferred to a 3-track, full coated stock. Now the sound is dubbed to generation five, having been through literally hundreds of stages of amplification, numberless stages of equalization and having had all manner of noise added to cover up other noise. And, in many cases, having had everything above 10 kHz sharply filtered because of the intolerable levels of hiss that have been built up "over the generations."

At this point, a sixth generation "protection copy" is made and, more than likely, it is *this* version that goes on to the video production house.

So, what you have is a sixth generation audio sound track being joined with a first or second generation video (picture) to form the first generation of the completed program on video tape. (Actually, the seventh generation of audio at this point.) Even if none of the successive EQ steps had been introduced along the way, it is estimated that, equipment maintenance being what it is, errors of as great as plus or minus 12 to 14 dB departure from flat response are quite likely after so many successive dubs! Now this so-called master audio/video tape of the program goes to an old dubbing machine on which copies of the program are made for other stations that are going to carry the program, and, since *so much* money has been spent on the production so far, an economy-minded executive decides to use cheaper video tape stock for these dubs to save "a few dollars." The station receives this eighth-generation copy (as far as the audio is concerned) and, to protect himself, decides to dub from this "master" to a ninth generation tape. It is *this* tape which finally goes out over the air! Is it any wonder that the audio we hear on most TV programs is as bad as it is?

It was at this point in his talk that Mr. Allen provided us with audible proof of what he had been talking about. He played, first, a cassette taken from a second generation master tape of a commercial which his company had produced. Recorded on the same cassette—and immediately following the first recording—was a recording made directly "off the air" of the very same commercial. The comparison was like listening to music over a fine FM high-fidelity system and then switching to a cheap table model AM radio playing the same program!

After his painful recounting of this audio horror story, Murray Allen attempted to end his talk on a positive note. He pointed out that there's a lesson to be learned from the motion picture business. Every time the movie industry got itself into trouble, it turned to *audio* for its next revitalization. When "talkies" came to the movies, audiences doubled in less than two years. Disney's *Fantasia* ushered in the concept of surround sound and high-quality audio to motion pictures. More recently, we've seen the impact of Dolby Stereo on motion pictures.

Allen believes that today's generation of TV and video software viewers—having grown up in an era of good sound on records and tape—will not tolerate the inferior audio on TV which has been the standard fare for so many years. He believes that the coming of stereo TV *will* bring with it better audio. Video tape, he pointed out, was actually designed with the *picture* in mind; audio came as an afterthought. For this reason, he advises professionals to keep audio on high quality *audio* tape for as long as possible, without trying to record and edit on video tape. The use of test tapes and pink noise tapes can also be a great aid in preserving audio quality if these simple checking tapes are used through the whole cycle, from master tape to final audio tape track on the video taped version of a program.

As I reviewed the official program for the MAC conference, I realized that Murray Allen hadn't covered the topics that were listed in his abstract. He was supposed to have covered such technical matters as problems relative to video tape, lockup and synchronization equipment, with a discussion of microphones, consoles, equalizers, limiters and noise reduction processing equipment for video production. As I thought about it a little more, I realized that *these* subjects can be read about in any number of technical journals and books. The truths about audio recording for video that Murray Allen presented, on the other hand, need more airing and I'm rather glad that he departed from his prepared outline. Maybe some of those in attendance will go back to their jobs of creating audio for video that is just a little bit better than it's been.

Recording with . . .

BLONDIE

By Ellen Zoe Golden

On the comics page, Blondie is a cartoon character. Back on the Bowery, Blondie was a pop music laugh. Blondie's first manager said: "Blondie is a group." On top of the charts, Blondie was a *disco* group. Fans often think Blondie is lead singer Deborah Harry. The press often writes that Blondie is Deborah Harry and Chris Stein. The rumor mill says Blondie is breaking up.

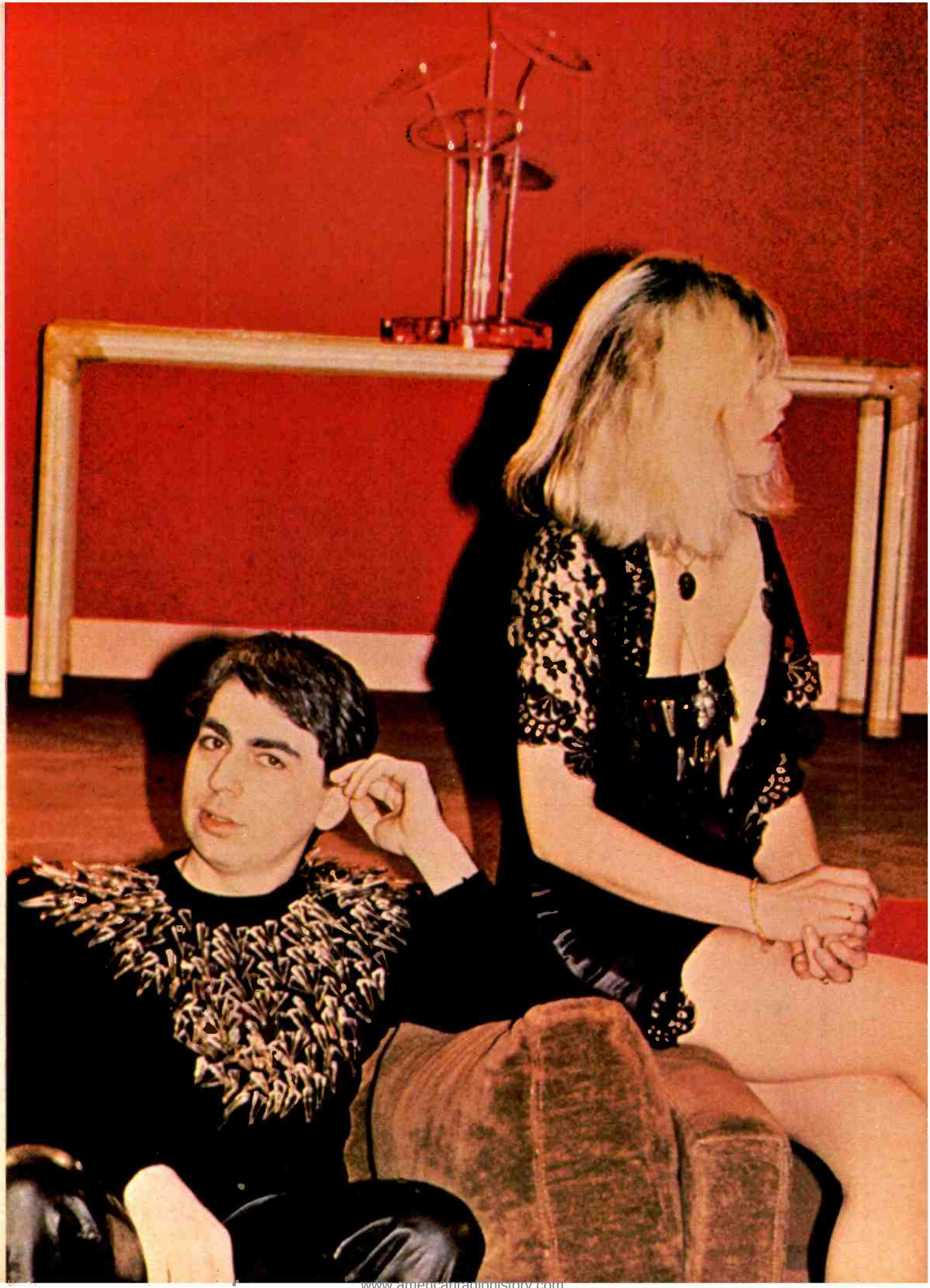
Confused? Relax, you've just been subjected to the same critical onslaught that has plagued the musical unit called Blondie since its inception in the mid-70s. While strengthening its pop roots back on the CBGB circuit—along with the Ramones, Patti Smith, Television and the like—early Blondie was often sneered at for taking a lightweight musical approach. The media fire over Debbie's Marilyn Monroe look all but overshadowed the musical and lyrical merit of the band's first two albums, *Blondie* and *Plastic Letters*. Then, when the group moved out of the Bowery to roost at the #1 chart slot with a disco-tinged pop tune from *Parallel Lines* titled "Heart of Glass," the hardcore followers yelled "sell-out" and "gone commercial." With the cover of Harry's 1981 solo album, *Koo Koo*, featuring a cover photo of a brown-haired Debbie with her face skewered by large pins, it makes sense that Blondie's latest effort should be called *The Hunter*.

"You go after something and it pursues you," says Harry, sitting at a conference table at her New York press office. Aside from her brown locks, there is little about her casual dress and sweet demeanor that shows the wear and tear of critical finger-wagging. But then again, no one in Blondie—including co-founder and guitarist Chris Stein; guitarist Frank Infante; keyboardist Jimmy Destri; drummer Clem Burke; and bassist Nigel Harrison—has ever compromised artist integrity for public approval.

Case in point: "Heart of Glass" was originally a funk number, usually included in Blondie's earlier "live" sets. According to Stein, the band reworked the cut into a disco number without intentionally targeting it for the prestigious dance market. "We didn't even want it released because we didn't want to get tagged as a disco group," he says.

As "Heart of Glass" rose to #1, Stein began to notice a lack of Black songs in the Top 40. Following *Eat To The Beat*—and a one-shot association with producer Giorgio Moroder for the slick "Call Me"—Blondie purposely avoided typical pop material, opting instead to develop alternative styles. *AutoAmerica's* first hit single, "Rapture," honed into the Bronx-born rap trend, as the followup, "The Tide Is High," earned its distinction from reggae flavoring.

With *The Hunter*, the band has once again nurtured Black styles—adapting to even more reggae and Caribbean rhythms. All kinds of rhythms have been explored, with Harrison and



Burke working out combinations on everything from their usual bass and drums to rhythm machines. In addition, Blondie's pop blackbone sits side by side with the expanded electronic dance styles, thanks to the clear, clean and *direct* approach of producer Mike Chapman.

The Hunter found Blondie back together at the Hit Factory recording studios in New York City. *Modern Recording & Music* caught up with Blondie just after the product was released and talked with Harry, Stein, Harrison and Burke about the mechanics of being the most misunderstood band in the world.

• • •

Modern Recording & Music: What have you been doing since the last Blondie U.S. tour in 1979?

Clem Burke: I've been doing a lot of recording and producing. I did an album in Germany with Connie Planck. He produced the first Devo album with [Brian] Eno and he produced the early Kraftwerk stuff.

MR&M: Did you play drums or program rhythm machines with Planck?

CB: Mostly drums. Planck is really responsible for this whole German electronic sound that everyone's been ripping off through the years.

MR&M: And you produced a band called the Colors?

CB: Yeah, I produced a single in the summer of 1980. I did it at Electric Lady Studios [in New York] in a couple of days.

MR&M: Would you say you are a technical person?

CB: No, not particularly. I think it's important to have a certain rapport with everybody when you're in the studio. And that's something you have to learn along with everything else. So, it's easy for me to work with new bands. I try to make them as relaxed as possible and get them to enjoy themselves as much as possible to get what they are on tape. I work with a couple of engineers, so I'm not really technical as much as psychological.

I've learned a lot of stuff from Mike Chapman, as we all have, because he's a brilliant producer. And, he has all the bases covered: he knows how to work in a studio *and* get the best out of people. It's like directing a movie.

MR&M: Are you also playing on other people's records?

CB: I played on the Colors single because they were between drummers. I just produced an album for them which should be coming out soon, but I didn't play on that record. I just did the Iggy Pop album with Chris [for Stein's Animal Records]. We did a tour with Pop before Chris. It was me playing drums; Gary Valentine (the original bassist for Blondie) playing guitar; Rob Dupree from the Mumps playing guitar; Carlos Alamor playing guitar; Mike Page playing bass; and Iggy singing. We just put it together a week before we went on tour and then we went out for six weeks. It was great. We opened for the Stones in Detroit and Pontiac.

I've just been trying to be active. I made a couple of Blondie albums, I think, since that last tour [*Laughs*].

MR&M: *The Hunter* has a stronger rhythmic emphasis than any of the other Blondie albums. Was that something you and Nigel developed or was it something Chris and Debbie initiated after their experience with Chic on *Koo Koo?*

CB: I don't think *The Hunter* is a holdover from anything Debbie and Chris were doing with Nile and Bernard. I don't find *Koo Koo* to be rhythmic. Their album was funky, but *The Hunter* isn't a funky album. There's a lot of rhythmic stuff on our album, like Nigel's tune, "Orchid Club." That just reflects what's happening today. Blondie has always assimilated anything that's going on in music. Since the band started, we've been totally influenced by everything around—all the media, all the music, everything. Our albums tend to sound very contemporary and *The Hunter* is a very contemporary album—a pop album in the true sense of pop art, which reflects a period of time.

Last time I was in London at a place called the Embassy, they played the whole *AutoAmerican* album really late at night and it really fit. That album had all the various assimilated musical styles before rock and roll—a lot of jazz and things like that—and it really seemed to fit in. This had been a year after the album had been made and with the environment we found ourselves in at the time, the album seened very apropos. *The Hunter* is a continuation of what we've been doing from the first Blondie album up to *AutoAmerican*. But, I don't think it reflects the *Koo Koo* album.

MR&M: But, we both agree, *The Hunter* is very rhythmic.

CB: There's Adam and the Ants type vibes, but, once again, we just assimilated those styles and, hopefully, we've done them our way. We did a song called "The Attack Of The Giant Ants" on the first album, which is what Destri always cites as the thing we have carried over to "Rapture" or *The Hunter's* "Orchid Club" and "Island Of Lost Souls." This album relies heavily on rhythm, but then again, there're pop songs on it, too.

MR&M: Would you describe yourself as a "pop" drummer during the formative years with Blondie?

CB: I was assimilating the various musical styles that were happening up until that point. I wasn't really influenced by anything very much, other than rock and roll. I was just reflecting everything in my own style. Debbie and Chris opened me up to a lot of other musical forms, which was really great.

MR&M: How has your drumming style evolved?

CB: *Saturday Night Fever* had a big influence on me. It really helped me with "Heart Of Glass." That particular style of drumming wasn't really around much before then, but when that style came out, I got into using it as well as everything else. At the time, I was the archetypical pop drummer of the 70s.

Bassist Nigel Harrison enters the room

CB: Nigel's written two great songs on the album.

Nigel Harrison: I wrote "War Child" and "Orchid Club." "Orchid Club" was pretty clever, because it was put together in the studio. Originally, on the demo I did with the rhythm machine, it was meant to be an R&B-type song. Then Chapman got this drum beat idea and we built the whole track around the drums. For a whole week, we were living with the drum track, and then, the last few days, it all came together. It was a track that we built up and put aside for a while.

CB: There were a lot of synthesized drums on that track.

MR&M: Do you like experimenting with different rhythmic sounds instead of just utilizing the bass and drums?

CB: That's how my style has changed: I'm more open to doing other things. I really like the Linn drum machine. It sounds fantastic and it's very usable.

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Freddie White
Earth, Wind & Fire

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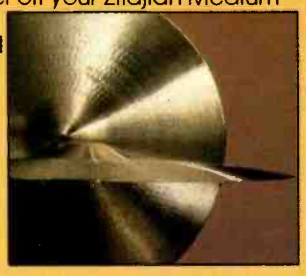

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CIRCLE 19 ON READER SERVICE CARD

It's used on "Don't You Want Me" by Human League.

MR&M: It's interesting that you like working with a drum machine because one of the arguments against them is that they are so precise, unlike a human drummer.

CB: One of the best things about them is that you can play them from a wheelchair [*Laughs*]. Actually, the synthesized sounds are getting a lot, lot better. The Linn is an interesting machine because supposedly, *supposedly*, the prototype Linn had Ricky Morotta and Steve Gadd drum sounds—like isolated beats—put into the machine. So, the original idea for the machine was to have it sound fantastic, like a Steely Dan record or something. I don't know what happened with all that, but it *does* sound really good, especially if you put it very loud in stereo—like in an auditorium—for a disco bass drum beat.

NH: This applies to me as a bass player as well as to a drummer. In the 70s, everyone was very alienated by rhythm machines and a lot of musicians literally refused to play to them. But, it's a really challenging thing, and once you've got it down, you don't really feel alienated. A fine example was "Heart Of Glass," which was the first thing we ever did where we actually laid down a rhythm machine track.

MR&M: Don't they get monotonous?

NH: Well, they do, but then you play on top of that. The rhythm machine is the basic track. A lot of the newer bands just leave it in there, whereas other people just leave it as a tracer thing.

CB: With "Heart Of Glass" we were probably the first group to have a hit single with a rhythm machine. It was very effective in adding to the song.

NH: It's challenging to work with them, too. You've got to be right on the money. If you mess up, it shows and sticks out like a sore thumb. So, you've really got to play tight. When we're making records we're *not* documenting a "live" performance in the studio. We're making a *record*, which has a lot to do with Mike Chapman. We're laying down a foundation of something which will last forever. If it's strong on the bottom with the bass and drums, it *will* last forever.

CB: Playing with rhythm machines is a science. Another example: We used one for another track on *The Hunter* called "For Your Eyes Only," which is the first take.

MR&M: That was a strange mix.

CB: It's an ambient, airy mix. I like the way the whole album is mixed. Mike doesn't mix each track to sound the same. He goes with different sounds.

MR&M: That was an interesting point you brought up about laying down the rhythm specifically to make a "record." How do you humanize that sound when you get on stage?

NH: The minute we do a song on stage, it'll be human anyway. Bands always do songs with a different attitude when they play them "live."

MR&M: A lot of bands who rely on synthesizers can't connect with their audiences when they play "live."

NH: We saw Pete Shelley and the show as a real sign of the times because he had a drummer playing on top of [along with] a rhythm machine. But, there was also a pre-recorded tape of the backup vocals and synthesizer. That's really taking it a bit too far.

MR&M: If you screw up and miss a note, you're shot...

NH: No, actually you can screw up and leave the stage and the tape will keep on playing without you.

CB: I don't think a machine has very much stage presence, which is really what it comes down to. You've got to be rowdy on stage. It's very important to have that element of rowdiness and surprise and chaos. One of my favorite Beatle videos is where they played in Japan after doing the *Rubber Soul* LP. The songs they did from that album sounded "live"; they didn't sound like they came from *Rubber Soul*, and that's great. There's no reason to duplicate the record once you take it to the stage. Making a record is much different—it's a science.

MR&M: Are you going to bring some of your machines to the stage when you tour this fall?

CB: We always did. We used them on the last tour on "Atomic" and "Eat To The Beat" [both from *Eat To The Beat*] and "Heart Of Glass." We've always used them; but now that technology has risen, they're more prominent among bands. A lot of people play to headphones as well.

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MR&M: What is the working relationship of the Blondie rhythm section?

NH: As far as playing, it's a real instinctive thing. We'll just jam sometimes and get together and play.

God knows where it's coming from, but we just go on automatic pilot. There's never really been any clashes between our two styles. I tend to hold it down and he plays on top of me... and gets all the glory at the end of it. [*Laughs*].

MR&M: Do you find that because there is such a tight bond between Debbie and Chris that the two of you are closer?

CB: No, that's a cliche. Everyone in the band is constantly involved in doing [different] things. It's just that the center of attention gets focused on Chris and Debbie. Not to say, the things they do are any less or more fantastic than anybody else's contributions. Everybody is always working. Nigel and I made a couple of records together.

NH: We're not particularly insecure about being the boys in the band. We don't have an attempted suicide everyday.

MR&M: Are either of you considering doing solo albums like Jimmy Destri?

CB: Oh yeah, in the future. Nigel is a really great songwriter and there are four other great songwriters in Blondie. That's probably the prime reason why both Jimmy and Debbie did their solo albums. In the future, everyone will do something, but I'd like to continue making Blondie records because they're the most fun.

NH: The group's really strong now. That is the most positive we've been, especially going in to make this last record. We were conscious that we were eventually going to make another record; it was just a question of when we were going to do it. When it became a reality, and the dates were booked, everyone was ready for it.

CB: Everyone really wanted to do this album at the point we did it.

NH: Including Mike, our producer, who is part of the team.

MR&M: Nigel, you've been doing more of the songwriting. What is your inspiration?

NH: I write the music most of the time. Debbie has such a slant lyrically, that most of my lyrical songwriting is pretty pitiful compared to hers. We have this unspoken thing where I write the music and she'll come up with the lyrics for it. I try to get melodies as simple as I can. I'll get a rough idea for a melody and try to minimalize it. Then I'll play a demo cassette on an eight-track machine at home. I'll use a drum machine, synthesizers, whatever.

MR&M: You tend to write moody songs...

NH: That's because I don't really sing and I'm not really a lyricist, so I try to get as much as I can into the music. Chord-wise "War Child" is pretty clever, bold and ballsy in the way that "Call Me" was. Blondie hasn't really touched on those things before, since the band didn't write "Call Me." It is one of my favorite tracks, though.

MR&M: Without knowing that "War Child" and "Orchid Club" were both written by Nigel, I noted that both tunes had a strong rhythm with a mid-tempo melody on top.

NH: That's my inability to be a proper songwriter; I try to get it as minimal as I can. I know I've got the music thing together melody-wise. I'll have the headphones on at home and picture Debbie singing some line or another and try to get all these different flashes. Then I'll try to get it down to those three or four basic notes. "Orchid Club," for example, was almost like a mantra thing.

CB: I think everybody in the band is just very, very good at what they do. I don't write songs for Blondie. I write songs—everybody does—in the shower. I'm confused between becoming Bob Dylan or David Cassidy, so I think there's a real paradox in my writing these days.

Nigel really comes up with some brilliant music. Debbie and Chris come up with some brilliant lyrics aside from their brilliant music.

NH: Chris has an incredible sense of melody. I come in to the studio with my eight-track masterpiece demos with synthesizers, guitars, bass, flute, whatever, on them. Chris will come in with him groaning into a tape recorder, or just a guitar melody on one string, but it's always absolutely classic. If you trace the final song back to the demo that Chris came in with, you'll find that demo sounds like the end result of the song because it's such a strong melody. No matter whether it was a reggae or a hard rock song, it will always cut through with that melody.

It's the song. If you don't have the song, you'll never have the hit. You can have brilliant musicians—every Emerson, Lake and Palmer in the world—but how many #1 records does a group like that have in its career? We've had four here in the U.S. More in Europe.

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At this stage of the interview Chris Stein walked into the room, and so the questions were turned to him.

MR&M: Tell me about *Making Tracks: The Rise of Blondie*.

Chris Stein: The book took two years. We started it when we finished the *AutoAmerican* album, and we've been working on it ever since. This is about the fifth or sixth draft of the book. The first draft was the best, but we couldn't publish it.

MR&M: Why'd you decide to do a book on Blondie?

CS: I thought there was a need for this book. Delilah [book publisher] approached us initially because we had been talking about doing a book, but they didn't want to give us any control. [Blondie's version was published by Dell.] They wanted to pick the writer, the art director, everything. We couldn't have done it with them. They just said, "Screw you, we're going to do it anyway. According to Lester Bangs [who recently passed away], the original writer wrote a really horrible text, really slanderous. Lester convinced them to let him write the text, but I told him we weren't going to cooperate with him. He got so mad that he wrote it as a slag off. I thought that was pretty underhanded and Lester is unforgiven. And Freddie Schruer's book [*Blondie*, published in England by Star] was just a lot of stuff all slapped together. It was very inaccurate.

MR&M: Let's talk about the new record, *The Hunter*. Is it a concept album?

CS: Yeah, it is sort of thematically linked. More so than the others. It's not a total concept record, but it's the closest we've come to one, definitely. It's just a jungle of things. We were trying to say something about the modern/primitive state that everybody is in right now; the jungle is all live in, perhaps.

MR&M: How much writing is done by you and Debbie and how much by the other members of the group?

CS: Nigel's really been coming up. His stuff has really been developing over the last little while.

MR&M: So you and Debbie don't keep the songwriting to yourselves?

CS: No, not really, but we just have our thing down pretty well and we work easily together so it just sort of happens that we have more songs.

MR&M: Does that cause a split in the group?

CS: There's always been a split in the group because all groups have some sort of split. If it's not the focus of the media, it's the lead singer against everybody else. It's always like that with bands.

MR&M: What about that period of "Blondie is a group"?

CS: That was our first manager's idea. It wasn't *my* idea at all. It was just an overstatement; nobody had to say that.

MR&M: I guess that means that "Island Of Lost Souls" from *The Hunter* is not about the current state of Blondie...

CS: No, The record is the most solid of anything we've done. It's a real textural album.

MRM: Especially songs like "War Child," which seems to fit into the syntho-disco rage happening right now.

CS: Sort of, except for the theme of what the song is about. It's about all the little kids that are getting killed in fighting all over the world. It's kind of serious for us because we usually don't do songs like that. It's a folk song.

"English Boy" is about the Beatles and John Lennon. It's supposed to be Beatle-ish, and again, "we've never really done a song as direct as this before. Blondie's music is still pop music, so if you're gonna categorize it, that's what it is.

MR&M: Blondie has been doing a lot of songs that have roots in Black music. For example, "The Hunter Gets Captured By The Game" on your latest album.

CS: That's a Smokey Robinson song. Smokey Robinson is one of the greatest lyricists of all time. Unfortunately, because he's Black, he's not considered a great lyricist like Bob Dylan.

I have this memory of that song from when I was riding the subway from Brooklyn when I was a kid in the 60s. This kid came on the subway wearing this whole purple outfit—which was unheard of at that time—and he had a little plastic record player. He put on "The Hunter Gets Captured By The Game" and played it over and over again on the subway. I have a vivid memory of that and have always liked the song. It's a total classic and the message is just so great; it just sums up everything for life in general. The hunter gets captured—everybody is in that trap now. It's a schizophrenic situation.

MR&M: With all of the outside productions you do, I was surprised that you didn't produce *The Hunter* yourself.

CS: I wouldn't want to produce our stuff. Chapman's a great producer and most everything I get, I learn from Chapman. I learned a lot from Giorgio and Bernard, but most everything I get is from Chapman. I'm happy and thrilled when he gets to work with us.

MR&M: Do you co-produce?

CS: No, not really; I don't have anything to do with the mixes. I know what I'm going to play. Chapman doesn't do anything with the arrangements, really. We work out all the individual parts ourselves.

MR&M: Have you gotten more confident in the studio?

CS: When you know what the studio is about...and what you're doing, it helps with everything. When you know the capabilities of the equipment, that helps with laying down the material. We always try to turn it over. It's never a conscious thing of "Let's do this because we've never done it." We just run things over and do what's interesting at the time.

It's all an organic process that unfolds as we record. It's like putting a puzzle together; we just put all the pieces together. The difference is, whereas we may have a picture of the puzzle beforehand, with a record, you don't have a picture. You don't know what it's going to look like until you've put everything together.

MR&M: Why did you choose the Hit Factory over United Western in Los Angeles, where you recorded *Auto-American?*

CS: It was pretty arbitrary. If you pay that much and get a bad studio, you're pretty stupid. Once you start paying $200 an hour, or whatever it gets to, you should really have good equipment.

MR&M: How long did it take to record *The Hunter?*

CS: Four or five weeks.

MR&M: Do you have a specific way of laying down tracks in the studio?

CS: Everybody asks, "What's Mike's secret?" Mike's secret is just doing things over and over again, and really, really hard work. In reality, it's not a secret at all, just working really, really hard and doing stuff over and over again until we get it perfect. The secret is that there is no shortcut; you just have to go through the middle and do everything to death.

MR&M: What happened when you changed from Richard Gottehrer, who produced Blondie's first two albums, to Mike Chapman?

CS: It was astonishment. Like Debbie said, "It was school's out." That was it, time to work. Richard was like most people who make records: he's a good producer, but it's different. He goes partially on inspiration, partially on capturing the moment. Whereas Mike will get it and that's it. He'll work until he gets it, and it'll be the way he wants it. That's a big difference. I love Mike; he's great. We have a great relationship with him.

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MR&M: Does the band have all its material written before going into the studio?

CS: Yeah, because it saves a lot of time and effort. And I would advise everybody to do the same. Have your material together because you can really go nuts in the studio if you don't. As a producer of other groups now, I've been through every sort of situation with other people. I work with lots of people who are just starting up and I see people in different phases of development who get nervous in the studio. I never get nervous about it anymore. The most common thing I hear is, "There's one note in the song and we have to fix the one note." Now, I don't care if there's one note off. Great, it doesn't matter. But other people are at different stages.

MR&M: Speaking of different stages, you and Debbie took a drastic step with her solo album, *Koo Koo.*

CS: Yeah, and we're going to do Debbie's next solo album right away.

MR&M: That is a surprise.

CS: If Pat Benatar can have hits, we've got to do it with Debbie.

MR&M: I would have thought that you were still confused by the disappointing reaction to *Koo Koo*...

CS: I'm not confused at all. I know what happened. I know that if some unknown group would have come out with that album, it would have been declared a godhead. It was the fact that it was us and Chic that people said [*in a sarcastic tone*]: "Oh, well, it was them and they're trying to do this. Ah, hah."

MR&M: Prior to *Koo Koo*, Debbie has always been portrayed as a glamorous woman. That album cover featured her with brown hair and with pins through her face.

CS: Yeah, the album cover freaked everybody the hell out. But I enjoyed that in the long run because we really did what we wanted to do with the cover.

MR&M: Do you think that the lack of a visual connection was the reason it didn't make it commercially?

CS: Yeah, partially. It really scared the rackjobbers and all those people out in the Midwest. I don't know why.

MR&M: What is the need to do a solo album with Debbie when you've got Blondie to work with?

CS: Because we have other stuff we want to do that's not Blondie-ish. I heard a lot of complaints that the solo album didn't sound like Chic or Blondie and that's why people didn't like it. I like the record very much. I realize that it just brought up all the prejudices that are out there. All the rock stations said it was "too R&B," whatever that means. I remember the old days when you'd hear the Temptations and Donovan on the same stations, but not anymore.

MR&M: Radio programmers are always looking for something they can plug right into their formats. Perhaps *Koo Koo* couldn't do that.

CS: Yeah, that was part of the problem with it. But, I was totally behind it and I still really like it. I think the record will come back in years to come when things loosen up a little more as far as Black and White on the radio. It's still really racially segregated, but give it a few more years.

MR&M: Hasn't Blondie always had to contend with roadblocks such as the criticism you received for *Koo Koo?*

CS: Yeah, well, everyone always thinks we're breaking up or not breaking up. The rumors are always rampant. What amazes me is that we never say *anything*, and yet I'm *constantly* hit with this stuff about what we're doing. And it never comes from us; it *never* ever comes from us.

What Lester Bangs' death meant to me was that a lot of people—positive people with messages—are attracted to show business, and for some reason, the opposite end gets attracted to the media. You get a lot of very negative, unhappy people. I don't know why it is, but it's a simple fact.

Fifty percent of what you see in print is just bullshit. I've been through it so many times. You can get a *real* big magazine which will come and interview you and be real nice and pleasant, then write what a creep you are. It's one of the reasons we're real cautious. It's a shame because it cuts us off from the fans. It breaks down the lines of communication. That's one of the reasons we did the book, so we could have a real direct line of communication.

MR&M: I liked the way Debbie described the 70s scene in New York; everything was made so clear.

CS: We really wanted to give a picture of it; give it a little texture so you could really see what it was like. One of the points that I think is really important in the book, is that when the record companies started coming around they really divided up the scene. They broke it up completely. They had no desire to build up the whole scene, but rather, "Let's take Television here and take Patti Smith and the Ramones." That was it. Everybody went their separate ways and it was all over in a couple of months.

MR&M: When you were playing CBGB's, did you and Debbie have a clear picture of what you wanted Blondie to be?

CS: We had sort of an image of the thing. It was lighthearted, never very serious. That was one of the reasons we always got dumped on. We never had that thing like Patti Smith or the Pretenders where we said, "We are serious." A lot of critics like to hear somebody say that because they need it, I don't know why. We never really took that serious approach, even though I've always been serious about the music.

I hung out with the whole MacDougal Street thing. The Lovin' Spoonful and those guys. The Blues Project, and The Lovin' Spoonful were totally into good-time music and they were good. They were a heavy influence on the whole scene for quite a while. The New York Dolls were not really serious, somber and morose, either.

MR&M: Are you more serious now? *The Hunter* feels that way.

CS: *The Hunter's* a little more serious. Certainly a lot more than the earlier stuff. I have different feelings now. I'm more pissed off than I used to be. Things are just as much of a struggle now as they always were, but I have less time now and that's the worst part.

MR&M: Blondie was pretty unique back in the old days. The Ramones were sort of speedy and Television was more serious.

CS: I always thought that a lot of those groups could have made it just as big as we did. We have a stick-to-it-iveness. A lot of groups gave up after a while and threw up their hands in disgust. We've always been willing to try new things, too. doing "Heart Of Glass" as a disco song really helped us out. I was never averse to it. I love the early disco music.

MR&M: Wasn't "Heart Of Glass" originally a funk song?

CS: Yeah.

MR&M: Did you intentionally rework it into a disco number to get a piece of the market?

CS: Nah, not at all. We didn't even want "Heart Of Glass" released. *Parallel Lines* was out six months before the record company released the song. Then the album went up the charts. We didn't want the song released because we didn't want to get tagged as a disco group. We were afraid of that.

MR&M: People say Blondie is opportunistic because when rap songs were popular, the band came out with "Rapture." When reggae was popular, you came out with "The Tide Is High."

CS: Yeah, I know. Some guy asked me, "Are you being exploitative for doing black music?" That's the sickest thing I've ever heard. That's like saying Chuck Berry is being exploitative for doing White rock and roll. Ninety percent of all the world's popular music comes out of America's Black music. That's just racism. I can't imagine anybody thinking we're being exploitative for doing a Black form. Of course, it's pathetic that a Black person can't get the same song played on the radio, but does that mean we're not supposed to do it? I grew up with Black music in Brooklyn. I listened to the Temptations and the Four Tops as much as I listened to the Rolling Stones or the Beatles. It's the reverse of that that's scary. Black people aren't "allowed" to play certain kinds of music. That was one of the things that happened with Chic. They used to be a rock band before they were a funk band. They used to take tapes to all the record companies and the companies

would listen to the tapes and say, "Great, why don't you come up?" They'd go up and the record company would say, "Oh, they're Black." That's the reverse of us being a white band and being told we can't do rap music.

It's all bullshit. Things are worse now than when we started out in the 70s.

MR&M: But you're in a position now to ignore all that...

CS: Who knows. It could be over. We could never have another hit.

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MR&M: Did you form Animal Records so you wouldn't have to worry about record company hassles?

CS: I formed Animal so I can do what I want to do: Put out my own type of music and not hassle with trying to sell it to somebody everytime I want to release something. I also formed the label to help people out.

MR&M: Whom have you been working with?

CS: Iggy Pop.

MR&M: Didn't Blondie do one of its first tours as support for Iggy?

CS: Yeah, and Iggy and David Bowie [who toured with Iggy that year] were deliberately very helpful.

MR&M: How did Iggy feel about *you* producing *him?*

CS: It was great. We've had a friendship ever since that tour. He's so unegotistical. He's just there, like a creature. It's great. Today he was doing the lyrics for a song and he got the fuckin' copy of the New York Post and pulled headlines right out of the paper and put them in the song. I'm real excited about the record. It's a weird pop album, but it will still have real heavy Iggy stuff.

I'm doing the Gun Club now, too. They're now on my label [the first Gun Club album was released by Slash Records of Los Angeles]. My label's only for one record at a time; we don't have any contracts. Animal is being distributed by Chrysalis, so the Gun Club will have better distribution than they had with Slash—though Slash did very well for the Gun Club.

We're going to have a Walter Stedding single come out real soon that is *very* good. Everybody actually thinks it's going to be a hit. We're hoping to have our first record out in June—that's a James Chance album that he produced himself. Then I've got the *Polyester* film soundtrack and the *Union City* film soundtrack.

MR&M: What was the first act you produced?

CS: The Lounge Lizards.

MR&M: Do you work the same way as Mike Chapman does?

CS: I don't do the same type of total authoritarian thing that Mike does. I always leave it a little more open. You have to be able to work with people—relating to people is the hardest thing. When I work with Mike, I'm in a position to just let it go to him, but when I produce somebody for the first time, they're not necessarily going to let me take over that completely. So, it's always half and half. Producing has totally rounded off my musical experience.

MR&M: It must be frustrating working in the studio with the Brattles, a group of child musicians...

CS: Not really. It's very funny and ironic that a lot of their problems are the same as those of grown musicians. They all fight. One of them is quitting the group every three seconds, and they're all having little explosions. And they go to the bathroom a lot.

MR&M: Did their voices ever change in the middle of a song?

CS: One of the boys' voices dropped—Verne—and where he was once singing lead, he's now singing backup. They're mostly 9½ years old, but Verne—the oldest one—is 13. He's going to be a real superstar when he's 16. The Brattles all have parents from downtown [New York] who have been heavily into the rock scene.

MR&M: What do they write about?

CS: They write about being the Brattles; going out to the clubs with their mothers; waiting for the summer; waiting for girlfriends—the whole thing. Just general little kids' stuff. They're a lot more mature than most kids I meet that age because they've been through a lot of stuff with their parents.

Modern Recording & Music *managed to sit down with Deborah Harry some days after the initial interviews with the other members of Blondie. The following is the result of that sitting.*

MR&M: People are not used to seeing you with brown hair...

Deborah Harry: I'm sick of it [*she chuckles*].

MR&M: Chris mentioned that you might dye it back to blonde for the upcoming fall Blondie tour?

DH: Yeah, I might. I think it will be practical—almost necessary. I couldn't go out and be Blondie without blonde hair. I might get egged or bottled.

MR&M: Do you think the fact that *Koo Koo* lacked a glamorous blonde visual connection was the reason for its commercial failure?

DH: Definitely a contributing factor. It was too scary for the most part; most people were really frightened. I didn't know there were so many chickens in this world. Really, they were scared. A lot of people were uptight because they thought I was skewered.

MR&M: But the cover did look scary...

DH: Scary? I thought it looked mythological or something. It was a total fantasy; I felt like Frankenstein.

MR&M: Were you also trying to show everybody that Deborah Harry isn't just a beautiful blonde shell of a person?

DH: Oh, absolutely, absolutely. I was experiencing a duality thing, which was the real problem with having blonde hair. I was being treated as the character Blondie and being whoever else I am as well. That was very frustrating for a while. I went through all these different feelings about it: At first I was surprised and didn't know what to do. Then I got afraid and then angry. It just had to happen that I would drop the blonde hair for a while.

MR&M: When you were first developing the Blondie character, did you have any idea what it would evolve into? Did you want to be this Marilyn Monroe-type rock and roll figure?

DH: Yeah, sure. I had an outline of the basic ingredients that would make a good, entertaining rock group—or character—just from observing people who were successful and seeing what I admired and what I thought I would like if I saw myself performing. That's what I tried to incorporate. The whole cliche of the blonde in relation to the American movie-going public is what I was trying to make my own cliche out of. And our Blondie character is so different than that. Remember, Blondie was the name of Hitler's dog.

MR&M: In *Making Tracks: The Rise Of Blondie*, you seem to be saying that you are not a cartoon character, that you are a person named Debbie Harry.

DH: Well, I actually got resistance with that attitude. There were some problems from the fans. A lot of them

felt I was deserting them or actually killing off Blondie in some way. So, not only was it fearful for me, but everybody was having this fear thing going on. It was strange.

MR&M: But with Blondie planning to tour this Fall, everybody will get to see the band, as one unit, in the flesh again.

DH: Oh, yeah, I can't wait. Everybody really wants to tour, so it's good. You just have to feel it out for yourself. I've always felt that rock groups were their own person; that they were just one being, one creature.

MR&M: Is *The Hunter* a concept album?

DH: I guess so. It's got a theme at least: All the songs are about pursuit or being pursued.

MR&M: Are you saying that you feel like "the game"?

DH: You go after something and it pursues you. That happens to everybody in their career, I'm sure.

MR&M: Are you getting serious?

DH: [*Intense laughter. Harry puts a handful of candy into her mouth and chomps into the microphone.*]

MR&M: The reason I asked is that *The Hunter* seems like a serious album.

DH: Is it? It's all Chris's fault [*she laughs some more*].

MR&M: For example, who is "The Beast?"

DH: The *beeeeaaaassssst*. The *beeeaaassst*. I am the beast [*she laughs again*]. No, no, it shouldn't be taken that serious. The song is an extension of "The Attack Of The Giant Ants" [*from Blondie*], and "Rapture" [from *AutoAmerican*]. The creature [*Harry starts to rap*] the man from Mars, the giant ants, the creature from another place, the beast can't go out. Only goes out two nights a year and is really bored. Halloween and New Year's Eve. And now, the beast is in and the beast goes out and the doormen really like him and the beast becomes chic. [*returning to her natural speech*] So, that's sci-fi, not serious at all. The song is a direct spinoff of those two things.

If anything, "English Boys" is a serious song. It's about John Lennon—to me, that's serious. "Danceway" is an R&B sendup. "War Child" is serious, too, because it's a political song. We don't usually do straight out political songs—that's not the kind of thing we're preaching about—but there are a lot of war children around and it's a reality to live like that. There are so many places in the world where you get stopped at the corner for ID.

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MR&M: How much input do you have in the studio?

DH: I'm involved in it because I'm there. I don't usually make technical decisions. Everybody in the band usually steps back and lets Mike make those decisions. He's better at it and you have to have somebody who is objective.

"Smokey Robinson is one of the greatest lyricists of all time... Unfortunately, he's not considered a great lyricist."

MR&M: Does Chapman try to draw either strength or coyness from you as a vocalist, depending on the song? Is he your director?

DH: No, he was in the beginning, but by the time we got to Mike, we had done two records already with that director business. [Richard Gottehrer had produced the first two albums, *Blondie and Plastic Letters*.] The recording techniques for a singer—like a musician—have to be technically perfect, precise, on the beat, and so on and so forth. But it's just a little bit different for a singer. I have to do everything with a little bit more emotion. I have to exaggerate my voice so that the song carries through without a visual—so the listener gets the dramatics with just my singing.

MR&M: Beginning with your solo record, *Koo Koo*, and continuing with *The Hunter*, it seems that your voice is getting more confident.

DH: Oh sure, absolutely. Whether that's confidence or experience or just making better decisions and choices, it all adds up.

MR&M: You sing "Little Caesar" from the new album from the male point of view, as you were able to do on your cover of "Denis." How do you switch from the female to the male point of view so easily?

DH: I don't really have any problem with that.

MR&M: What about when you sing the lyrics written by one of the guys in the band instead of your own? Is that difficult?

DH: All of that stuff has been resolved. It's just an automatic thing now. In the beginning, I was writing songs that the guys were really uncomfortable having me sing in front of them. It was like shaving my legs or something like that. Well...that's a gross example, but we have gotten to the point where they don't try to portray where they're at [in their songs] and I don't try to force it [in mine]. There's this meeting ground, which is nice. Our songs are not overtly masculine or overtly feminine. They're a combination.

MR&M: What type of music were you into while you were growing up?

DH: In the beginning, it was Patti Page and Rosemary Clooney, that kind of stuff. *Ahem*. Then it was the early doo-wop and Black groups, the street-corner stuff. In high school, I was a jazz fan because those were the "beat" years.

MR&M: Such diverse listening habits. Does that explain the wide variety of musical styles Blondie has been trying lately?

DH: Yeah.

MR&M: Chris mentioned the criticism Blondie has been getting for performing Black music. How do you feel about those judgements?

DH: I think they're short-sighted. Maybe we're fooling ourselves and being self-righteous, but at least we've thought about those songs and tried to make a balance somehow. When we talked about doing "Rapture," we weren't excluding all of our references. We talked about the groups that were unknown and where we learned about rap. We weren't saying we invented it. I don't know if that's cool, but it balances out somehow. I don't think rap would have gotten to the majority of the public any other way. There are so many bottlenecks with

radio and marketing that music is generally crushed. Most people don't get to know what's happening in their culture. Everything is fed to them in such a way that they become prejudiced before they even hear anything. It's tragic. There's no reason in the world why modern or youthful music should be given a negative point of view merely because it doesn't sell cars or whatever it's supposed to sell.

MR&M: Does that ever confuse you?

DH: Yes and no. Most of the time we don't even think about that. When we went to write something, we have an idea and just throw it down. When you try to sell it, that's the hard part.

MR&M: Let's talk about your acting career. You've already starred in *Union City* and you just finished filming *Videodrone*.

DH: Yes, *Videodrone* is a feature-length film. James Woods is the star. The movie is about a disease that you get from watching television. It was written by David Cronenberg who did *Scanners*.

MR&M: How do you like acting? Is performing on stage like acting?

DH: Performing "live" is the best. Film is slow. It's a matter of pacing and you get into it, but you don't get instant gratification like performing "live." And, it's not as mad.

MR&M: Chris mentioned that you are going to be recording another solo album soon?

DH: Yeah, he said something about doing it in the fall, but we're always a little bit behind.

MR&M: It's interesting that you just said, "Chris said..." It's your solo album isn't it?

DH: We're partners. We started out as partners and collaborators and went on from there. Oh no, he's not my boss [*she chuckles*]. I'm his boss. You're gonna start something here and never end it. Seriously, we have a really unusual kind of thing: most of the time we either agree completely or we're just so totally opposite that it works out.

MR&M: do you ever get tension from the other members in the band because of your relationship with Chris?

DH: It's more or less gotten to the point where everybody understands or is used to it. In the beginning, everything is difficult, no matter what. You're learning about the business; you're learning everything that you've got to do; so naturally, there's a lot of tension. But everybody is doing outside projects, so it's not only Chris and me.

We always had that in mind when we formed the corporation. It was part of our plan to have a music factory and do a bunch of stuff. For a while, Jimmy and Clem were doing a lot of outside production.

MR&M: Didn't you produce a band called the B-Girls?

DH: The B-Girls were really great: I don't know what ever happened with them. I produced a demo for them at the Power Station [New York]. We had a really good engineer. To me, the engineer is the one who really does everything and the producer is the one who has a rapport with the musicians. Sometimes even that is negligible, because sometimes the engineer has a better relationship.

MR&M: Do you have any technical expertise?

DH: No, not at all. I think most producers don't know what the hell they're doing [*Laughter*]. Really, a lot of producers don't know what to do in regard to setting up and running a board. Mike happens to know. He's been doing it for so long. Since he does a lot of the stuff himself, his engineers sometimes get bored. But, if I don't have an engineer there when I produce, nothing is going to go on the tape.

MR&M: Do you want to produce again, maybe for Chris's label?

DH: No not really; I don't enjoy it that much.

BLONDIE EQUIPMENT LIST

Chris Stein:
Burns guitars—Black Bison, Scorpion and Steer models
Gibson L5S
Redmere Amp

Jimmy Destri:
Yamaha GSZ KB
Farfisa Compact Duo Organ
Polymoog
Oberheim Sequencer Modules (2)
Moog Vocoder
Tapco C-12 Mixing Console
307 Wires
Melody Maker guitar
Yamaha Rack with Leslie Speaker Amp
Harmonica

Clem Burke:
Premier Resonator Kit with:
1 12x5 rack tom
1 16x16 floor tom
1 16x18 floor tom
1 14x24 bass drum
1 8x14 wood snare
2 18" Zildjian crash
1 19" Zildjian crash
1 22" Zildjian ride
1 20" Chinese cymbal
2 15" Hi-hat cymbals
Premier "Lock-fast" stands

Nigel Harrison:
Fender Precision (1959)
Fender Precision (1974)
Custom-made WAL Bass
2 Marshall 4x12 Speakers
Marshall 200-watt head
Roland Jupiter 8 Synthesizer

DIRECT TO DISC JAZZ ALL-STARS

by Robert Pierce Mer[illegible]

The so-called "audiophile" record market has grown considerably in the last few years even though the record industry in general has been experiencing its worst-ever sales slump. It seems that the consumer with better and more sophisticated sound equipment is now demanding higher quality records for that equipment, and is willing to pay $12 to $20 per record to get it. The major labels who used to laugh at the small "specialty" labels are now trying to get in on the act themselves, but the premium disc market is still dominated by the independents who saw a void, and have been filling it. One of the most successful labels catering to the audiophile buyer is Nautilus Records of Shell Beach, California. Best known for its half-speed re-mastered versions of hit product from the likes of Fleetwood Mac, Linda Ronstadt and The Police, Nautilus continues to record new *product in the form of high-quality analog recordings, digitally recorded or mixed material and direct-to-disc projects. Recently the label invited* Modern Recording & Music *to sit in at a new direct-to-disc session for veteran pianist/percussionist Victor Feldman. The date turned out to be a mini-supersession of sorts with some of the most respected jazz/fusion musicians on the scene today, and the cream of the Los Angeles crop of engineers and technicians.*

The players on the session were Lee Ritenour, guitar; Harvey Mason, drums; Hubert Laws, flute; Alex Acuna and Milt Holland, percussion; Abraham Labories, bass; and Feldman on piano and percussion with Ed Karam conducting. MR&M *covered the two-day event and was able to get a few words from Feldman, his 20 year old son Josh (who produced the LP), engineer Alan Sides and guitarist Lee Ritenour, about their feelings on the difficult task of recording in the direct-to-disc format. We also talked with Nautilus Records president, Steve Krause, about his company's somewhat different approach to the business of making records.*

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Victor Feldman's credits would fill a book, but for those who are not familiar with the British-born musician, he's been playing professionally for over forty years and has appeared on thousands of pop and jazz records; on over a thousand motion picture and television soundtracks; worked on stage with Glenn Miller, Benny Goodman, Miles Davis, Joni Mitchell, Woody Herman, Shelly Manne, Cannonball Adderley and the L.A. Express, just for starters. The biggest rock names including the Doobie Brothers, Steely Dan and Carly Simon, regularly enlist his talents. He has written two books, many songs, and recorded a dozen of his own albums. The new project detailed herein is his second for Nautilus.

Modern Recording & Music: Victor, for those unfamiliar with the direct-to-disc process, how does it differ from the more common analogue tape session?

Victor Feldman: Well, the big difference of course is that the session is recorded directly from the studio to the master lacquer disc, which is cut as the performance is played. This means everything has to be done "live." There is no tape involved, and no way to go back and "fix it in the mix." Once the cutting head is down on the lacquer master, the whole side must be cut in one pass; a mistake anywhere in the chain, from the musicians, to the engineer at the console, or at the cutting lathe, means that the whole side must be cut again.

MR&M: How involved with the actual production are you on this record? Are you into the technical end of things?

VF: I'm really not into the technical end... I leave that to Alan [Sides] and Josh. I did put the musicians together and write the tunes and the charts. Actually, I didn't write all of the songs—my 18-year-old son Jake wrote one of them. Being able to have the best musicians around takes a great deal of the pressure off me. These guys have all worked direct-to-disc before and know the score. Josh, Alan Sides and Kevin Gray, the cutting engineer, had the real pressure from the technical standpoint.

MR&M: This is your second LP for Nautilus. How did the relationship between you and the label develop?

VF: Actually, the first record, *In My Pocket*, was recorded for Kevin Gray's Cohearent Sound label. We had heard about Nautilus and went to see them about distributing the album and immediately liked the people there. We had intended to do this second project for years, and it just took us this long to get it together. Nautilus is one of the few labels still functioning that has music people involved. They're really interested in the artist and seem to care about the product and the customer who buys it.

MR&M: Josh, I know that there is more than just a direct-to-disc master being cut this time. Tell us about that.

Josh Feldman: The project *is* first and foremost a direct-to-disc recording, but when we thought about how long it had taken to come together, and realized that we were going to have some of the best talent in the business on hand, we decided to try to cover every possible base. We decided to make a "live" 30 ips, ½-inch copy just in case. Then we thought it would be a good idea to make a regular 15 ips copy and a dbx encoded 15 ips in addition, in case we someday wanted to have a dbx audiophile version. We also had Spectrum Studios of Venice, California, bring in two Sony BVU 200 video recorders and the Sony PCM 1600 Digital Recording System and make an additional "live"/stereo/digital master, at the same time. As it turned out, we were lucky to get a couple of excellent passes for the direct-to-disc masters, and will probably never need the other copies. We are very pleased with the way everything went.

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Alan Sides, who engineered the session, owns his own studio in Hollywood, Ocean Way Sound (once part of the United Western complex). He is no stranger to the direct-to-disc process, and worked the board on Feldman's last LP for Nautilus.

MR&M: Why was the MCA/Whitney studio in Glendale, Ca. chosen for the project?

Alan Sides: We needed a place that had a cutting lathe... we wanted two in fact, and Whitney is one of the few places that has two. Once you have a good lacquer cut, you can only make a limited number of pressings from it [approximately 1,500], so we wanted to be able to cut two at a time if possible. I also like the old Neve console at Whitney, it's a 1970 vintage that is quite different from the current models. I also like the room there.

MR&M: Did recording direct-to-disc require any different kind of set-up for the band, any special kind of equipment?

AS: I didn't have to set the band up any differently, but I brought in all of my own equipment for the session. Microphones, equalizers, amplifiers and limiters. I even brought in some JBL monitors that JBL loaned to me. I brought about seventeen microphones, and thirteen of them were old AKG C12s. I think they are just about the best around, and they are certainly better than anything AKG makes today. I'm always on the lookout for them [C12s] and pick them up whenever I can.

MR&M: Many engineers dread the thought of working direct-to-disc. What are your feelings on the subject?

AS: I love it. I find it tremendously exciting and I love the tension that builds up from doing it.

MR&M: What extra preparation was involved?

AS: To be honest, not very much. I heard Victor rehearsing the band the first day while we were setting up, and the next day we just went for it, and were real lucky. We had a couple of false starts and some technical prob-

lems, like a buzzing amp of Ritenour's, but everything got worked out and we came up with three perfect passes for side one, and two for side two. The musicians were wonderful, and Kevin Grey who did the cutting is fantastic. We are all quite pleased. The two Neumann cutting lathes, by the way, are excellent. They have been updated from the stock models with faster chips up front and a few other changes.

MR&M: The cutting room at Whitney is down the hall and out of sight and you had to communicate by telephone with Kevin. Is that a problem?

AS: You mean because I can't see him or the lathes? No, I don't think it would make much difference. I know what's going on there, after all, that *is* why we're here. We only had to start over once or twice.

* * *

The presence of Lee Ritenour at a session other than his own these days is somewhat of a rarity. For years he was one of the busiest studio musicians in the business, but the success of his personal career and its financial rewards have cut down his "guest" ap-

pearances considerably. Some of our chat with Lee follows.

MR&M: With your busy schedule these days, it's a surprise to see you here as a player. What's the story?

Lee Ritenour: Oh, I think everybody on this session is here for the same reason. We all love Victor and his music. I'm obviously not here for the money; I'm here because Victor called and asked me to play. It's funny, we've worked together on plenty of dates, but never for each other before. I'm sure I'll try to get him for one of my sessions sometime.

MR&M: How are you affected by the extra pressures of working direct-to-disc?

LR: I don't really see it as that much extra pressure. Harvey [Mason] and I have probably done more of this work than anyone here and we look at it as a very exciting way to record. It's always very challenging and we enjoy it.

MR&M: Do you use any special equipment for this kind of a session or have any special preparation?

LR: Not really. I do limit the amount of equipment that I carry with me to keep things from getting too complicated. I'm just using a straight set of Music Man amplifiers today, where I would usually have a couple of different types of amps.

MR&M: You say that you have limited the amount of gear for this date, yet you brought three guitars and a rack full of outboard equipment. What is all of that?

LR: [*Laughs*] Well, yes I do have three guitars here, but that's really minimal for me. I've got my Stratocaster, the custom Ibanez that that company built for me and my acoustic Guild that is also amplified for this date. I hope you don't want me to run down all of the stuff in the rack [*Laughs again*], but I suppose you do. I always take my pedalboard and the rack with me. It's basically just some Harmonizers™, a digital delay, a Prime Time delay, some Ibanez effects and some different compressors and things. It's [the rack equipment] great for sessions like this because everything is silent and available at the flip of a switch. It's also very easy to transport.

MR&M: This break in recording has lasted about forty minutes because of a technical problem. Do these things upset you at a session or do you easily adjust?

LR: Oh no. They don't bother me at all. You expect these problems with direct-to-disc. This one is actually going very well. It's all part of the game. Having to cut a complete side keeps you on your toes and keeps the adrenalin flowing. You do make mistakes, it's impossible not to, but that's all part of the excitement. And in the end, you do capture something that you can't get in any other format. Victor's music is really suited for direct-to-disc, there's plenty of punch and excitement with all of the percussion used.

MR&M: What about Lee Ritenour and direct-to-disc records. I noticed that Nautilus has three of your JVC direct mastered LPs in its catalog. Are there more on the way?

LR: I still owe JVC one. My recent studio albums for Electra have been so different from this, that I'm actually looking forward to doing another direct-to-disc. I'm not sure when it will be, though.

* * *

Steve Krause, the president of Nautilus Records, was on hand for the Feldman event, and MR&M *cornered him for a few comments on the audiophile record business.*

MR&M: Why do you think that labels like Nautilus are doing well when the majors are having so much trouble today?

Steven Krause: Gee, there are a lot of reasons. We like to think that we are really unique in many ways. For years the majors laughed at operations like ours. They couldn't believe that people would pay [extra] for quality records. Our records, whether they are half speed re-mastered product or digital recordings or direct-to-disc records like this one, are premium quality from start to finish. We press here in the U.S. at KM Records pressing facilities in Burbank, using very costly virgin vinyl imported from Germany. We guarantee the quality, and any customer who is unhappy with a record can return it to the dealer with no questions asked. We also offer some types of music that the majors just don't seem to think merit release. Our whole company is into the music and I think it shows.

MR&M: Some major labels say there is no money in this kind of product. Do you actually make a profit?

SK: Of course we make a profit. There are currently over forty titles in our catalog. Everyone of them has made money. We don't have the kind of money the big guys have for budgets, but the artists who have recorded for us have *all* been aware of that fact, and done their best to help keep costs down. We treat artists like human beings, not property, and many of them who have been treated like children by the majors appreciate that fact and we all work together. When we come up with a budget, we get out of the way and let the artists create their music without pressure from us. With small, reasonable budgets, we are not forced to sell 200,000 copies to make money. We don't even have to sell 100,000 [the Feldman project cost around $20,000]. In fact, we can sell much less than that and make a profit.

MR&M: How do you keep an artist within that budget?

SK: We don't "keep" an artist within a budget. He does it himself. Not one single project has ever gone over budget. To be honest, every record we have ever done has come in *under* budget. I'm telling you, these artists, whether they are Victor Feldman or

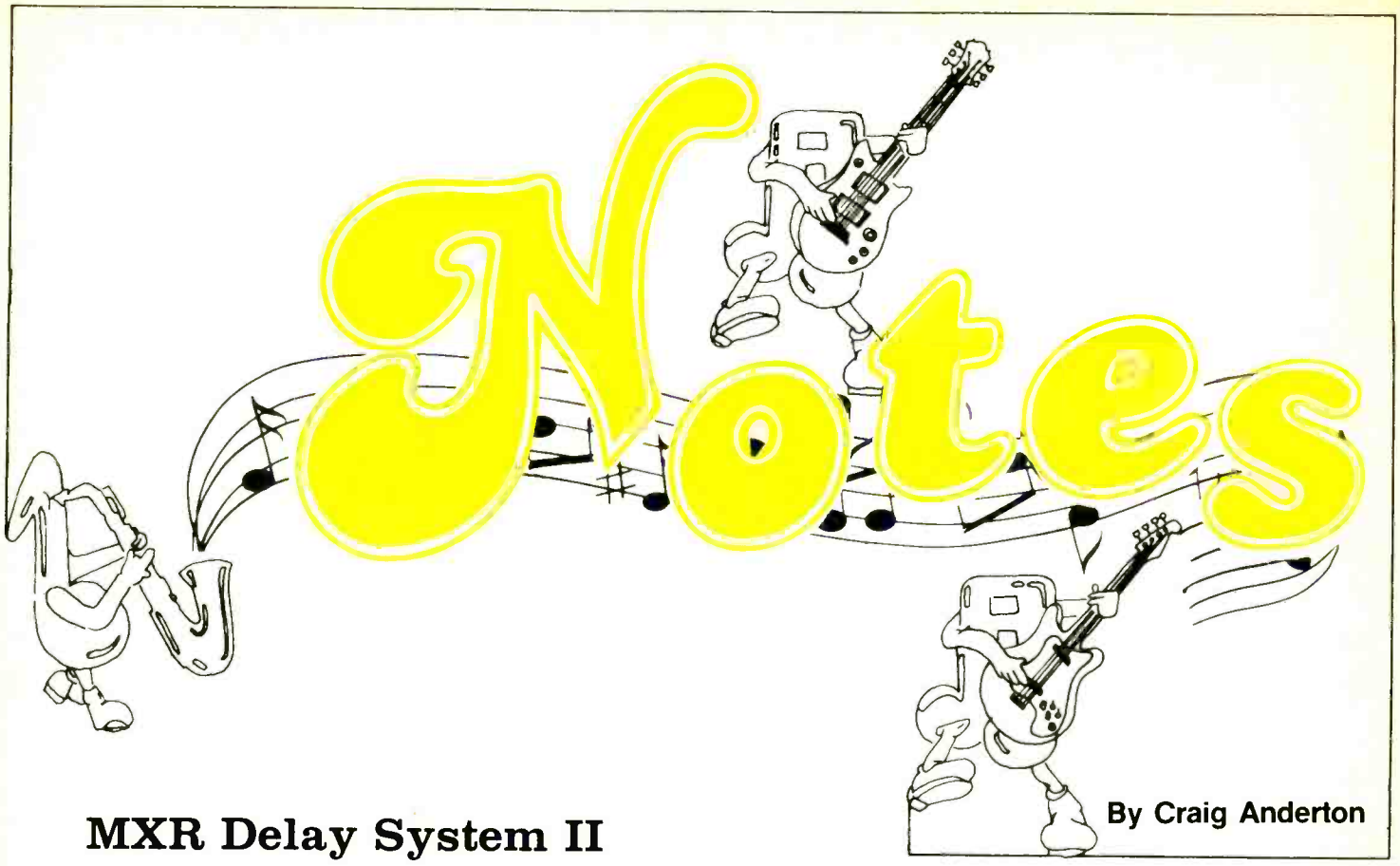
John Klemmer, or whoever, know that we are all working together and they go out of their way to help us.

MR&M: Who actually buys audiophile product?

SK: The people who buy audiophile records are people who want quality pressings and sonically stunning product. There are lots of them out there. We get very little airplay and although we would love to have it, we don't expect it or count on it. We sell our records by word of mouth or with the help of salesmen who know the product well. We are now doing 80% of our business through record stores because of the direct mastered hit product that is doing so well, but a record like Victor's will sell well in the audio specialty outlets and through the hard-core "audiophiles" around the country. There are customers and distributors waiting for this [Feldman] record now, and it doesn't even have a title or number yet. [The as yet untitled Feldman disc is scheduled for a June release.] They know they want it because of the last one, or just because they seem to enjoy almost all of our product.

MR&M: The major labels are no longer laughing at your type of operation. Some of them are even making their own audiophile product. Do you feel threatened?

SK: Sure we do. They see the money there and are coming after it. I don't think they can do the job as well as we can because the motivation is different. We still see this business as an art. Some will say that is a childish way to look at it, but we will just keep on making good records with care, and hope for the best.



MXR Delay System II

By Craig Anderton

Since being introduced several years ago, MXR's digital delays have served a number of studios well (I've used them from time to time on sessions myself). As a result, I was quite interested in seeing what MXR had come up with for its 1982 edition—particularly since the people at *Modern Recording & Music* have been on a streak lately of digging up some great equipment for me to look over.

Now, you might think that a digital delay review would be boring; I mean, how much can you say about delays that hasn't been said? Sure, there's always the analog vs. digital controversy, but frankly, I think just about everyone agrees that for short delays analog is king and for real long delays, digital is the only way to go. That leaves us with evaluating the musical efficiency of a device, and any extras which might differentiate a given unit from the rest of the pack. In that respect, the Delay System II does indeed have a few tricks up its sleeve... which we'll find out about during the course of this review.

WHAT is IT? Probably the best way to meet the Delay System II is by describing the controls; but first, just in case you've been hibernating for the past decade, *Figure 1* shows the basic block diagram of most any digital (or for that matter analog) delay unit. As you read the following control descriptions, you might like to refer to the block diagram occasionally to see how these controls fit into the signal flow.

The first thing you notice about the Delay System II is the big, four-digit LED readout which gives you the delay time

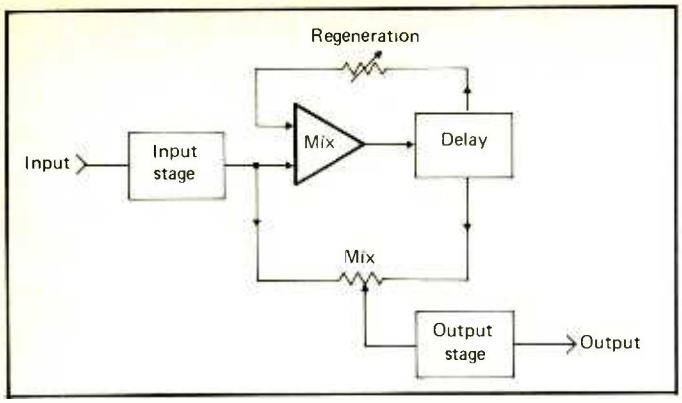


Fig. 1: Block diagram of basic delay unit.

in milliseconds. Look a little closer, and you'll see that the front panel has a plastic, fine-pebble finish protective covering, which also doubles as a filter to tone down the harshness associated with red LEDs. However, if you look down (or up) at the display from too much of an angle, the numbers look kind of fuzzy. That's not any real problem, but so that people don't think their eyes are going bonkers you might want to mount the unit at eye level. I should add that the cosmetics of the unit are quite nice; the MXR "basic-black-plus-blue-and-white highlights" not only looks good by itself, but also blends well into a rack full of equipment (the Delay System II is no stylistic prima donna, that's for sure). The protective covering mentioned earlier should help keep down problems with scratches, and if someone decides to fool around with the controls after wolfing down a bag of potato chips, no problem—the thing wipes clean easily. Now, you may not think cosmetics are that important, and technically, they aren't, but people respond to good-looking pieces of equipment, and MXR has done a good job in that respect.

There are two controls for setting the delay: *main* and *fine*. The main control is actually a 32-position rotary switch, which taps off different points along the delay line. In the model I tested, which had a full complement of memory, the delay time was variable from 7 ms. to just over 3.2 seconds (!).

The fine control varies the delay by 20% to let you get delays "between the cracks" of the main control (I measured a frequency change ratio of 1.3:1). As you change either control, it takes about 2 seconds for the display to respond and give you the new reading in milliseconds. That may not seem like a long time, but if you're trying to rapidly dial in a specific time setting then you do have to wait for the display to update.

I was first taken aback by the delay setting controls since turning either control clockwise gives *greater* delay times. This isn't the first unit I've seen whose controls work in this manner (the Loft 450 follows the same convention, for example), but over the years, I've gotten used to turning delay controls clockwise for *less* delay. If you think about it, with filters, oscillators and most signal processors a clockwise rotation traditionally means a higher frequency or shorter period; so one would think that clockwise would give tighter echoes. It's no big deal, but it sure would be nice if the industry had some kind of standards committee (like the computer and electronics industries do) to standardize such matters as nomenclature...and which direction knobs should turn.

In some respects, for setting delay times I prefer the keypad entry approach as typified by the Echo/Digital Recorder reviewed in my last *Notes* column [July 1982]. But then again, I'm used to generally knowing how much delay I want before I set the control. For those who like to tweak a knob and find that "just right" setting, they would be considerably more comfortable with MXR's approach.

After setting delay time, you can then modulate the amount of delay for chorusing and flanging effects. The modulation speed is variable from 0.1 Hz to 20 Hz, which certainly covers a wide enough range. The width control is another story. Like most digital delays, and unlike most analog delays, the sweep range of the Delay System II isn't all that great and so it will not deliver wide-range flanging effects. However, there is enough modulation capability for all your basic chorusing effects; adding a little bit of modulation to echoes also adds a pseudo-chorusing effect (echo plus chorus). It's difficult to get decent flanging out of any present-day digital delay, and the Delay System II is no exception. However, for virtually all other applications the modulation section is certainly adequate.

Moving right along to the audio section, we find a mix control (for varying the mix of dry and delayed sound), a dry defeat push on/push off push-button switch which optionally gives you the delayed sound only, and another push on/push off push-button switch for invert delay (which lets you alter the phase of the delay). The mix control is pretty standard; the dry defeat isn't, but is a very useful addition. I can just see some engineer at MXR wondering if it was worth the extra effort to include this switch. All I can say is *yes*. There are many times when you want to use a delay to create stereo simulation (*see Figure 2*), and in this situation you often want the delayed sound only. Rather than alter any particular mix setting you might have, it's real convenient just to push in the switch.

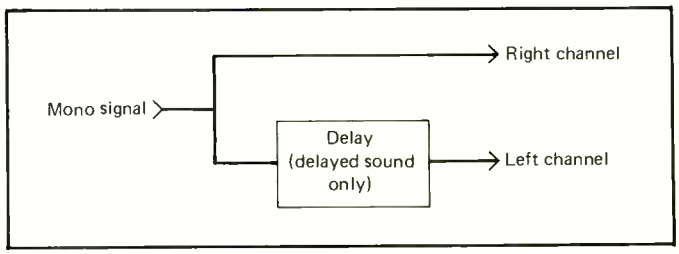


Fig. 2: Delay used to create stereo simulation.

The invert delay is useful, but you have to watch out for one anomaly: unlike the other switches, where pushing the switch in accomplishes the function written above the switch (e.g., pushing in the dry defeat switch provides the dry defeat function), the delay is inverted with the switch out and normal with the switch in. So, watch for that if you start having phase problems. It's possible that this is only the case with my unit, which, like most review units, was one of the first ones off the line. But just in case, you might want to monitor the output of the Delay System II with a 'scope and

make sure that you know which way the delay invert switch really works on your unit.

There's also a regeneration control which, as you might suspect, adds regeneration. This brings us to the level setting control and its associated LEDs.

There is a switch on the back to accommodate low-level or high-level studio signals, which is a good start. But MXR has added a few more wrinkles. First, there's a built-in limiter to prevent that awful "splattering" sound which occurs when you overload a delay line. So, no matter how much abuse you're heaping into the front end of the Delay System II, the limiter will help keep things under control. One LED shows when you're actually limiting, while another LED shows when you're 12 dB below the limit point (thoughtful). However, there is one thing I didn't quite understand. Although the level control is designed to preserve unity gain through the system as you turn it up or down, when you go into heavy limiting the signal through the delayed signal actually decreases. In fact, if I sent the Delay System II a signal which was just below the limiting point and then increased the level to cause lots of limiting, the output went down about 6 dB (voltage ratio). Granted a lot of limiting was taking place, but still, this seemed somewhat unusual for a control designed to keep unity gain through the system regardless of the particular adjustment.

There are three more push-button switches: power, delay bypass (which bypasses the delay effect and is also footswitchable via a jack on the back) and my favorite, repeat hold, which does a capture-and-hold of a signal going through the delay line (which, like delay bypass, is also footswitchable via a rear panel jack). This gives you lots of "toys and games" options such as tape loop simulation and some other tricks which we'll get into later. In the meantime, let's move along to setting up the Delay System II.

PRE-FLIGHT for the DELAY SYSTEM II: The Delay System II is mercifully simple to set up. There are input and output jacks on the back for ¼" phone plugs as well as XLR connectors, which means you can interface to both unbalanced and balanced consoles or tape decks. The only caution is that I would not plug a guitar directly into the phone jack input; the input impedance is less than 100 k Ohms, enough to load down the average guitar pickup and give a duller, muddier sound. Buffer the guitar or add a preamp first before feeding the Delay System II.

Once you're plugged in, you'll find that the unit is very simple to use. This is one device where you really don't have to read the instructions to get it working (not that I condone that sort of thing, mind you; it's more a tribute to MXR than a tribute to the consumer that I say that!). If you feed in too much signal, the limiter will kick in and if you don't see the level setting LEDs flashing around, then you know you had better feed in some more signal. After setting the levels you select the delay time, and away you go.

APPLYING the DELAY SYSTEM II: By now, probably just about every *Modern Recording & Music* reader knows how to get vibrato, chorusing, flanging, slapback, echo, stereo simulation and all those other common effects out of a delay line (if you don't, write in and we'll see about generating an article). So rather than re-hash that in excruciating detail, let's run a sonic evaluation and then get into some of the novel applications permitted by the "digital recording" option.

The Delay System II claims 800 ms. of delay at 16 kHz bandwidth, 1600 ms. at 8 kHz bandwidth and 3200 ms. (3.2 seconds) at 4 kHz bandwidth. Checking this with a 'scope verified these claims, although the bandwidth represents the 6 dB down (voltage ratio) point; response is not flat out to the frequencies indicated. And of course, you don't want to put high-level, high-frequency signals into just about any delay unit—the quantization (noise/distortion) effects can be pretty bizarre. Overall, though, the sound is clear, clean and quite good (especially for a relatively low cost unit such as the Delay System II). My acid test for delay lines is to feed in some of my electronic drums, which have wicked transients and lots of white noise. The Delay System II passed this test with flying colors. As a matter of fact, at one point I needed to delay the entire drum track coming off a tape by about 15 ms. for reasons too complex to go into here; the Delay System II gave me exactly what I wanted, and you couldn't really tell that the track had gone through a delay line. Best of all, the overall sound quality stays usable even at the very longest delays (although of course the bandwidth isn't as good).

But there are some other applications of the Delay System II which are most intriguing. First of all, MXR has provided jacks on the back for an aux loop which allows you to put signal processors in the system's feedback (regeneration) path. I tried using a phase shifter, which gave some nice effects, and also inserted an echo unit to generate syncopated echo sounds. Filtering is also useful in this loop, and there are probably several "knockout" sounds just waiting to be discovered by putting some magic combination of effects in that loop.

The Delay System II's "digital recording" capabilities open up many possibilities for repetitive, rhythmic sounds by recording them in the Delay System II (you can get up to 3.2 seconds of sound). The way you record is to play your instrument, and listen to the delay sound only (here's a place where the dry defeat switch comes in handy). Wait until the

"... almost everyone agrees: for short delays analog is king; for long delays, digital is the only way to go ..."

sound hits the delay line output, then hit the repeat hold switch immediately *after* the sound you want to "capture." For example, if the delay time is set to 1 second, hitting the repeat hold button will store the *preceding* one second of sound. It takes a bit of practice to get the hang of recording just the right amount of sound, but after a while you'll be punching in and out like an expert. You can also transpose this sound using the fine delay control (although the limited 1.3:1 sweep range doesn't give you a whole lot to play with), and you can shorten it by merely shortening the delay time. Note that turning the unit's power off wipes out anything you may have stored in memory, but as long as the unit receives power, the repeat hold will repeat, and repeat, and repeat, and repeat, and repeat...

For "Frippertronic" (tape loop backing) effects, you can put the unit in the standard echo mode, kick the regeneration way up, and noodle around until you get a nice wash of echoed sound. Hit the repeat hold button, and that wash of sound then loops around in a rhythmic pattern (over which you can play something like a lead line) until you push the repeat hold button again to turn the loop off. Incidentally, there is an LED for this button which lets you know when the effect is engaged, and the footswitch jack on the back lets you bring the repeat hold effect in and out without having to keep your hands on the button.

"My acid test for delays is to feed in some electronic drums, which have wicked transients and lots of white noise."

Ah, but that's not all. Record a sound while the unit is in an 8 kHz bandwidth setting, change the time delay to a 16 kHz setting, and not only will the loop time decrease, the pitch will go up exactly one octave (this will also happen if you record at 4 kHz bandwidth and play back at 8 kHz; play this sound back at 16 kHz, and the sound goes up two octaves). Laurie Anderson (among others) would have fun with this option!

When going in reverse—say, recording at 8 kHz and playing back at 4 kHz bandwidth—the sound drops an octave. However, suppose you record a sound for 1 second (a delay which occurs at the 8 kHz bandwidth setting), and play it back with the main delay set at 2 seconds (a delay which occurs at the 16 kHz bandwidth setting). The sound will be dropped down an octave, but you'll also have some additional space at the end since the period has been lengthened.

Whenever you play with a piece of high-tech equipment, sometimes the effects which are the most fun are the ones you stumble on by accident. With the Delay System II, I found that you could load a sound into, say, the full 3.2 seconds of memory. Then, by setting the main delay control to 2 seconds, you could loop that sound as well; when you set the main delay back to 3.2 seconds, you would hear those 2 seconds of sound you recorded, followed by the last 1.2 seconds of the first sound which you recorded. This has some interesting applications for creating more complex loops than you think might be possible with a simple "digital recording" option. You can also record sounds of different time intervals, at different bandwidths, to create looped combinations of pitch shifted (octave up or octave down sounds) and non-pitch shifted sounds.

Now, I should emphasize in all this that we're talking about a feature which is not exactly predictable and repeatable; after all, you have to select the right delay settings, and you have to punch the repeat hold button at the exactly correct time. But sometimes predictability is not what you want—art is enamoured of chance, as they say, and I must say that by fooling around with recording voice, guitar, drums and other stuff into the delay line at various times and delay settings I ended up with some really fascinating sounds.

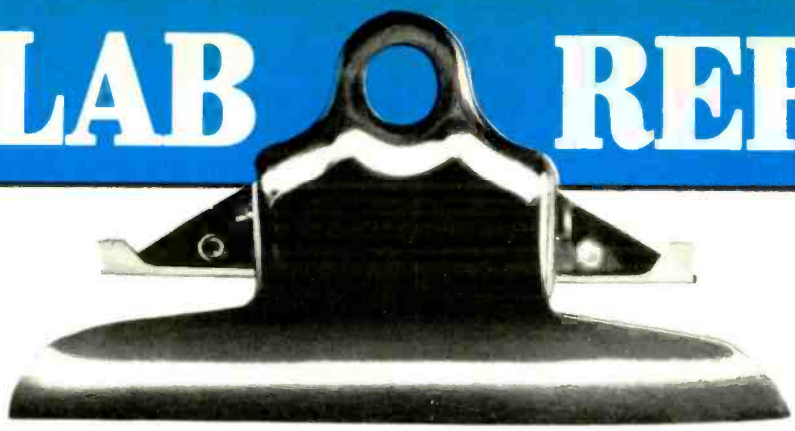
Is this a musically useful technique? Well, my first attempts sounded more novel than useful, yet, I started getting pretty good at this kind of thing and I bet with a little more practice, it would be possible to create some interesting types of music around rhythms based on "digital recording" loops.

Overall Evaluation: The Delay System II sounds good, is truly simple to use, gives you as much delay as is needed in an echo type unit and is comparatively inexpensive (it lists for $1,350). The convenience features are nice, and the digital recording option is certainly useful—especially since you can record up to 3.2 seconds of sound, a reasonably long amount of time to work with.

So, the Delay System II is a cost-effective way to get delay, and does what it claims to do. But I wouldn't be surprised if what sucks you in for a few evenings of fun and games is the repeat hold button. That function really opens up a bunch of sounds which I can only describe as "musique concrete."

As an aside, a few days ago a friend of mine was saying that what the world really needs is a whole new kind of effect. Well, the "solid-state tape loop" fits that category. The more I play with the Echo/Digital Recorder (lots of recording time, but not so good fidelity) and the Delay System II (not as much recording time, but better fidelity), the more I'm convinced that some kind of modern, interesting music lies within those rhythms and patterns. The ability to set delay times accurately also means that you can record one loop on one track of a multi-channel recorder, then run a loop of the same length or half-length into another channel for a more complex sound.

Yes, delay lines are useful and fun. But if you buy a Delay System II and never fool around with the aux loop jacks or repeat hold button, that's your loss. You'll miss out on a lot of fascinating, and musically useful, effects.



NORMAN EISENBERG AND LEN FELDMAN

Hitachi D2200M Cassette Recorder

General Description: Hitachi's model D2200M is a three-head, two-motor stereo cassette deck with built-in microprocessor for optimizing recording parameters automatically. The system, known as ATRS (for Automatic Tape Response System), handles four tape types—normal, chrome, ferrichrome and metal—and the data for each type may be stored in the microprocessor and recalled later.

The record and play heads, while electrically separate, share a common housing which obviates the need for

azimuth alignment. Both Dolby-B and Dolby-C are incorporated in the recorder. Signal levels are shown on a digital fluorescent peak-reading meter with a peak-hold feature. A separate auxiliary indicator shows high-frequency peak levels as an aid in avoiding tape saturation when recording. In addition to the usual tape counter, the deck also has a lapsed time (in minutes and seconds) indicator. Unattended recording or playback is possible with the use of an external timer. An optional remote-control unit also may be used with the D2200M. For holding the ATRS data when power is removed from the deck, batteries are used. These are inserted into a small compartment at the rear of the machine.

The cassette compartment, near the left side of the front panel, is fitted with a sectioned head cover which may be hinged downward to gain access to the heads, capstans and pressure rollers for cleaning and degaussing. To the left of this section are the power off/on switch; the timer switch; the eject button; and an output level control. Above the cassette area are indicators for battery condition and for the ATRS procedure.

Transport controls, grouped in the center of the front panel, include buttons for rewind, fast-forward, playback, stop, record, pause and record-mute. These operate through a computer IC logic control arrangement. Above the transport buttons are the tape counter and the elapsed-time indicator with their respective reset switches. Below the transport controls is the automatic memory-rewind switch.

The meters are located at the upper right portion of the front panel. Below them are the ATRS controls; the Dolby controls; and the recording level controls (dual-concentric). Below this array are the four tape-select buttons; the tape/source monitor selector; a pair of microphone jacks; and a headphone jack. A small switch above the mic jacks chooses between mic or line inputs (no on-the-deck mixing).

Line-in and line-out signal jacks are at the rear, together with the battery compartment mentioned, and the socket for connecting the optional remote-control accessory. The deck's AC power cord is at the far right (viewed from the rear).

Test Results: We tested the Hitachi D2200M with three tape types—normal bias (Maxell XLI-S); high-bias (Sony UCX-S); and metal (Maxell MX). Results were mixed among the three tapes. For instance, the metal tape produced the best frequency response and, with Dolby-C, it achieved an excellent and impressive signal-to-noise ratio of 74.1 dB. However, the same S/N was reached with normal-bias tape which, interestingly, also gave us the lowest distortion reading. On the other hand, response with normal-bias tape was somewhat disappointing, falling below its spec with the -3 dB point at 14.5 kHz rather than at the claimed frequency of 18 kHz.

Response for normal tape is shown in *Fig. 1*, with both the 0 dB and the -20 dB recording levels depicted (upper and lower curves, respectively). Response with high-bias tape was right "on target" as shown in *Fig. 2*. Response

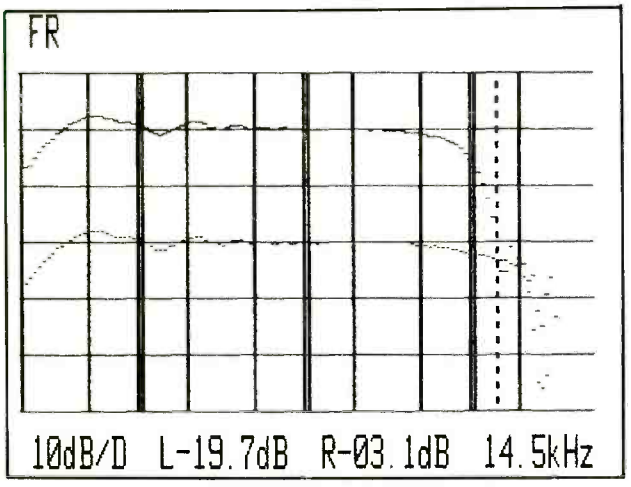


Fig. 1: Hitachi D2200M: Record/play response at 0 dB (upper curve) and -20 dB levels, using Maxell XLI-S tape.

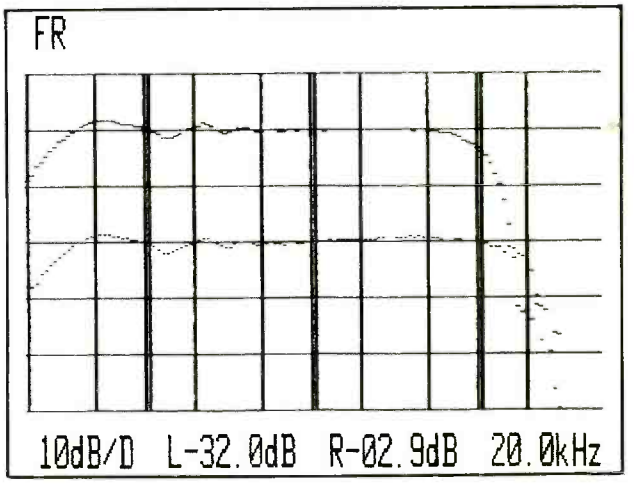


Fig. 2: Hitachi D2200M: Record/play response at 0 and -20 dB levels (Sony UCX-S tape).

for the metal tape sample went beyond spec (*see Fig. 3*). All three tapes were first subjected to the Hitachi ATRS procedure which, from all appearances, involves the use of 1-kHz and 14-kHz built-in test tones, and some fast analysis by the microprocessor as it quickly winds the tape back and forth (about 10 seconds' time).

In *Fig. 4* we show the playback-only response of a special test tape which was made for use with our Sound Technology 1500A Tape Tester. As may be seen, response at the -3 dB point extended to 15.5 kHz. Here, of course, no ATRS procedure was used since that procedure involves recording and playing back test tones produced by the deck itself.

Third-order distortion versus record level for the three tapes we used is shown in the plots of *Figs. 5, 6* and *7*. In each case we set the dotted-line cursor to read that +dB level (above a standard reference 0 dB which Hitachi has wisely chosen as Dolby level, or 200 nWb/m) which results in approximately 3-percent distortion, using a mid-frequency test tone. The very high +8 dB headroom observed for normal-bias tape suggests that perhaps the ATRS over-biased the deck for that tape a bit. This would explain the high-end rolloff, as well as the rather low distortion (0.5 percent) at 0 dB recording level noted for the normal-bias tape. This data is shown in the "Vital Statistics" table and on the graphs. Note that the double vertical line on the graphs represents "0 dB reference" for all the tapes sampled.

The test results using Dolby B and Dolby C are listed in the Vital Statistics table. For purposes of the graph display here, we chose to show comparisons of "no Dolby" versus Dolby-C. (*Figs. 8, 9,* and *10*). The dB figures at the top of each of these graphs offer this comparison. For example, in the case of the normal-bias tape, we measured 57.2 dB without Dolby, and 74.1 dB using Dolby-C. The curves plotted below, on each graph, represent the actual noise distribution (using CCIR/ARM weighting) in third-octave increments. In *Figs. 9* and *10*, only the noise distribution for operation without Dolby is plotted, although the figures shown at the top of these graphs do provide the S/N values with and without Dolby-C, as in *Fig. 8*.

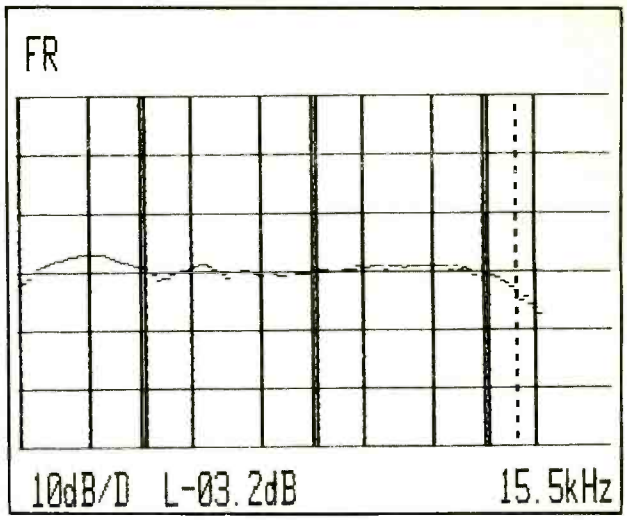


Fig. 4: Hitachi D2200M: Playback-only response using test tape and "normal" tape selector setting.

Wow-and-flutter, while not quite as low as claimed, was still remarkably low at 0.022 percent WRMS. Interestingly, the major component of wow-and-flutter was at 20 Hz (see *Fig. 11*), a frequency of speed variation that is really more flutter than wow. Variation of speed at that repetition rate is less audible than "wow" variations which are generally considered to be in the frequency region below 10 Hz. Thus the audible effect of the 0.022 percent wow-and-flutter figure is even lower than the already low figure itself would suggest. Actually, this is about as low a figure for wow-and-flutter as we have ever measured for a

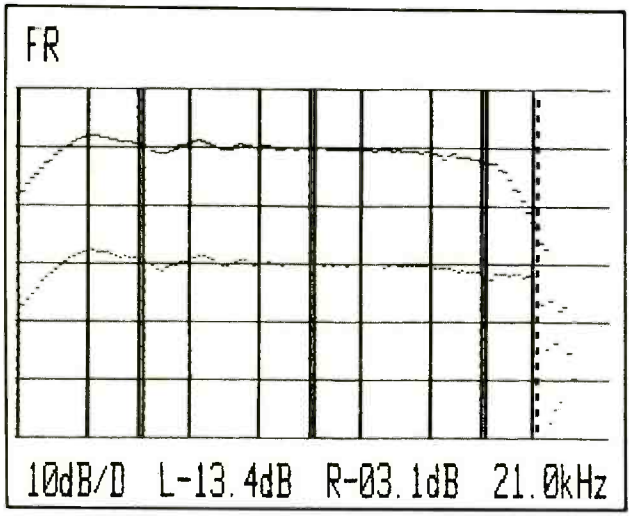


Fig. 3: Hitachi D2200M: Record/play response at 0 and -20 dB level (Maxell MX metal tape).

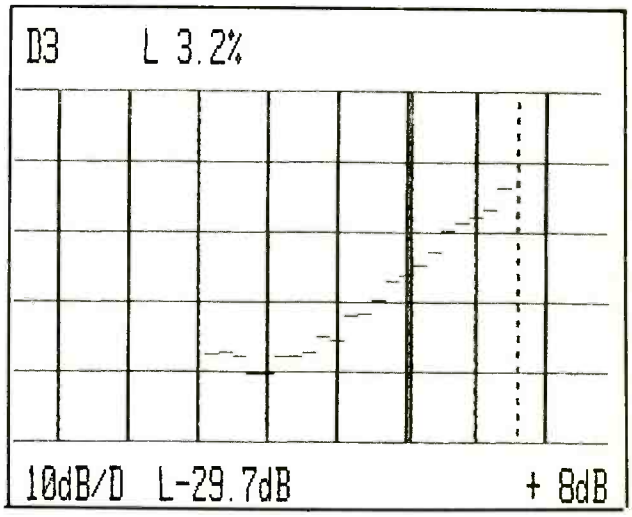


Fig. 5: Hitachi D2200M: Third-order distortion vs. record level using "normal" tape sample.

cassette deck operating at the standard speed of 1⅞ ips. In fact it is even lower than the wow-and-flutter often found in open-reel machines operating at their much higher speeds.

Absolute speed and accuracy of the Hitachi D2200M deck, during its first five minutes of operation, was off by 0.53 percent, a speed error considered not to be very serious compared to that of many competing decks.

General Info: Dimensions are 17.13 inches wide; 5.9 inches high; 11.1 inches deep. Weight is 16 pounds. Price: $750.

Individual Comment by L. F.: Hitachi calls it ATRS (for Automatic Tape Response System). JVC, I believe, calls it BEST (for Bias, Equalization, Sensitivity Test). Nakamichi calls it ABLE (for Azimuth, Bias, Level and Equalization adjustment). I call it just plain terrific. The process of optimizing recording parameters automatically to suit just about any brand or type of cassette tape is becoming simpler and simpler, thanks to microprocessor control. In the case of this Hitachi deck, it's simpler than, and about as fast as, any such automatic adjustment system that I have seen thus far. It may, in fact, be just a bit too fast, judging by the response curve (*Fig. 1*) taken for our sample of normal-bias tape. In any case, response for the other two tapes was as claimed, or better.

The ATRS process takes no more than 10 seconds or so and is well worth doing, even though you could get by with the "fixed" bias and EQ settings if you don't have the patience to wait ten seconds.

The combining of the record and play heads in a single package eliminated any azimuth problems or adjustment requirements for this machine. Its monitoring capability is very welcome, and it worked perfectly. So too did the IC logic controls and all the extra features such as the real-time elapsed counter and the memory rewind and play function. A clever innovation, I thought, is the separate high-frequency peak-level indicators which are designed to let you know when you are reaching tape saturation at such treble frequencies. These extra metering indicators work completely independently of the regular fluorescent display meters whose peak-hold delay feature I also found to be quite worthwhile.

All in all, I found that the Hitachi D2200M deck was easy to use, and a good performer mechanically and electrically. It is decks such as this one that constantly remind us just how far the cassette tape format has come in the past decade.

Individual Comment by N.E.: The Hitachi D2200M has some basic design attributes of interest to

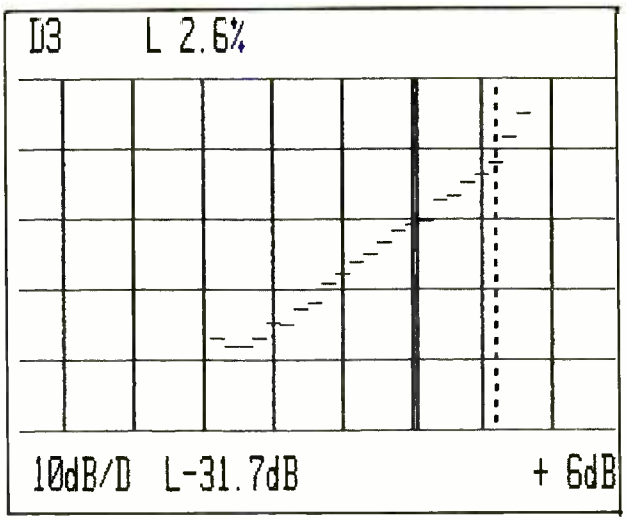


Fig. 7: Hitachi D2200M: Third-order distortion vs. record level using metal tape sample.

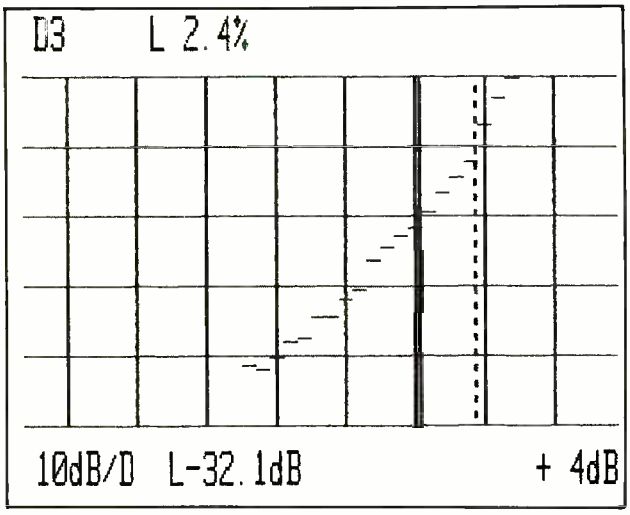


Fig. 6: Hitachi D2200M: Third-order distortion vs. record level using "high-bias" tape sample.

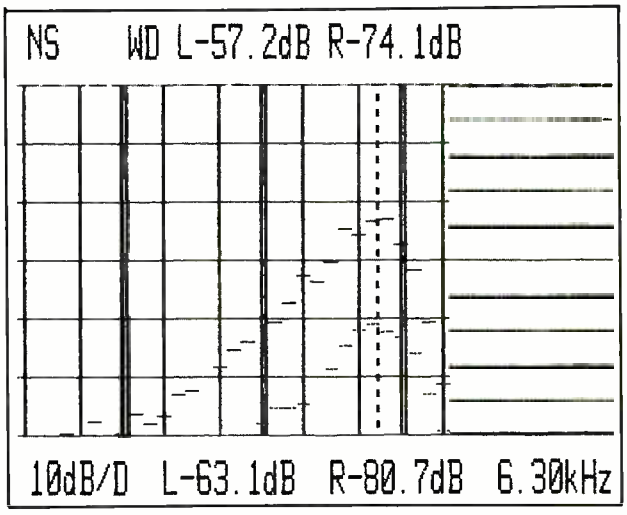


Fig. 8: Hitachi D2200M: S/N with and without Dolby C (normal tape samples).

the serious recordist working with the cassette format. That is to say, its head configuration permits direct off-the-tape monitoring while recording; its transport system works smoothly and with commendably low wow-and-flutter and with gentle handling of the tape; its built-in noise reduction facility includes the recent Dolby-C which does wonderful things for signal-to-noise.

What gives me some cause-for-pause thought about this machine (at least our particular test sample) is the apparent inconsistency among the various critical measurements we got for the different tapes we tested on it. If you make a chart comparing response, S/N, record level and distortion for the three tapes used on the D2200M in our tests, you find that not everything comes out quite as may have been expected. You notice, for instance, that normal-bias tape fell short of expected high-end response, but that it actually had the lowest distortion and the highest headroom. And it was also the equal of the metal tape in signal-to-noise when used with Dolby-C, and actually a little better than metal tape in S/N without Dolby or with Dolby-B.

The high-bias tape produced better response, of course, almost as good as that of the metal tape. Its distortion, however, was higher than that of normal-bias tape, though still lower than that for the metal tape. Its S/N was just a shade below that of the other two tapes with Dolby-C, a jot poorer than normal-bias tape with no Dolby, but better than the other two with Dolby-B. It also had the lowest headroom of the three tapes.

Metal tape on this deck had the best response but with the highest distortion (at that time it was still below the 1-percent mark). Its recording headroom was better than that for high-bias tape, but not as high as that for normal-bias tape. Its S/N with no Dolby was not as good as for the other two tapes. Its S/N with Dolby-B showed a similar ranking. Its S/N with Dolby-C did make an excellent 74.1 dB but this was no better than with normal-bias tape.

We have noted in the past that not all cassette decks with metal-tape capability do exhibit superiority in all tested areas for the metal tape as opposed to the other tapes. But here the differences seem a bit more confusing than usual. What all this adds up to in terms of the deck's internal circuitry and/or the workings of its ATRS microprocessor I cannot say. I think, in the last analysis, if I had to make a choice of which tape to use with the D2200M, it would be the high-bias tape. Someone else, looking for 2 dB more of headroom and not concerned about the added 0.08 percent of distortion might opt for metal tape.

Readers of these reports will know, of course, that I for one am not enamored of the microprocessor-controlled automatic adjustment trend among tape decks. I still feel that if one is going to be all that critical about optimizing a cassette deck for different tapes, a selector switch or switches plus a fine-bias adjustment with some means of verifying that adjustment, as on the meters, is a superior way of doing it. After all, we know that tape characteristics vary among the same kinds of tape of the same brand, and so a one-time adjustment (by computer or manually) does not necessarily mean that all subsequent tapes of that same brand and type will require exactly the same set of adjustments for optimum performance.

On the other hand, you can take the view that with cassettes, response and so on just aren't all that critical, unless you are into a price-range for the deck that exceeds this one by double or three-times the amount. At its announced price of $750 the Hitachi D2200M does offer a lot of goodies, and—with high-bias or metal tape—it does sound very good. I especially liked the inclusion of both a conventional tape counter and a time-lapsed indicator. At first I though this was a redundancy, but then I realized that having both types of indication can prove very helpful in relating available tape remaining with available time for a given recording stint.

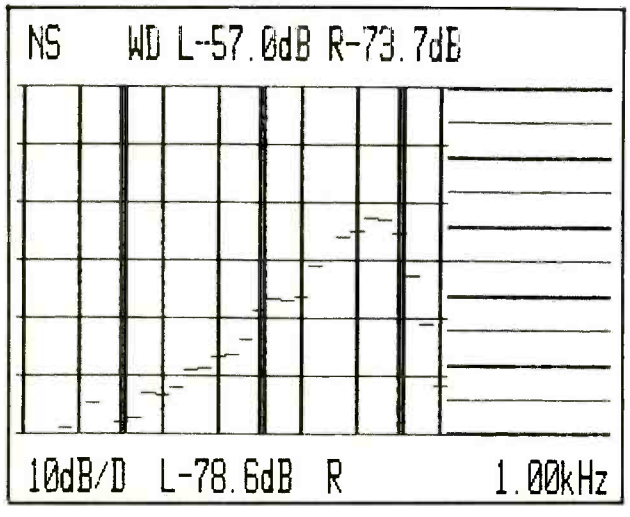


Fig. 9: Hitachi D2200M: S/N with and without Dolby C (high-bias tape sample).

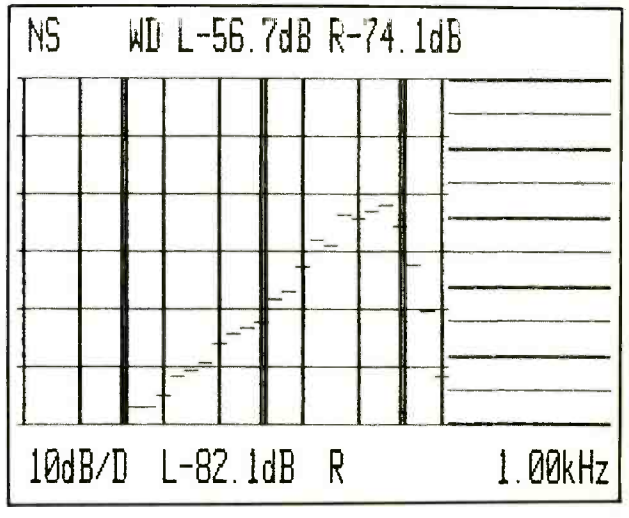


Fig. 10: Hitachi D2200M: S/N with and without Dolby C (metal tape sample).

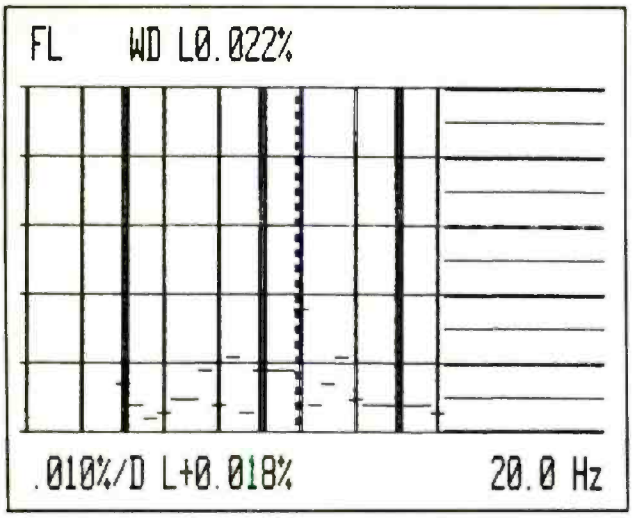


Fig. 11: Hitachi D2200M: Wow-and-flutter components.

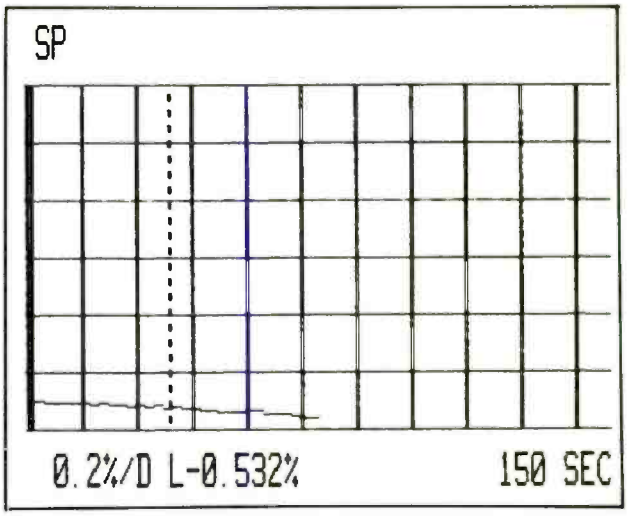


Fig. 12: Hitachi D2200M: Speed accuracy plotted for first five minutes of operation.

HITACHI D2200M CASSETTE RECORDER: Vital Statistics

PERFORMANCE CHARACTERISTIC	MANUFACTURER'S SPEC	LAB MEASUREMENT
Frequency response		
normal bias tape	±3 dB, 30 Hz to 18 kHz	±3 dB, 27 Hz to 14.5 kHz
high-bias tape	±3 dB, 30 Hz to 20 kHz	±3 dB, 27 Hz to 20 kHz
metal tape	±3 dB, 30 Hz to 20 kHz	±3 dB, 27 Hz to 21 kHz
Signal-to-noise ratio re 3%		
3rd-order distortion record level,		
w/o Dolby		
normal bias	NA	57.2 dB
high bias	NA	57.0 dB
metal	61 dB	56.7 dB
w/Dolby-B; w/Dolby-C		
normal-bias	NA; NA	67.1; 74.1 dB
high-bias	NA; NA	67.4; 73.7 dB
metal	69; 75 dB	66.8; 74.1 dB
Record level for 3% 3rd-order distortion		
(0 dB = 200 nWb/m		
normal-bias	NA	+8.5 dB
high-bias	NA	+4.5 dB
metal	NA	+6.5 dB
3rd-order distortion at		
0 dB record level		
normal-bias	0.8%	0.5%
high-bias	0.8%	0.85%
metal	0.8%	0.93%
Wow-and-flutter (WRMS)	0.019%	0.022%
Speed accuracy	NA	-0.53%
Line input sensitivity, 0 dB	100 mV	110 mV
Mic input sensitivity, 0 dB	0.4 mV	0.4 mV
Line output level, 0 dB	500 mV, adjustable	503 mV maximum
Headphone output level, 0 dB	NA	100 mV, 8 ohms
Fast-wind time, C-60	NA	62 seconds
Bias frequency	105 kHz	confirmed
Power consumption	36 watts	34 watts

Teac Tascam 34 Tape Recorder Reproducer

General Description: This new machine in Teac's Tascam series of pro-grade equipment is designed for four-track work with an external recording mixer (Teac recommends the Tascam M-30). A three-head, three-motor deck, the Tascam 34 is a two-speed model, 15 and 7½ ips. It takes reels up to the full NAB size of 10½ inches. Among its useful features are built-in sync; four separate VU meters; feather-touch transport controls with fast-buttoning; an edit switch that permits spill or dump editing; a pitch control that operates in both record and play modes; a cue lever that defeats the fast-wind tape lifters so that a signal may be heard in fast-wind. It does not have microphone inputs or a headphone input; these, together with the mixing facility, are expected to be furnished on associated equipment that logically would be used in a professional setup.

Centered on the head cover is a four-digit tape counter together with a zero-return button (allowing rewind to locate one spot on the tape without the use of the cue lever), and a normal reset button. The head-cover itself may be lifted for access to the heads. The tape threads past a tension arm and impedance roller from the feed side, and runs up to the take-up reel via pinch-roller and capstan plus the shutoff arm.

Controls ranged across the deck just below the transport section include power off/on; the reel-size switch; the speed selector; the edit switch; the pitch control (+12 percent variation); the cue lever; the transport buttons (rewind; fast-forward; stop; play; pause; record).

Below are the four meters, numbered for each channel. Above the channel 1 meter (extreme left) are the function-select buttons and their respective LED indicators for record or play on each of the four channels. Above the channel 4 meter (extreme right) are the output select buttons and their LED indicators for input, sync and reproduce. Signals selected by these buttons are fed to the output jacks and to the VU meters.

The rear of the model 34 has a recessed panel with pin-jacks for inputs and outputs, all unbalanced. In addition there is a multi-pin connector for use with an optional remote-control unit (the model RC-71), another connector for interfacing the deck with the optional dbx noise reduction unit (model DX-4D) and a third connector for an optional punch in/out remote control (model RC-30P). The deck's AC power cord completes the rear picture.

The model 34 may be used vertically, or installed on its "back" so that the deck surface faces upward. Additional accessories permit standard rack-mounting.

The deck is supplied with a combined operation and maintenance manual which includes detailed instructions for head alignment and electrical adjustments.

Test Results: In lab and use tests, the Tascam 34 impressed us as a top performer in the 4-track open-reel class. Published specs were generally met or exceeded, and all functions operated smoothly and effectively. The test results shown in our "Vital Statistics" table, and the accompanying graphs, require some elaboration.

In both *Figures 1* and *2* we have plotted the record/playback frequency response at two record levels. One level is 0 dB (which, according to Teac and and fully confirmed in our lab, corresponds to 250 nWb/m). This 0-dB level is represented by the upper curves in *Figs. 1* and *2*.

We also plotted the response at -10 dB (the lower curves in the graphs). In the readings below each graph, the "L" dB reading—e.g., -2.4 dB at 25 kHz in *Fig. 1*—represents the higher record-level result (0 dB); the "R" reading—e.g., 1.8 dB at 25 kHz in *Fig. 1*—represents the -10 dB results. In *Fig. 1* we used the 15-ips speed, and it is obvious that the response is almost identical for both record levels, although only the "0 dB" result is repeated in the "Vital Statistics" table since that is the spec given by Teac. In *Fig. 2*, while two levels again were used, the result shown in the "Vital Statistics" table (±3 dB, 33 Hz to 21 kHz) is for the -10 dB level since, again, that ties in with Teac's published specs.

To determine the actual "headroom" (for 3-percent distortion) figures, we had to readjust our input level reference, since our Sound Technology 1500A's automatic distortion plotter supplies only signals about 10 dB higher than "0 dB reference" and the Model 34 has more headroom than that. For this reason, the cursor in *Fig. 3* (and the readout) is set to "-10 dB." That figure now becomes the real "0 dB" reference, and so the double line vertical line in *Fig. 3* actually is +10 dB. Accordingly, the maximum output level (for 3 percent 3rd-order distortion) is another 2 dB above that. In other words, the actual

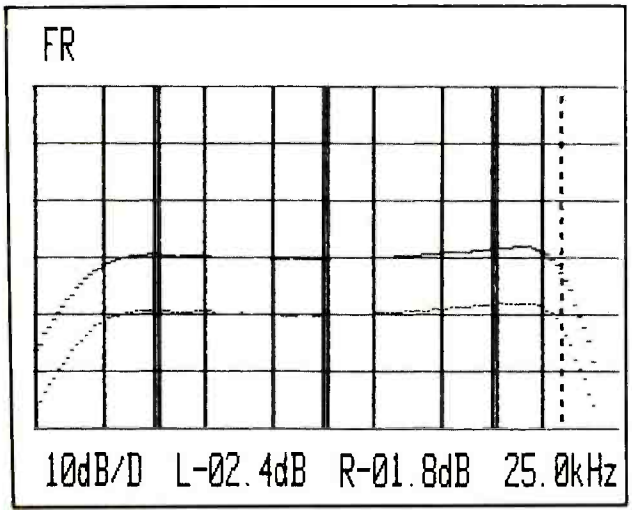


Fig. 1: Tascam 34: Frequency response, record/reproduce, using 15 ips speed. Levels are at "0 dB" and "-10 dB."

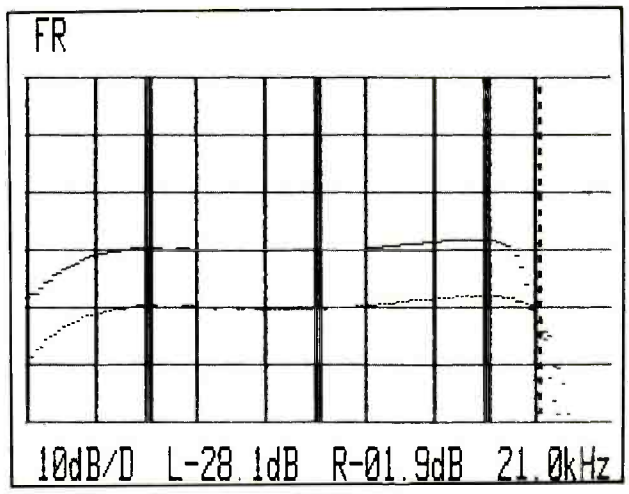


Fig. 2: Tascam 34: Same as *Figure 1* except measured at 7½ ips speed.

headroom works out to be +12 dB, referred to the original 250 nWb/m 0-dB reference point listed by Teac.

That same headroom, incidentally, was achieved even at the slower (7½ ips) speed, and so we did not plot another curve of 3rd-order distortion for that speed, although "0 dB" distortion actually was a bit lower (0.21 percent) than it was at the faster speed.

With the particular tape used in our tests (Maxell UD-XL), the 15 ips signal-to-noise. (A-weighted) didn't quite make the 68 dB claimed by Teac, but we certainly would not "blame" the deck for that, but rather the differences between Teac's reference tape sample and ours. In any event, the difference is just a bit more than a dB, and—it should be remembered—

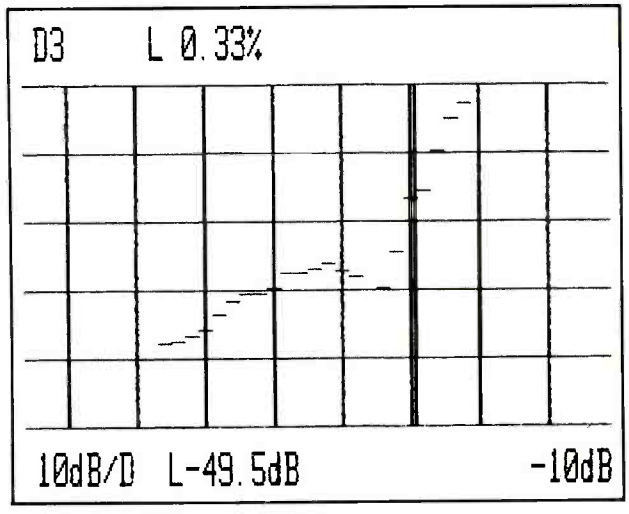


Fig. 3: Tascam 34: Distortion (third order) vs. record level using Maxell UD-XL tape operating at 15 ips. Headroom at both speeds was +12 dB referred to 0 dB = 250 nWb/m.

all of our S/N numbers were derived with absolutely no noise-reduction in-circuit. With an external dbx unit (Teac offers an easily connected optional model DX-4D that permits simultaneous encode/decode dbx operation), we have no doubt that the S/N would have soared to the 92 dB (A-weighted) figure claimed by Teac. As it was, we were a bit surprised to note that at 7½ ips, S/N actually measured marginally better for our tape sample than at the higher speed. Again, we are talking about fractions of a dB, and the reason probably is related to the somewhat narrower bandwidth available at the 7½ ips speed as compared to the 15-ips speed.

General Info: Dimensions, in vertical position, are: 18 3/16 inches high; 16 3/16 inches wide; 10⅛ inches deep (including NAB reel adapters). For 10½ inch reels in place, total height becomes 20⅝ inches; total width, 21 7/16 inches. Weight is 44.1 lbs. Price: $1,890.

Individual Comment by L.F.: In my opinion the Tascam division of TEAC has succeeded magnificently in achieving the goal set forth for this 4-track recorder/producer. They have concentrated on basic performance—the kind of basic performance and ease of use that makes the job of the professional recordist easier and more reliable. There are no mic inputs on this deck, and indeed why would a professional—who is going to use a console or mixing board—need direct mic inputs to the deck anyway? There's no built-in headphone amplifier, and the same logic applies, since the pro recordist is able to monitor either via a pair of speakers in an isolated control room or, at worst, via headphones that usually can be jacked into the board.

The arrangement of transport controls, function select buttons (for channels 1 through 4), and output select buttons—once grasped—is the most logical I have encountered and therefore, ultimately, the easiest to use without making a costly error in the control room and having to do a retake of a vocal or instrumental track. (When it's the recording engineer's fault that a retake is necessary, it is an axiom of the famed Murphy's Law that the second take is never as good as the one the recording engineer botched up. Needless to say, this rule does not apply when the artist goofs and has to do a second, or third, or fifteenth take!)

When you combine this kind of smooth transport performance with superb electrical characteristics, you have a mastering or mix-down deck that can form an essential ingredient in a studio, or can become one of a variety of mix-down or mastering decks even in a more elaborate recording house. In short, a great many decks carry the "professional" label, but only a few actually deserve that designation. The Tascam 34 is definitely one of those few.

Individual Comment by N. E.: One can say simply that "Teac has done it again!" and, to those who know of other Teac and/or Tascam products, that says a lot. But it doesn't convey the feeling of responsiveness and dependability you get from a hands-on session with this model 34. In the (necessarily) limited time available to us for testing and evaluating this deck, we did manage to put it through its paces and it performed like the thoroughbred it is. The model 34 is first and foremost a serious recordist's "audio tool"—and like other similar-grade products, it takes some familiarization and study of the owner's manual before you can work with it. Maybe "work" is the wrong word—using the model 34 (at least not under the pressure of a commercial recording situation) is a near-fun kind of experience.

The manual that accompanied our test samples merits special comment. It is loaded with valuable information—not only on the model 34—but on many subjects directly relating to recording and the use of tape, including explanations of the decibel, impedance matching and the like. And for those who can probe beneath the cover, the manual contains a detailed maintenance section with exploded views, parts lists and so on. And—wonderful too—here is a manual for a tape recorder made in Japan that actually reads as if it

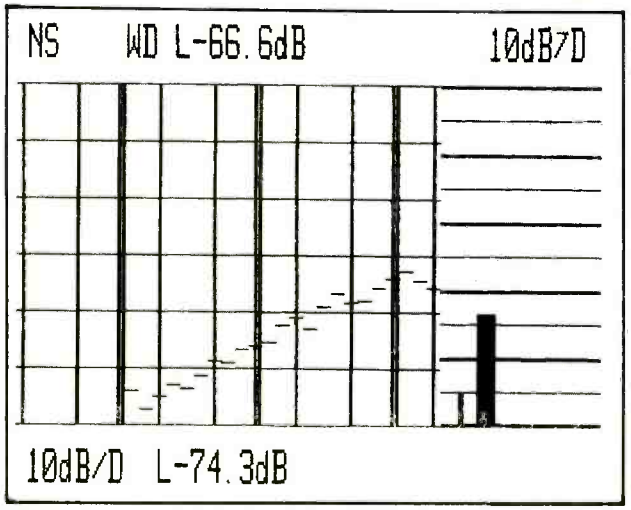


Fig. 4: Tascam 34: A-weighted S/N, operating at 15 ips.

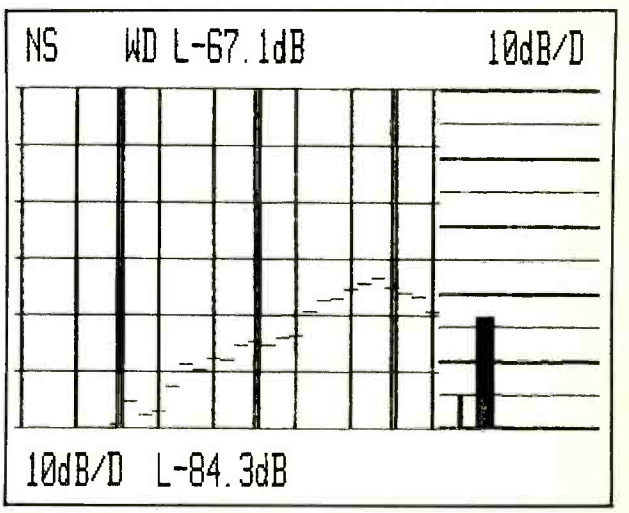


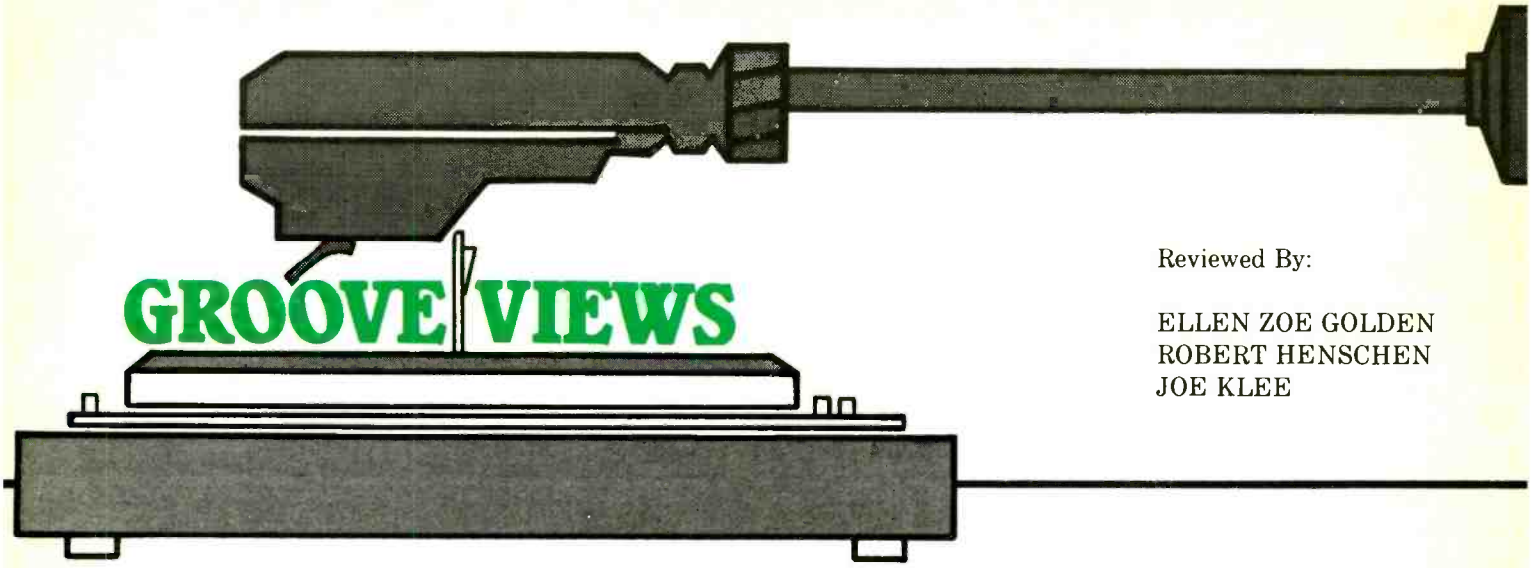
Fig. 5: Tascam 34: Same as *Fig. 4*, except operated at 7½ ips.

were intended for U.S. users, with real English sentences, correct spelling and no ambiguities—plus an ample amount of very clear drawings, plus a bibliography of recommended reading for additional information on all aspects of recording. Who said it couldn't be done?

TEAC TASCAM 34 TAPE RECORDER: Vital Statistics

PERFORMANCE CHARACTERISTICS	MANUFACTURER'S SPEC	LAB MEASUREMENT
Frequency response, 15 ips, 0 dB	±3 dB, 40 Hz to 22 kHz	±3 dB, 40 Hz to 25 kHz
Frequency response, 7½ ips, -10 dB	±3 dB, 40 Hz to 20 kHz	±3 dB, 33 Hz to 21 kHz
3rd-order distortion, 0 VU		
15; 7½ ips	0.8; 0.8%	0.33; 0.21%
3rd-order distortion, +3 VU		
15; 7½ ips	NA; NA	0.48; 0.33%
Record level for 3% dist.	+13 dB	+12 dB (both speeds)
Best S/N, std tape, A wtd		
15; 7½ ips	68; 66 dB	66.6; 67.1 dB
Wow/flutter, 15 ips		
Peak unwtd; WRMS	0.1; 0.05%	0.055; 0.035%
Wow/flutter, 7½ ips		
Peak unwtd; WRMS	0.12; 0.07%	0.075; 0.053%
Fast-wind time, 2400-ft reel	90 seconds	80 seconds
Line input sensitivity	0.3 V	0.285 V
Line output level	0.3 V	0.285 V
Bias frequency	150 kHz	150 kHz
Erase ratio	> 65 dB	77 dB
Speed accuracy	±0.8%	Variable
Power requirements	73 watts	79 watts

CIRCLE 44 ON READER SERVICE CARD



Reviewed By:

ELLEN ZOE GOLDEN
ROBERT HENSCHEN
JOE KLEE

POPULAR

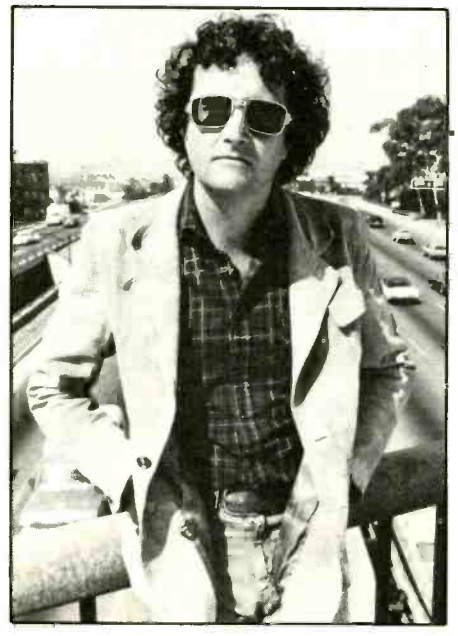
RANDY NEWMAN: *Ragtime.* [Lenny Waronker and Russ Titleman, producers; Lee Herschberg, engineer; recorded at Evergreen Recording Studios and Amigo Recording Studios, Los Angeles, Ca., 1980.] Elektra SE565.

Performance: **Excellent underscoring and evocation of the era**
Recording: **Hollywood**

It's not surprising that Randy Newman should turn up doing a film score. His uncle, Alfred Newman, is famous for having scored such films as *Les Miserables, The Grapes of Wrath* and *The Song of Bernadette.* Another uncle, Lionel Newman, also scored a number of important films.

What we get back to is the basic concept of what a film score is supposed to be and what a film score is supposed to do. Just listening to the music on this record without relating it to the Dino De Laurentis film produces a pleasant enough succession of fragments interspersed with three Randy Newman songs which vary from the period nostalgia of "I Could Love A Million Girls" to the more typical Randy Newman song "Change Your Ways." The other song, "One More Hour," is the plug tune of the film. It doesn't grab me the way "Change Your Ways" does but I'm not the one making the decisions about what stays and what goes since "One More Hour" is the plugged hit from the film and "Change Your Ways" died on the cutting room floor and appears only on the LP.

If you've seen the film, you'll find this recording a wonderful keepsake and restorer of memories. I did see the film and I rank it along with *Gone With The Wind* and *Godfather I* as one of the best films I've ever seen. Newman's score serves the action of the film well and captures the essence of the "Ragtime" era without being campy about it. Considering the awkwardness and contrivance of many of the scores turned out for period pictures of late (e.g. *Pennies From Heaven)* this is quite a compliment to Randy Newman's perception and his willingness to avoid the obvious and the condescending.



Elektra Records has included a most valuable aid for those who have yet to see the film. The inner sleeve contains still photos from the movie with a fragmented plot line describing each photo. Unfortunately the fragmentation of the plot line and the decision of someone at Elektra to take some of the plot lines out of sequence may tend to confuse the issue somewhat, but it gives at least some idea of how the story relates to the music on the record. It is, however, no substitute for seeing the movie, if at all possible, before listening to the record.

The album itself doesn't state whether these recordings came directly from the soundtrack of the film or whether they were made at separate sessions before or after recording the film soundtrack. It really doesn't matter. It's big *Hollywood* sound, not distorted but certainly far from subtle and intimate. It works wonderfully in a big theatre where it comes at you over speakers made to produce the big effect. It works on your home stereo in a smaller way, but it does work. Fortunately one is not left with—as has been the case in some recent sound track recordings—a sense of something less spectacular than was bargained for.

The biggest question now is what happens next? Will success change Randy Newman? I've seen a lot of songwriters forget about songwriting after they finally have been accepted as composers after their first film score or other piece of concert dimensions. I hope

that Randy Newman will continue to grow in the direction of film scorer. That's part of his natural heritage. I hope he continues to write songs in addition to film scores. They're not mutually exclusive—after all, didn't his uncle Alfred have a hit in 1938 with "The Moon of Manakoora"? J.K.

JAZZ

PHIL BODNER & COMPANY: *Fine & Dandy.* [Bernard Brightman, producer; Richard Ables, A&R; Charles Leighton, engineer; recorded "live" at Bechet's, New York, N.Y., 1981.] Stash ST 214.

Performance: **Out of the closet, Phil**
Recording: **Typical New York-jazz-club-scene on-the-spot job**

Phil Bodner is a studio musician. By day he plays whatever charts anybody puts in front of him whether he's backing a singer or playing a jingle to sell detergent. But at nighttime, when nobody's watching, and only the jazz fans are listening. Phil enjoys playing jazz. His remarkable tenor sax work drew raves from this reviewer on Stash's *New York New York* album. His clarinet work is just as excellent and just as interesting. As a clarinetist Phil sort of skirts the generations. There's a strong Benny Goodman influence but it's tempered by an appreciation of and acquaintance with some of the later day saints such as Buddy De Franco and Tony Scott.

Some of the tunes that Phil chose for this recording which was done live at Bechet's (late as a jazz club but still in existence as a watering hole) in New York are chestnuts ("Honeysuckle Rose"—the two zillionth recording thereof I'm sure), some are neglected gems such as "Fine And Dandy" or "These Foolish Things" and some are songs like "Deed I Do" that I wouldn't like even if Louis Armstrong, Bix Beiderbecke, Sidney Bechet and Charlie Parker were playing it. The accompanists vary between such seasoned pros as ex-Basie-drummer Butch Miles and ex-Louis Armstrong pianist Marty Napoleon and such musicians as Rick Laird, formerly bassist with Mahavishnu and all those fusion bands and a pianist much admired by singers of late, Tony Monte, but who sounds to me

like just another cocktail-lounge-y pianist who is out of his element trying to play in the major jazz leagues. Phil carries both sides off and he's certainly the star, even when sharing the solo space with Don Elliot's mellophone but, particularly in a band without a rhythm guitar, the piano assumes such importance in the rhythm section that Phil has to work noticeably harder to make it happen on those sides on which Marty Napoleon doesn't participate. This despite the presence of ace-bassman George Duvivier on side two of this recording.

Particularly when dealing with instruments that are electronically amplified (both bassists Laird and Duvivier are plugged in and on some selections, noticeably "Moonglow" I think I hear an electric piano as well) the engineer is faced with a difficult if not impossible problem in a "live" club recording versus the control of a studio situation. Some engineers manage to deal with it better than others. Charles Leighton gets neither the best results or the worst results out of these recording dates. The sound and ambiance are best described only as typical of the New York Jazz Club scene replete with audience reaction and instruments that wander in and out of focus as the players jockey around the bandstand. In the studio the sound would have been more controllable but I think a lot of the spirit would have been missing... especially with a closet jazz player like Phil Bodner who takes so much personal pleasure in his few opportunities to blow his way. J.K.

SHOWS and SOUNDTRACKS

CARMINE COPPOLA: ***Music for the Soundtrack of Napoleon.*** [Mike Berniker and Carmine Coppola, producers; Paolo Bocchi, engineer; recorded at Regson Studios, Milan, Italy, June 5-11, 1981.] CBS 37230.

Performance: **Not as spectacular as I thought it'd be**
Recording: **Close, tight sound—nearly approaching chamber music at times**

When you have a film by a legendary filmmaker of the silent era like Abel

Gance about a hero/villain as pivotal as Napoleon and that film is presented for American audiences by no less a name than director/genius Francis Ford Coppola, and when that film comes out bigger than life and is shown Cinerama style on a three-way split screen and premieres at Radio City Music Hall at prices which would make the average working person wince, one cannot be blamed for expecting something ultra spectacular. I don't know. Maybe sitting there in Radio City Music Hall with the "live" orchestra right there in front of you and the whole drama of the film unfolding on the screen right before your eyes, it would have been more spectacular than it is sitting in your living room listening to a recording of just under an hour's worth of music from Carmine Coppola's score for this four-hour film. Somehow I expected more flash, more bang, more dazzle, more *spectacle*.

That disappointment over with, one can only marvel at the musicality and drama which composer Coppola seems able to summon from what sounds to be minimal forces.

The name Coppola is not unknown in music annals. Carmine Coppola was flutist with Arturo Toscanini and the NBC Symphony, recommendation enough to be sure. He has also been associated with his son in some remarkable films with some remarkable music, particularly *Godfather*, *Apocalypse Now* and *The Black Stallion*. Those who go back to the early days of 78 RPM recording will also remember Piero Coppola (born Milan 1888) as conductor of the famous, more or less, complete recording of Bizof's "Carmen" made in the 1930s and issued in America on Victor. I don't know that there's any relation but it would certainly explain some of the nearly operatic techniques used by Francis Ford Coppola in some of his film work.

The music makes considerable use of the French anthem "Le Marseillaise" which is part of the story of the film. The music also shows considerable influence from the Russian romantics and neo-classicists with shades of the music of Prokofiev coming through in the "snow fight" sequence and the music of the sequence labeled "Fort Carre Prison" showing the influence of Tchaikowsky...but then it was against Russians that Napoleon was fighting in 1812.

It is fortunate that film pioneer Abel Gance lived to taste the glory of a run at the Radio City Music Hall for his historic film. It is fortunate that Carmine Coppola was able to underscore the film's dramatic action with the kind of music that enhances any film. It is ironic that the film's commercial failure was due to the success of talking pictures. Had Gance's masterpiece been created in the sound era, roughly a year or so later, it might have had a more favorable run in its day, but it never would have achieved the spectacular success that it has in the 1980's if it had not become an underground cult film, not appreciated in its time. It is most unfortunate, however, that Abel Gance died in 1981 before completing his film *Christopher Columbus* which was in the planning stages at the time of his death.

This record, like most soundtrack albums and original cast albums, is primarily meant as a souvenir for those who saw and enjoyed the film or play. The rest of us can only listen, imagine, and lament what we missed.

J.K.

ORIGINAL BROADWAY CAST: *Tintypes.* [Hugh Fordin, producer; Bob Hughes, engineer; recorded at the Record Plant, Los Angeles, Ca., April 21-24, 1981.] DRG 2SL 5196.

Performance: **Midway between authentic and campy**
Recording: **Digital excellence**

A reviewer trying to review an original cast album without having seen the show is at a disadvantage. Naturally some things are going to work better on stage than they do on disc. This is where the listener's, and the reviewer's, memory comes into play to complete the picture. Unfortunately by the time this album was recorded, *Tintypes* had left New York for California and, having no way of knowing I'd be reviewing the album eventually, I didn't see it when it was here. I can either try to guess at what went on on the stage—a risky proposition at best—or consider the album only as a record, entirely divorced from any show stage business. Maybe that's not a fair way to review an original cast album but that's the best one can do under the circumstances.

The songs go all the way from "I'll Take You Home Again Kathleen" dated 1876 (although the traditional melodies from the show obviously predate even that song) to Artie Mathews' "Pastime Rag" of 1920. This is roughly the period which *Tintypes* attempts to cover and it is seen from the viewpoint of the immigrant who came here with visions of golden streets and sometimes found reality to be somewhat less than a gilded vision. A cast of five singers (I imagine they dance also) portray that epoch of Americana with songs and none too few political comments and observations which were common to both those times and these times. As far as the performances are concerned, I find quite a bit of Joel Grey's antic charm in Jerry Zaks' dialect rendition of George M. Cohan's 1904, "The Yankee Doodle Boy," more commonly known by its first line "I'm a Yankee Doodle Dandy." Another especially impressive performance is the comic Italian dialect song, "Teddy da Roose" as performed by Trey Wilson but the gem has got to be the operetta soprano, Carolyn Mignini, doing a very idiomatically correct and excellent version of Victor Herbert's "Toyland." I presume that is is also she who sings Herbert's "Kiss Me Again" although the liner notes do not list the singer of each song. Contrasted against Mignini's resurrection of the Victor Herbert era is the more modern Broadway style of Lynne Thigpen. Anyone who is at all familiar with the original Bert Williams recording of "Nobody" will be amazed at the liberties taken by Ms. Thigpen with Williams' laconic sprechstinne and the general feel of the piece which made Bert Williams' name and reputation throughout the world. That's really what this recording (as a recording) boils down to. Sometimes it seems like the singers are putting on the era in a very campy tongue-in-cheek manner; at other times it seems very authentic indeed, at times, such as Jerry Zaks' "Yankee Doodle Boy" it is done not authentically but very effectively in a way which is totally believable and in keeping with times and the places of the close of nineteenth century and beginning of the twentieth when America was emerging as the melting pot.

If you saw the show, and liked the show, as many people I've spoken to did, you'll enjoy this recording. If, on the other hand, this is your first

acquaintance with *Tintypes*, parts of the recording will enthrall you, but the more you know of the music of the era *as it was performed in the era*, the more holes you'll find in the interpretation.

As for the recording, it is extremely quiet, good digital sound. DRG's choice not to record in the theatre proper served them quite well. the words come through clearly and distinctly. The orchestra neither dominates the singers nor is it engulfed by them as it often is in "live" theatrical recordings. The liner notes, like the play, are sometimes loaded with political statements with which you may or may not agree. They're not so prominent as to unduly influence your enjoyment of the music that's here which goes all the way from Scott Joplin's rags to Victor Herbert's operetta tunes. The music, without exception, is worth preserving and hearing again. J.K.

CLASSICAL

BEETHOVEN: *Trio in B Flat Major, Opus 11;* BRAHMS: *Trio in A Major, Opus 114.* Bob Wilber, clarinet; Leo Winland, cello; Janos Solyom, piano. [Anders R. Ohman, producer; Gert Palmcrantz, engineer; recorded at Grunewaldsalen, Stockholm, Sweden, Feb. 21 and 22, 1979 and at Swedish Radio, July 26, 1979.] Artemis ARTE 7107. **MOZART: *Clarinet Quintet K 581.*** The Cranford Quartet, Bob Wilber, clarinet; **MOZART: *Clarinet Trio in E Flat 498.*** Bob Wilber, clarinet; Janos Solyom, piano. [Anders R. Ohman, producer; Gert Palmcrantz, engineer; recorded at Danviken's Kapell, Stockholm, Sweden, February 1979, and Sveriges Radio, Stockholm, Sweden, August 1979.] Artemis ARTE 7109.

Performances: **Wilber's as good in the classics as he is in jazz**
Recordings: **Clean, distinct, quiet, wonderful**

Although the linear notes are careful to point out that Bob Wilber's interest in the classical clarinet literature stems from Benny Goodman's 1938 recording of the Mozart Quintet, it came as no surprise to me. Wilber's only two years younger than I am and I'm sure the awakening came to both of us in much the same way. While it is clear that Wilber paint close

attention to Goodman's interpretation there are some vital differences. In 1938 when he recorded the Mozart Quintet with the famed Budapest String Quartet, Benny Goodman was only 29 years old. By 1979, the date of Wilber's recorded debut in the classical field, Bob Wilber was 51. The difference is rather what you'd expect given that Benny's whirlwind technique was already together by the time he was 29. Here was Benny Goodman, still on the sunny side of 30, The King of Swing, leader of a popular band, obviously a superstar of his day. Wilber, on the other hand, has spent much of his career as a sideman and those bands he has led, including his current unit "The Bechet Legacy," have not achieved the popular success that the big swing bands did in the late '30's—a fact due more to the economics of the times than the quality of the music. So Goodman walked into the studio a star soloist with a performer's ego—and they *do* have egos or they'd never be able to get up there on stage and play before an audience! Benny, and the record company who was counting on the Goodman name to sell an expensive set of records, expected it to be a situation of soloist with quartet accompaniment. Wilber came in ready to make music, an art that requires as much in the way of listening to what's going on around you as it does in playing your own part.

Goodman was also star material enough to demand the finest of partners in his classical debut. There have been few quartets with the class, the blend, the ensemble virtuosity of the Budapest String Quartet. There are, however, a number of excellent quartets in the recording business today. (The Julliard Quartet, the Guarnieri Quartet among others). I cannot but wish that one of these major quartet organizations had been chosen to join Bob Wilber in the Mozart A Major Quintet. The Cranfoord Quartet are made up of four members of the Stockholm Philharmonic Orchestra. They play the notes well and even manage to convey some enthusiasm for the music but it lacks the tight chamber ensemble sound that the best string quartets (those mentioned above) achieve by second nature. Also some of their phrasing seems to me to be influenced by the fact that the clarinetist has a reputation as a jazz musician and although Bob Wilber takes great pains to be straightforward in his classical playing, the quartet sometimes gives an impression less of Mozart than of Mozart as heard through the ears of Alec Templeton (blind British pianist and arranger whose jazz arrangements of classics "Bach Goes To Town" and "Mozart Matriculates" were recorded by Benny Goodman and his orchestra).

It is a totally different case with pianist Janos Solyom and cellist Leo Winland who are Wilber's partners on the Brahms/Beethoven disk. With Wilber, Solyom and Winland we have true corporate music making and, much as I love the Mozart Quintet as a piece of music, this makes for an infinitely more pleasurable chamber music experience than Wilber and the Cranford Quartet are able to achieve. The trio even manages to compensate for the fact that the Beethoven B flat trio, one of the classic compositions of the classical era of chamber music, is a totally different style of music from the Brahms A Minor trio, one of the finest romantic chamber pieces.

The recording engineer, Gert Palmcrantz, and the producer, Anders R. Ohman, have invested these two discs with the best of analog recorded sound. The surfaces are nearly as quiet as any I've ever heard and with four or five instruments being recorded I don't think the added expense of digital would have been justified.

I look forward to more concert music from Bob Wilber. I'd like to hear him participate with a first class pianist (Solyom?) and a first class violinist (Perlman, Kramer or Mintz) in a reading of Bartok's "Contrasts for Clarinet, Violin and Piano" or I'd enjoy hearing him as soloist in "Ebony Concerto," one of Igor Stravinsky's flawed attempts to reconcile jazz and the classics. Above all, I hope that these records mark a departure for Bob Wilber rather than a novelty. His artistry on the concert stage is too important to let it go with just an occasional record or two. J.K.

KURT WEIL: *The Unknown Kurt Weil.* Teresa Stratas, soprano; Richard Woitach, piano. [Eric Salzman, producer; Frank Laico and Jim Davis, engineers; recorded at Columbia's 30th St. Studio, New York, N.Y., February 1981.] Nonesuch Digital D 79019.

Performance: **Sheer perfection in some of Weil's lesser-known material**

Recording: **Digital perfection plus the 30th St. sound**

I could have just about predicted the excellence of this recording. Take a composer like Kurt Weil, coupled with lyricists ranging all the way from Bertolt Brecht to Jean Cocteau to Howard Dietz. Give fourteen songs, most of which are making their LP debut here to a great soprano like Teresa Stratas and furnish her with a superlative accompanist like Richard Woitach. Put them all in CBS's famed 30th Street studio in New York and it has to be an album for the books.

The only really questionable thing about the album is the title, *The Unknown Kurt Weil.* While it is true that none of these pieces are among Weil's most popular songs, Kurt Weil was a composer with an easily identifiable style and, while this music may be unfamiliar, it is not "unknown" as a quantity. It is typical Berlin-Weil or Broadway-Weil, depending on the period. And so to find a baker's dozen new nuggets of this kind of gold is really like striking a motherlode. I say baker's dozen [13] because in reality "Wie Lange Noch" of 1944 and "Je Ne T'aime Pas" of 1934 are the same tune with different lyrics.

All fourteen of these cuts are worthwhile. My personal favorites are the 1943 collaboration with Brecht, "Und was bekam des Soldaten Weib?," the 1928 "Petroleum Song" and lyrics by Felix Gasbarra, the 1933 "Der Abschiedsbrief" with lyrics by Erich Kastner and the totally amusing and delightful "Schickelgruber" written in 1942 with lyricist Howard Dietz.

The names of Kurt Weil and Teresa Stratas have been paired before. It was this Canadian-born soprano who took the role of Jenny in the Metropolitan Opera's production of "Weil's *Mahogganny* during the 1979-80 season. Stratas has the ideal voice for the bittersweet ironic style that makes Weil's music so poignant. She is certainly helped by the presence of Richard Woitach who, along with the Met's Joan Dorneman, seems to be one of the few to inherit the late Gerald Moore's ability to accompany without making the piano seem out of proportion and yet accompany the singer with the same support that a full orchestra would afford.

The liner notes by Kim H. Kowalke are full of pertinent information about

the composer, the performers and most importantly, the music. Each selection is in chronological order, referenced to other Kurt Weil material and appears both in the language sung on the recording and in a sensitive English translation.

What is left open is the question of what kind of music did Kurt Weil compose? Was it Opera? I don't think so but many experts disagree with me. Is it Broadway Musical Theatre? Yes, it's certainly that, plus a little more than that. Is it pre-war Berlin Cabaret Music? Certainly the earliest of the compositions here would fall into that category but keep in mind that Kurt Weil never forgot the spirit of pre-war Germany...even in his war-time and post-war American compositions. Kurt Weil was a curious mix of pre-war Berlin, Broadway, Hollywood, avant-garde classical music and everything he touched he left his fingerprints on. Under lesser hands "Hey There Buddy On The Night Shift" would be a piece of self-serving propaganda. Weil made it a masterpiece in two different settings [Stratas sings them both here].

This record is a testament to Weil, to Brecht, to Howard Dietz, to Stratas, to Woitach, to Nonesuch and the commitment of one and all to excellence. If it is eventually surpassed that will be an extra dividend, if it is never surpassed this will be testament enough to the worth of all involved. J.K.

SAINT-SAENS: *Symphony No. 3 in C Minor, "Organ Symphony."* Frederick Minger, organ; The Baltimore Symphony Orchestra, Sergi Comissiona, cond. [Seymour Solomon, producer; Tom Lazarus, John Newton, Jonathan Thayer, Jeff Zaraya and Peter L. Jensen, engineers; recorded at the National Presbyterian Church, Washington, D.C. 1981.] Vanguard VA 25008.

Performance: **An unusual interpretation well performed**
Recording: **Perfection**

No one piece of music that I can call to mind off-hand cries out for the latest in audio reproduction the way this symphony does. It employs the forces of a full orchestra, organ and piano (both for two hands and four). The piece has had its fair share of spectacular performances spectacularly recorded. In the days of 78 rpm recordings there was a New York Philharmonic version on Columbia directed by Charles Munch, fine as far as it went. The Munch was reissued on mono LP and the stereo age brought a new recording by Munch and the Boston Symphony which has been reissued with improved sound in RCA's new .5 Red Seal Series (ATLI-4039). Other stereo recordings of note included E. Power Biggs with Eugene Ormandy and the Philadelphia Orchestra on Columbia, Marcel Dupre with Paul Paray and the Detroit Symphony Orchestra on Mercury and a recording on London with Ernst Ansermet and the Orchestra de la Suisse Romande. This is, in fact, the second digital recording. The first was by Ormandy and the Philadelphia Orchestra with organist Michael Murray on the Telarc label.

Of all the recordings of this symphony with which I'm familiar this rendition is unique. The tendency, as exemplified by Charles Munch, has usually been to make the most of the dramatic elements of this symphony. Commissiona, perhaps in order to avoid comparison with Munch and Ormandy, has conceived of this work as a romantic symphony and taken it at what must seem to those used to more dramatic versions to be a hopelessly leisurely pace. What Commissiona's approach does is to subdue the more exploitative elements, such as the use of the organ, until they become an integral part of the whole fabric of the symphony. For a change the organ outburst in the second movement of Saint-Saens' C Minor Symphony seems to come from within the orchestra rather than sounding like the announcement of an organ concerto with orchestra accompaniment. This will certainly not be an interpretation for all tastes but as an alternative to the traditional approach it works wonderfully and makes a whole different experience out of a piece of music that I thought I'd heard done every way imaginable...until this recording.

As I predicted at the outset of Vanguard's digital recording releases, the Vanguard recording team has become quite comfortable with the acoustics of the National Presbyterian Church in Washington. While I've not heard the other digital recording of this symphony it would be hard to imagine where this one would leave any room for improvement.

As a companion recording to the Munch, the Ormandy or whatever traditional recording you may own, if your taste is as unashamedly romantic as mine, on its own merit I cannot help but recommend this recording to all listeners. J.K.

VERDI: *First Recording of Rare Verdi Arias.* Luciano Pavarotti, tenor; The Orchestra Del Teatro Alla Scala, Claudio Abbado, cond. [No production credits given; recorded in Milan, Italy by Fonti-Centra; leased to CBS Records.] CBS 37228.

VERDI: *Leontyne Price Sings Verdi.* Leontyne Price, soprano; The Israel Philharmonic Orchestra, Zubin Mehta, cond. [Christopher Raeburn, producer; James Lock, engineer; recorded at the Mann Auditorium, Tel Aviv, Israel, July 1980.] London OS 26660.

Performances: **Great artists singing masterpieces by a great composer**
Recordings: **Excellent**

In Schirmer's Pocket Manual of Musical Terms there is a biographical section in the rear of the book. In it, Giuseppe Verdi is listed as "the greatest Italian opera composer." It's a title that I for one am not ready to quibble with nor, I think, is anyone who knows and loves Italian Opera.

True, before there had been the age of Bel Canto with works by such composers as Rossini, Donizetti and Bellini. It is also true that Verdi's epoch was followed by the era of Verismo with such stirring lyric dramatists as Puccini, Giordano and Leoncovallo. In the middle of it all stood Verdi—inheritor of the one tradition and trail-blazer for the other. Not all of Verdi's operas were successful in their time but it's fallacious thinking to consider those which were not hits to be inferior music. Time has shown the greatness of works like *Ernani, Attila* and *I Due Foscari.* It seems almost impossible to believe that here in 1981 we are being presented with an album featuring Luciano Pavarotti including Verdi arias being recorded for the first time. The exhaustive liner notes by Pietro Spada explain the reasons for this neglect better than I could attempt to do. What is more important is that even the most minor of these, a scene for two tenors and orchestra from 1835 and admittedly an

immature work, is still masterful and holds much of beauty regardless of how well it measures up to all our favorite chestnuts from *Aida* or *Rigoletto*.

This recording by Luciano Pavarotti and the La Scala Orchestra under the direction of Claudio Abbado should do much to add to the repertoire of Verdi fanatics although one could wish for a complete recording of, for example, "I due Foscari" which would include all the music including "Si io sento, Idio mi chiama" written for the last of the Bel Canto tenore, Mario, and which is sung here by Pavarotti.

If you look in vain on the Pavarotti recording for chestnuts and old favorites, despair not, they are available in abundance on a new LP by Leontyne Price on Decca/London. It should be noted that all the arias on this recording were previously recorded by Price in complete recordings by RCA or London of *Aida*, *Ballo In Mascheara* and *Ernani*. What makes this LP so exceptional is that here is a soprano in her fifties who if we cannot call her semi-retired has certainly curtailed her operatic performances at the Metropolitan lately. By all rights this should be another sentimental reminiscence of a voice that has seen greater glories but is well past its prime. Surprise! Leontyne Price's "Ritorna Vincitor" is still as spine tingling and earth shattering as it was when you first heard it. Maybe it is precisely because she has not squandered her vocal equipment recklessly that hers is still a voice that raises goosebumps and sends listeners into uncontrollable ecstacies of applause. Of course she has the help of Zubin Mehta and Israel Philharmonic Orchestra but she has always had strong orchestral support throughout her career. If there is a negative factor about this record it is only that we know that Leontyne Price is not about to give us another "live" sample of her *Aida* at the Met and, oh, how sorely that is needed.

The sound, in a word, is excellent. It makes one wonder if such expensive digital recording is really necessary when an analog recording can be this pleasurable and listenable.

Were I a composer of opera I could wish for nothing better than eighty years after my death to not only have my music still performed but to have it performed by two such consummate artists as Leontyne Price and Luciano Pavarotti. I'm sure that numerologists in our midst would have something to say about the fact that these two great

Verdi interpreters have these same first and last initials...to which I can only point out that it hasn't helped Leroy Parkins any. He still can't get a singing engagement anywhere outside of his own shower. J.K.

MOZART: *The Six String Quartets Dedicated to Haydn.* The Chilingirian Quartet. [Simon Lawman, producer; Bob Auger, engineer; recorded at the Unitarian Church, Roslyn Hill, Hempstead, London, England, 1980.] Bach Guild HM-80-81-82 SD.

SCHUBERT: *String Quartet in C.* Thomas Igoll, cello; The Alberni Quartet. [Simon Lawman and Roy Carter, producers; Bob Auger, engineer; recorded at the Church of Saint George the Martyr, Queen Square, London, England, 1975.] Bach Guild HM 79 SD.

SCHUMANN: *String Quartet in A; Quintet for Piano and Strings in E Flat.* Thomas Rajna, piano; The Alberni Quartet. [Simon Lawman, producer; Bob Auger, engineer; recorded in London, England, 1975.] Bach Guild HM 83 SD.

Performances: **Workmanlike readings of chamber masterpieces**
Recordings: **Typical non-spectacular CRD recordings—just what's called for**

I don't know how many LPs Bach Guild's Historical Anthology of Music will encompass. Nor do I understand the reason for their particular release schedule. The same postman who brought these bits of magnificent chamber music also brought samples from the Baroque and Renaissance eras on the same series. Chronological, it's definitely not.

Spectacular it also is not, but that's all right and good. The virtuosi of chamber music sometimes get too tied up in playing their own part for truly successful chamber music. I have heard trio performances by Heifetz, Rubinstein and Piatagorsky which furnished some spectacular playing by each of the virtuosi but were totally lacking in one important facet of chamber music: The ability of the player to listen to what's going on around him and to be truly part of the ensemble. That's why, even though the Chilingirian Quartet and the Alberni Quartet may not be household names they are perfect for this music. They have totally yielded their egos to the greater good of the composer's intention in a way that most all star groups and many big name quartets can never hope to because they never attempt to. The Alberni and the Chilingirian Quartets certainly deserve to be praised yet the star of their performances is always the composer. Particularly in the case of so gorgeous (it's an overused word but that's how it goes) work as the Schubert C Major Quintet for two violins, viola and two celli—it is a blessing to hear the music purely without the superimposition of the player's personality. When the strings are, as in the Schumann Quintet, in consort with a piano more virtuosity is allowable, or perhaps even called for, yet Thomas Rajna still does a masterful job of making his role as much one of collabortor as soloist.

The Moscow Quartets are a different matter. Coming from the classic period, clearly influenced by Haydn, his string quarters were, of necessity, less personal statements and closer to the embodiment of a style that was indeed in transition from the Baroque to the Early Classic to the late Classicism of Beethoven from whence it would spread into the romantic movement as embodied by Brahms, Schubert and Schumann. Like the Brandenberg Concerti of Bach before them, these six string quartets of Mozart meld conveniently into an integral whole when listened to consecutively. I would highly recommend that form of enjoyment to anyone with three hours to spend listening to music. To be sure, the quartets may be enjoyed separately, each for its special reasons, but the best way to experience this music first is from the beginning to end...if not in one sitting at least as close together as possible with as little as possible in the way of other listening in between. It is a rewarding experience, I assure you.

I have frequently pointed out, in these pages, the excellent recordings of CRD engineered by Bob Auger and successfully transferred by Vanguard. This is especially important for the music at hand. Chamber music ought not to startle or stun the listener. It should in a word be a sound that one can be comfortable with. This sound, like most of the Vanguard Recordings that originate with CRD, is indeed comfortable. J.K.

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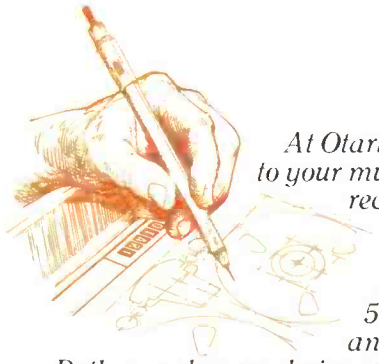

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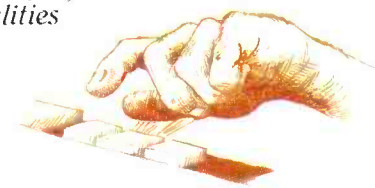

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