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Walden

MODERN RECORDING

JUNE 1984 VOL 10 NO 6 \$1.95



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MODERN RECORDING & MUSIC

JUNE 1984
VOL. 10 NO. 6

FEATURES

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by Bruce Bartlett

In this feature Mr. Bartlett takes a break from recording techniques to tackle another problem—microphone feedback.

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by Bob Grossweiner

Val Garay has become one of the most sought after producers in Los Angeles. Here, he gives some of his views on producing, engineering and today's audio scene in general.

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by Melinda Newman

Most people think the Australian invasion began with Men At Work. Not so. Australia's Little River Band has been producing hits for quite some time now. Recently the band has undergone some personnel changes which founding member Graham Goble believes has made the band even more musically versatile than before.

40 NARADA MICHAEL WALDEN

by Jeff Tamarin

Narada Michael Walden began his career as a drummer for the Mahavishnu Orchestra. He worked on a couple of albums with them and then decided it was time to go solo. After three hit singles, he took his success as a musician and began producing others in addition to his own work.

44 SO YOU WANNA BE A ROCK'N'ROLL STAR

by Denny Andersen

Video demos are becoming increasingly common, and many believe it will soon be necessary to submit one to record companies along with your music. Lucky for you our own Denny Andersen has the knowledge to take you step by step through a video production. This month we'll begin with the ways and means to gain access to video equipment.



Val Garay color photos: John Scarpati
Val Garay bw photo: Henry Diltz/Courtesy of Val Garay Management.
Narada Michael Walden photos: Courtesy of Howard Bloom.
Little River Band photos: Sharon Weisz/Courtesy of W3 Public Relations.

SOUND IDEAS

STUDIO NOTEBOOK

by James Rupert

This month check out the plans of the overall design champion Mark Rothermal, the last of the prize winners in MR&M's Design-A-Studio Contest.

MUSICIAN'S NOTEBOOK

by Craig Anderton

Synchronous Technologies' 'SMPL System.'

HACKER'S DIGEST

by Ken Pohlmann

There's tremendous competition among computer manufacturers to produce low-cost, multi-service computers for home use. If you're considering buying a computer, this column should help you decide which options will get you the most computer for your money.

AMBIENT SOUND

by Len Feldman

As CDs gain popularity so, too, does the debate over the quality of their sound. Whether you are a proponent of CDs or not, you should find this article on 'What's Really Wrong With CDs' insightful.

LAB REPORT

by Len Feldman

The Soundcraftsmen PCR 800 Stereo Power Amplifier.

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Why the Big Bucks?

Re: Bruce Bartlett's Recording Techniques (Feb., 84, p. 17).

Under the heading of 'Semi-Pro vs Pro,' the question is asked if certain equipment will produce "commercial-quality recordings, good enough to sell in a record store?" To me this is a loaded question, considering some of the junk found in record stores today. The answer was "Yes, if noise reduction is used."

I would like a slightly more in-depth answer considering the following, if possible.

Assume, if you will, the following. A recording is made where the following units are recorded on at the same time: an Ampex 440C, Otari MX-5050B, Tascam 58, and Fostex A-8LR (all 8 tracks). The program material, engineer, mics, noise reduction, and console are the same.

These same four units are now played back using identical amps etc., and hooked up for A-B comparisons:

1. What is the difference between these units? In listening, does one have more audible distortion or audible hiss, or a noticeable difference in headroom?
2. What percentage of the average record buyers could hear the difference?
3. What percentage of audio enthusiasts?...engineers?

If there is no difference (audibly) or if it is minimal, why do studios spend \$20,000 + for recorders when albums have been made—and good ones may I add—on Portastudios?

—William Redeker
Union, N.J.

We received the following reply from Bruce Bartlett.

You raised an interesting question, William. Studios spend that much for factors other than sound quality, such as reliability, tape handling, ease of service, alignment, and editing, and compatibility with other sources. And—let's face it—to compete with other studios and impress clients. Imagine walking into a state-of-the-art facility and seeing nothing but cheap recorders. Would you feel you were getting your money's worth, even if the sound was adequate?

Performance affects the cost, too. More expensive recorders do have more headroom, greater signal-to-noise ratio, less wow & flutter, etc., which results in a cleaner sound. Extra headroom is not always audible when recording levels are well-controlled, but you sure appreciate it when making a live recording! Balanced lines and +4 dBm levels offer the potential of quieter recordings in electrically noisy environments.

Without running an experiment, I don't know what percentage of various listening groups could hear the difference on a careful A-B test. I'd guess that most engineers, many audiophiles, and a few average record buyers could hear the difference.

If anyone reading has access to all these machines, or comparable units, why not do a comparison and let us know the results? After aligning the machines, copy a top-quality analog or digital recording on all four machines with identical noise reduction. Play them back, and A-B them (in a double-blind test) at equal listening levels. What differences were heard? Who was able to hear them?

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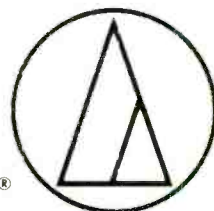
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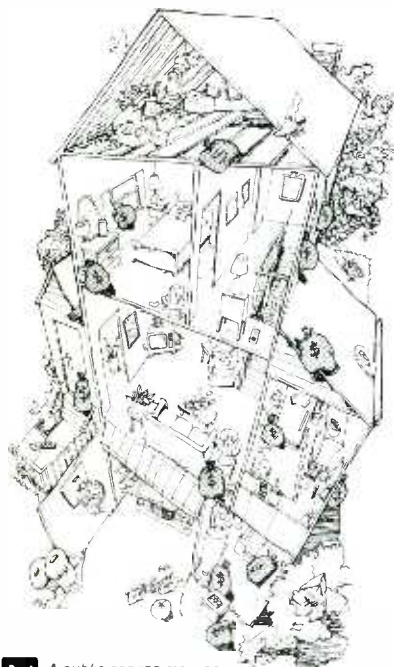


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If no differences were audible to the average record buyer, that means the least-expensive recorder provides adequate sound quality for making commercial records. Just be aware of how it falls short in other areas.

A more realistic test would be to put all four recorders in a pro studio and subject them to daily use and abuse. Which recorders still perform well under extreme conditions of heat, sharp transients, multiple generations, and radio-frequency-interference?

Low-cost machines are not intended to be used under such conditions, but many perform well enough to be used in personal or semi-pro studios.

A Clearmountain (and MR&M) Fan

I really enjoyed the very interesting and rewarding interview with Bob Clearmountain in the January '84 issue. I had the pleasure of meeting Mr. Clearmountain and would now like to get in touch with him. Can you give me an address where I can reach him?

All of us here at DLG Music have enjoyed your magazine for over two years now. Keep giving us the good things you do!

—David L. Green
DLG Music
Portchester, NY

Thanks for the encouraging words Dave. You can write to Bob Clearmountain in care of the Power Station. The address is:

*Power Station
441 West 53rd Street
New York, NY 10019*

Brief, But To The Point

Here is a little note to say thank you for the story on Wynton Marsalis. It was fantastic.

—Charles Edward Thierry
Los Angeles, CA 90018

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Talk Back

So That's What It Stands For

This past year I've gone from 4-track (Teac 3340S) to 8-track (Fostex A-8) recorder and will shortly be duplicating an album at a real-time tape copying center in Phoenix. They use a ½-track master for the process and unless I send them a master compatible with their head arrangement, doctoring and an additional generation will be involved. Since I expect to be doing this a lot in the future, I figure it is about time to get a ½-track machine. A neighboring studio has a Tascam 70 for sale for \$500.00. I'm wondering if I could set up my Teac 3340S with an interchangeable two track head and, for a sizeable savings, have almost identical machine.

Could you please let me know what advantages and disadvantages might be involved in converting a Teac 3340S (at least temporarily) to a two track. Also could you please explain why Teac means consumer, and Tascam professional equipment?

—Ken Becker
Light Sound
Pahoa, Hawaii

We received the following reply from Merlyn Morgan, assistant national service manager at TEAC.

While it is technically possible to retrofit your A 3340 S with half (or

quarter) track heads, we would not recommend this for the following reasons: You would devalue the A 3340 S by making it non-standard (and only two track to boot); the cost of a head assembly and calibration for a separate headstack could easily approach what a second hand good quality two track, such as an A 3300 S/SX or 22-2 might cost, except that you would have to have your 3340 realigned every time you changed heads, which is expensive and time-consuming.

Our recommendation would be to investigate obtaining a separate two track for your mastering needs, as the flexibility of having a machine dedicated to this would be greater than if you convert your four track. Having a separate two track allows your four track to be used as four discrete delay channels for recording or mixdown, as well as a transfer and editing machine without the bother and expense of conversion.

TEAC is an acronym for Tokyo Electro Acoustic Corporation. Here in the United States, we are incorporated in California as the TEAC Corporation of America, TCA.

TASCAM is an acronym for TASC of America, which was developed by TEAC/TCA in the early 1970s as our Professional Products Division. Teac also manufactures and sells under its own name video products, computer products and other digital storage systems.

EQ Balance: Who Cares?

I read with interest the test of the Orban 245F stereo synthesizer in your December issue. I have a 4-track production studio and I had been considering purchasing this item to expand my track capacity, as Orban's advertisement suggests.

Unfortunately, the writer's comments did not touch on the use of the product in multi-track recording. I (and possibly others in your readership) really don't care about synthesizing mono FM to stereo FM, and even though this would be a critical feature to some, I also don't care that the stereo-back-to-mono signal retains the proper EQ balance.

I enjoy your magazine very much each month, especially the Recording Techniques column.

—Ron Evans
West Point, MS

We received this reply from Craig Anderton.

The main purpose of a stereo synthesizer is as a mixdown tool; you can take a premixed track, or something like a drum track recorded in mono, and get a nice stereo spread out of it by running it through the synthesizer. While I have not had the chance to use the Orban 245F, I have heard from others that it is a good product.

As a side note, I have completed the design of a do-it-yourself budget stereo synthesizer. Watch for it in a future issue of *MR&M*.

How to Tame Feedback

SQUEAL!! It's our old friend, feedback. It occurs in sound reinforcement systems when the amplified sound from the speakers is picked up by the microphones, is reamplified, and goes into oscillation—resulting in a squeal or howl.

In many cases, feedback prevents you from turning the sound system up as loud as you'd like it. There may be insufficient gain before feedback. This means the sound system cannot be turned up loud enough before feedback occurs.

Fortunately, there are many ways to reduce feedback—or increase gain before feedback—which we'll describe here. The general approach is to make the microphones pick up more of the desired source and less of the P.A. speakers.

Mic Close

The most effective way to achieve enough gain before feedback is to place microphones close to instruments and voices. The closer you are to a sound source, the louder it is. So, the closer a microphone is to its source, the louder the amplified sound from the reinforcement speakers.

Why not just turn up the microphone instead of mic'ing closer? As you increase the gain of the system,

you approach the feedback threshold. You make the microphone more sensitive to the sound from the P.A. speakers, so the system starts to ring and go into feedback. But if you mic close, you can turn down the gain and increase your margin of safety before feedback occurs. Have vocalists sing with their lips touching the microphone windscreen; place piano microphones inside the piano and close the lid; place guitar-amp microphones next to the grille cloth, and so on.

Miniature microphones can be mounted very close to their sources. You can clip them onto flutes and trumpets, onto drum rims and cymbal stands, or onto the shirt of an actor or lecturer.

Mic the Loudest Part of the Instrument

Gain before feedback is greatest if you place the microphone next to the loudest part of the instrument—the bell of a sax, the sound hole of a guitar, the sound hole of a grand piano, etc. Unfortunately, the part that is loudest seldom sounds the best. The bell of a sax gives a hard, “kazoo” type sound; the sound hole of a guitar is bassy and thumpy, and the sound hole of a piano is “constricted.” You'll need lots of equalization to

make the instrument sound natural. An alternative is to find a better-sounding microphone position and take your chances with feedback.

Use Directional Microphones

A directional microphone, such as a cardioid, supercardioid, or hypercardioid, generally provides more gain before feedback than an equivalent omnidirectional microphone.

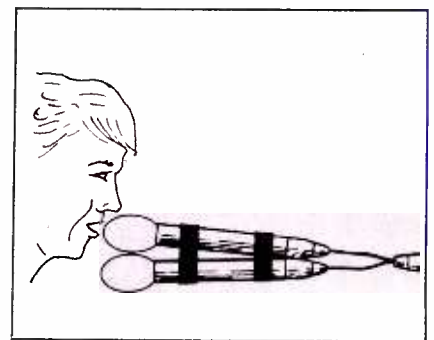


Figure 1. Combining two identical omni mics to form a differential microphone.

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For example, a cardioid microphone rejects sound approaching the sides by about 6 dB, and rejects sound approaching the rear of the microphone by about 20 dB (depending on frequency). So, if you place P.A. speakers to the side or rear of a cardioid microphone, it will tend to reject feedback from those speakers.

If the main source of feedback is the stage-floor monitors, a cardioid microphone is the best choice. That's because you can aim the "dead" rear of the cardioid microphone at the floor monitors to reduce feedback. High-frequency sounds from the monitors may reflect off the singer's face into the front of the microphone, causing feedback. So it helps to let the monitors roll off at high frequencies.

If the main source of feedback is the house speakers, rather than the monitors, a hypercardioid microphone is the best choice. A hypercardioid rejects distant, reverberant sound better than a cardioid microphone. Specifically, a cardioid rejects reverb by 4.8 dB compared to an equivalent omnidirectional microphone, while a hypercardioid rejects reverb by 6 dB compared to an omni. These dB figures are the *random energy efficiency* of the microphone, a measure of the ability to reject random-incidence sound (reverberation).

Another advantage of directional microphones is that most of them have *proximity effect*—they boost the bass when used up close. This makes the voice or instrument sound louder without causing feedback. If you roll off the excess bass for a more natural sound, you also reduce the chance of feedback at low frequencies.

A *differential microphone* (Figure 1) cancels distant sounds but trans-

mits close sounds. This kind of microphone cancels low frequencies better than high frequencies. You can make one by taping two identical omnidirectional mics together side-by-side so their grilles touch, and wire them out-of-phase (opposite polarity). Mix their outputs together with a Y-adaptor. Singers must sing very close to only one of the microphones; otherwise their voice will cancel, too! Some microphone manufacturers make "all-in-one" differential microphones.

Use Pickups and Direct Boxes

Contact pickups (attached to acoustic guitars and pianos) are sensitive to mechanical vibrations rather than sound. They respond to vibrations from musical instruments but not to feedback from the reinforcement speakers. Compared to microphones, pickups greatly increase gain before feedback with some sacrifice in tone quality.

Direct boxes plug into electric instruments or into their amplifier speaker jacks. They transmit an electrical signal to the mixing console but pick up no feedback. Again, the tone quality received through a direct box is different from what you hear with a microphone, and may require some equalization. Signal processors such as Tom Scholz's *Rockman* or *Bass Rockman* are also immune to feedback.

Use as Few Microphones as Possible

As the number of microphones in use increases, the gain before feedback decreases. Stated another way, many mics feed back easier than few mics.

A situation where this applies is stage-mic'ing for drama, opera, and musicals. If you put several microphones out front and hang some more over the stage, you're likely to get very little loudness before feedback occurs. But if you use only one to three mics out front, the system can be turned up much louder. Use enough microphones to cover the stage adequately, but no more.

The reduction in gain before feedback is given by the formula:

$$\text{dB} = 10 \log (\text{N.O.M.})$$

where:

N.O.M. = the number of open microphones.

Every time you double the number of open microphones, you reduce gain before feedback by 3 dB.

If you're running a system with many microphones, but you're using only a few at any one time, it helps to turn down the unused microphones by at least 9 dB. This decreases the number of open microphones, which reduces the chance of feedback. For example, if you're reinforcing a stage play, turn up only the microphone nearest the person talking. Follow the stage action with the mics by bringing their faders up and down.

There are exceptions to this rule of using the minimum number of microphones. If you try to cover several sound sources with one microphone, you're forced to mic them at a distance, and distant mic'ing reduces gain before feedback. You'll have to find a compromise between mic'ing distance and N.O.M. that works best.

Place Speakers Toward the Rear of Microphones

Since directional microphones reject sound toward the rear, you can reduce feedback by placing stage monitors and house speakers toward the rear of the microphones. Mount the house speakers toward the audience as shown in Figure 2. Put the stage-floor monitors at the "dead" rear side of the microphones—that is, aim the rear null of the vocalists' microphones at the floor monitors.

Use Directional Speakers

The main house speakers should focus their sound on the audience rather than radiating sound to the

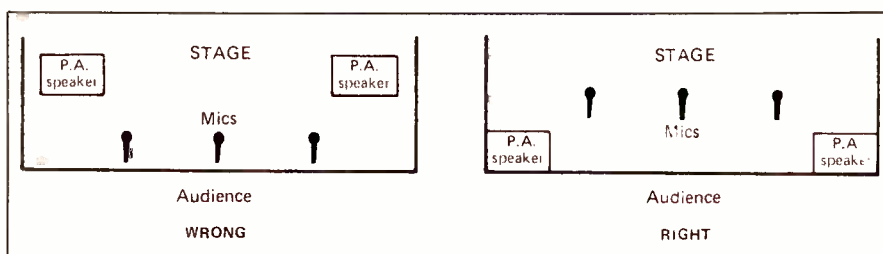


Figure 2. Wrong and right methods of placing mics and speakers to reject feedback.

FEEDBACK THEORY

Figure 1 shows a simplified block diagram of the parameters that affect gain-before-feedback. Sound starts with the sound source (a voice or musical instrument). The sound from the source is picked up by a microphone at a certain distance. The smaller this distance, the greater the gain before feedback. The microphone signal is amplified and is fed to a

paths: direct and reflected (Figure 2). Sound travels directly from the reinforcement speaker to the microphone, and also reflects off room surfaces into the microphone from all directions.

The following parameters affect the gain of the direct-sound feedback path: speaker directivity (Q), speaker off-axis frequency response, speaker orientation, speaker-

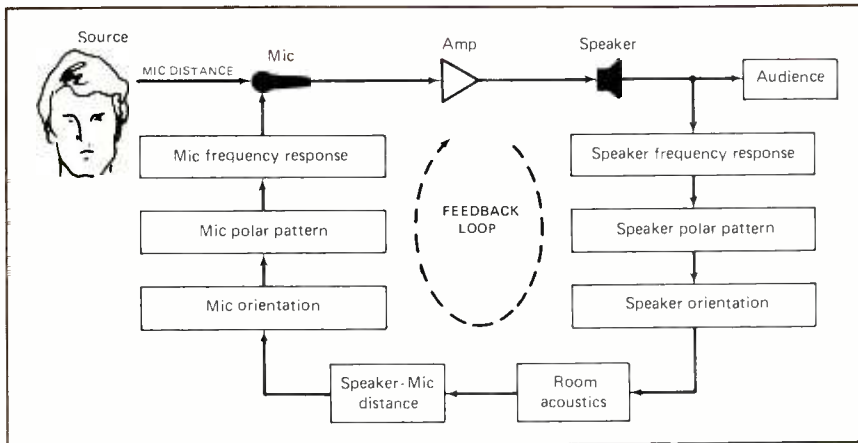


Figure 1. Simplified block diagram of a sound reinforcement system, showing the feedback loop.

speaker system, which radiates sound to the audience.

Unfortunately, the speakers also radiate sound back into the microphone, and this may result in feedback. The sound level reaching the microphone should be kept as low as possible to avoid feedback. This sound level depends on the speaker's frequency response, polar pattern and orientation; the room absorption, and the speaker-to-microphone distance.

Finally, the microphone receives the sound from the speakers and the room reflection. The sensitivity of the microphone to the speaker/room sound depends on the microphone's frequency response, polar pattern, and orientation.

Notice that a feedback loop is formed from system output to system input. Anything that decreases the gain of the feedback path decreases the potential for feedback.

Feedback occurs at the frequency having the highest loop gain, providing that the feedback signal entering the microphone is in-phase with the electrical output of the microphone.

Actually, there are two feedback

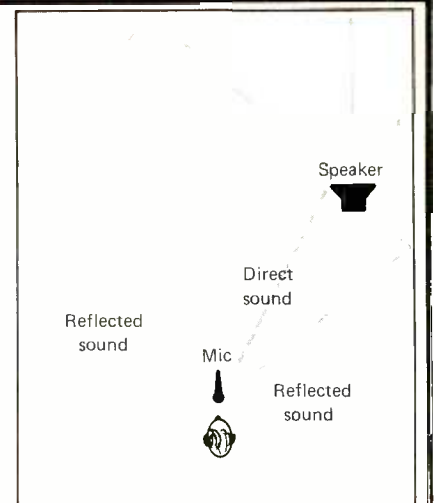


Figure 2. Direct and reflected sound paths from speaker to microphone.

to-microphone distance, microphone directivity, microphone off-axis response, and microphone orientation.

The following parameters affect the gain of the reflected-sound feedback path: speaker power response, room absorption and standing waves, microphone random-incidence response, and microphone random-energy efficiency.

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sides and rear, where the microphones are located. Also, if the speakers focus on the sound-absorbing audience, less reflected sound is returned to the microphones. The result is more gain before feedback.

You can make speaker systems more directional by stacking them vertically or horizontally (vertically is recommended). Column loudspeakers, often used for speech reinforcement, contain a vertical array of speaker drivers. This arrangement provides a narrow polar pattern in the vertical plane.

Place Speakers Far From Microphones

The farther the speakers are from the microphones (up to a point), the greater the gain before feedback. That's because the speaker sound-pressure-level at the microphones drops as distance increases. So, if possible, place the main reinforcement speakers far from the stage, on either side of the stage and toward the audience.

The reduction in speaker level with distance only holds true up to a certain distance. The level of the speakers drops with distance until the direct sound level equals the reverberant sound level. Then the level stays practically constant with distance. Any further increase in microphone/speaker separation will not increase gain before feedback.

Use Microphones and Speakers With a Smooth Response

Feedback occurs at the frequencies having the most system gain. That is, peaks feed back first. If a microphone has a huge peak in its frequency response at 3 kHz, it is likely to feed back at that frequency. But if the microphone has a flatter response (on- and off-axis), you can turn up the gain more without running into feedback.

The frequency response that is important in predicting feedback potential is not the *on-axis response* published in data sheets. What's important is the *random-incidence response*—the frequency response of a microphone to sounds arriving randomly from all directions. Most of the sound from the house speakers is reflected off room surfaces, so it approaches the microphone from all directions. If the microphone has a flat random-incidence response, it is less likely to feed back.

Since most microphone manufacturers don't publish random-incidence response curves, you can only go by experience. In general, the 90 degree (side) response of a microphone is fairly similar to its random-incidence response.

The corresponding frequency response in loudspeakers is the *power response*. This is the integrated frequency response of the loudspeaker in all directions. Again, this should be smooth to reduce the chance of feedback.

Equalize the Sound System

Another way to flatten the system response is to use a graphic equalizer to cut frequencies that feed back. Equalization is a last resort after you've tried everything else. Starting with no EQ (flat response), you gradually turn up the master gain of the system until it feeds back. Then you slightly pull down and reset each EQ control until you find the one that stops the feedback. (After some practice, you'll be able to find the correct control by ear.) Cut that frequency ("notch it out") just enough so that feedback stops. Then crank up the master gain until feedback starts at another frequency, and cut that frequency with the equalizer. Repeat this process until the gain is adequate. You might want to wear earplugs while setting the equalizer!

Ideally, the feedback equalizer uses narrowband filters (say, 1/6 octave). Filters less than 1/3-octave wide don't color the tone quality of the program. If you use wideband (octave) equalization, you'll affect the tone quality as well as reducing feedback. The best arrangement is to run two graphic equalizers in series—an octave-band or 1/3-octave-band unit to control the frequency response, and a 1/6-octave-band unit to control feedback. If you have only an octave-band equalizer, find a compromise between feedback rejection and good tone quality.

Use one equalizer for the stage-floor monitors and another for the main system. Some sound companies use a separate equalizer for each monitor mix.

Note that if the microphones are moved during a performance, the feedback frequencies are likely to change, so notch filtering will be ineffective. The same can happen when a vocalist approaches a microphone or grabs it around the grille.

Try to run system gain far enough below feedback so the system is stable under any condition.

Mark Feedback Points On Faders and Don't Exceed Them

During a sound check you may have a chance to determine how far you can bring up a microphone's fader before feedback occurs. After setting up the mix, with all in-use faders up, mark the point of fader travel where feedback just starts, for each microphone. If you don't exceed these limits during the show, you should never hear feedback... unless, of course, the lead singer suddenly kneels down right next to the monitor speaker.

Educate the Performers

It's your duty as the sound engineer to remind the performers to keep their lips on the microphone grille, or at least to stay within a few inches of the microphone. Also, they should grab the microphone around its handle, *not* the grille. Any obstruction (such as a hand) around the microphone element will distort the polar pattern and frequency response, possibly causing feedback. Remind the performers to stay well away from the house speakers and stage monitors.

In drama productions, the cast should project (talk loudly) rather than relying on the sound system to make up for weak voices.

Summary

Here's a list of tips for increasing gain before feedback:

- In practice rooms, add absorptive material to the walls and ceiling to deaden the room acoustics.
- Mic close to the loudest part of the instrument with a directional microphone.
- Use pickups and direct boxes.
- Aim the rear of cardioid microphones at the stage-floor monitors.
- Use as few mics as possible; turn down unused mics.
- Place speakers far from the microphones, toward the rear of the microphones.
- Use smooth-response microphones and speakers.
- Equalize the system using narrowband filters to reject feedback frequencies.
- Educate the performers in proper microphone technique.

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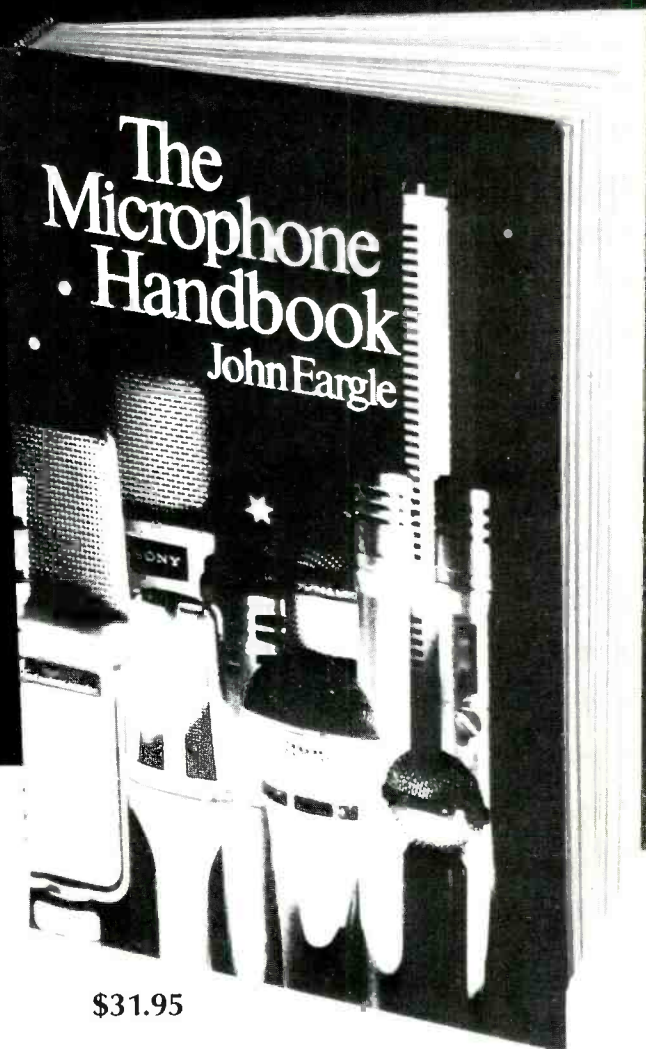
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JOHN EARGLE,

noted author, lecturer and audio expert, is vice-president, market planning for James B. Lansing Sound. He has also served as chief engineer with Mercury Records, and is a member of SMPTE, IEEE and AES, for which he served as president in 1974-75. Listed in *Engineers of Distinction*, he has over 30 published articles and record reviews to his credit, and is the author of another important book, *Sound Recording*.



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Studio Notebook

Throughout the entire review and judging process of the entries submitted in the Design-A-Studio Contest, one entry kept worming its way to the top of the pile and forcing an endlessly repeated question: "What do you want to do with this guy who went nuts?"

The entry in question had stayed within only the barest parameters of the dimensions we had provided for a sample basement studio location. He had ignored the furnace placed within the basement layout given in the April '83 issue and chose to eliminate the stairway drawn in the sample plan. His access to the studio complex was a pair of double swinging doors installed in a punched-out section of concrete wall. (Not an easy trick to pull off in a below-ground basement!) Further, the walls in his entry design were suddenly block instead of the specified poured concrete in a decorative molded brick pattern. We had given you the uneven-surfaced brick pattern wall to make it easier to live with as far as standing waves produced normally from flat surfaced parallel walls. Not many of you picked up on this fact, but this guy threw it out entirely. What nerve!

Consequently, my initial reaction was to assign the whole design to the "So Sorry" pile and move on to the others that had not strayed from the specifications originally given in the introductory article to the contest. Sure, the guy obviously put a lot of work into his entry...but criminitley! Let's be fair about this!

For the next month, while other entries were being

poured over and rejected for one reason or the other, the aforementioned design kept waving from its shadowed end of the drawing board and yelling in a most insistent voice: "Hey boys, I did that part right!" When other entries were too sketchy in their details, this design would holler, "I gave you calculations and resultant specs on everything!" When other plans had no allowances for heating and air conditioning ductwork, our rejected design squeaked, "But I gave you separate detail drawings for ductwork, electrical schematics, and audio lines!" And it would be right.

And in the end we decided that we simply could not disqualify the entry. Yes, it had not used a lot of the details provided in the original layouts. Yes, he had taken some liberties with the basic construction and materials used in the room. Perhaps worst of all, the designer had sent us a plan for a room that involved more money invested than we had intended to be spent in a home basement studio. Yet, when the rubber hit the road, when all was said and done, when the dust had cleared and several other cliches denoting that the final analysis had been made, there remained one reason why this particular design had attached itself to our brains and wouldn't let go... The guy had gone nuts.

He had covered everything in scrupulous detail, his calculations were correct down to an ant's belly button, and he was advocating terrific ideas in his plan that simply could not have been done for peanuts.

The bottom line to this contest still remains that we

The floor of the drum booth is raised 1 foot off of the floor and is constructed of 2 × 4's placed 12 inches apart O. C. The studs are then covered with 3/4-in. plywood and 1/2-in. gypsum board. The floor is carpeted, as is the rest of the studio. Randomly spaced insulation is placed in the ceiling and then covered with an acoustically transparent screen, perhaps an earth-tone speaker grilling.

The existing concrete block walls are covered with mirror tile, in front of which is hung medium heavy quality drapery hung on a standard curtain rod. This drapery can be opened or closed to alter the reverb time in the room. With the drapes open, the reverb time is calculated to be about .41 seconds.

Pretty nice, huh? Pretty expensive too, huh? For those of you who want to adapt such a plan to your own applications at a lower cost, there are several major corners that can be cut. For beginners, you might want

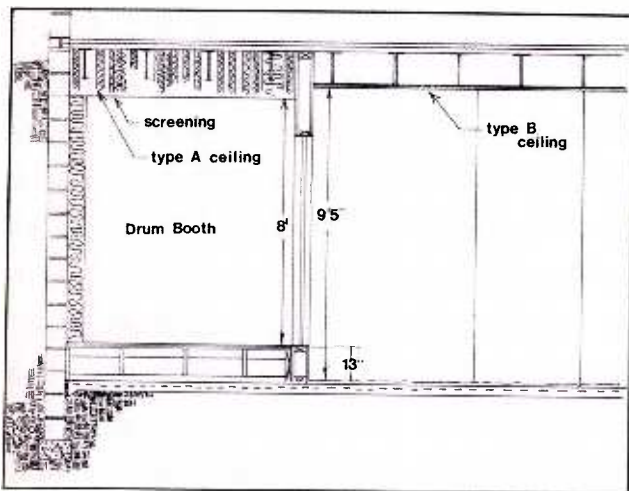


Figure 2. Ceiling arrangement to create a natural live-end/dead-end type environment.

to dump the sliding glass doors into the booth for a more conventional windowed/insulated isolation wall. Access to the control room would then be through the foyer control room door only.

The mirrored tile in the studio (despite their interesting possibilities on a late Saturday night) could also be replaced with cheaper wood paneling at a resultant loss in reflectivity. For the really budget conscious in the audience, slap some paint on the existing poured concrete or block wall. It doesn't look as impressive, but it'll have the mass you need and might help mend up that rapidly developing hernia in your pocketbook.

The next point is a personal quirk. We received a lot of basement studio layouts that well-intentioned folks stuck bathrooms in. I don't know what the hang up is between Modern Recording & Music's readership and toilets—but think about it a minute. If you are short of cash (and who ain't!) the last thing you absolutely have to have is a bathroom in your basement studio. And the last place I would put it is directly next to the control room, but I'll be damned if nine out of ten of you didn't ram one in that exact spot! When nature calls, save some money and escort your clients upstairs and show 'em how to pull the chain when they're done. If it's a choice between using the money to buy a toilet or getting a better reverb system, gimme the plate over the bowl anyday.

As a final cost-cutter, you can experiment with using carpeting only in the "dead end" of the studio. Split rooms like this are not all that uncommon and in a concrete floor basement of this type you do not have to worry about laying down tile on the floor for an even reflective surface. A couple of coats of heavy duty paint and you're in business. Using the retractable drapes on the walls can help you vary the amount of reflected sound you want to have in that section of the room. Just as "more expensive" does not necessarily mean better, the term "cheaper" does not have to mean worse. As we've said all along, these designs are just a starting point. Your imagination and innovation will have to take you on the road from here to where you want your studio to be.

If any of you have any in-depth questions for Mark concerning his design, send them to me here at the magazine and I'll forward them on to him. If we were to print everything that he sent to us for the contest we would have to change the name of this issue to Modern Recording & Mark Rothermel. (The cover of the magazine would be all title!)

Our congratulations go out to Mark, to the rest of the winners and to all of you who took the time to enter the contest. You're all awarded one official Rupert "Way-To-Go!" for your efforts. Don't forget next time we'll be featuring the designs and designers who didn't win but still had worthwhile ideas to share with us. This'll be their chance to shine in print. You may not have won any prizes, but hopefully you've learned a lot more than those who didn't even bother to enter. Doesn't that make you a winner, too?

As for me, I'll be here seeing what I can do about getting rid of this talking entry that's currently tap dancing on my desk. We've told it a hundred times that we made it a winner, but it still won't shut up. No wonder Mark Rothermel wanted to get rid of it. This thing will drive you nuts!

See you next time.

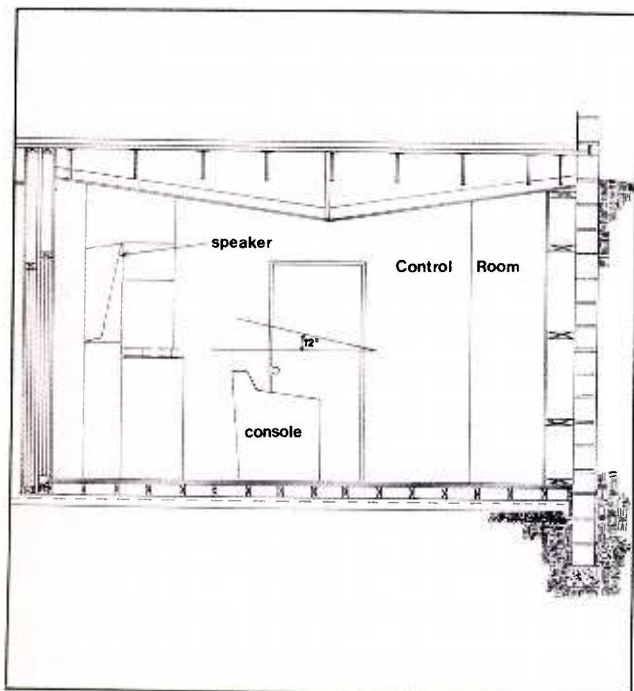


Figure 3. Side view of control room, showing basic design of floor and walls, and angle of speakers.

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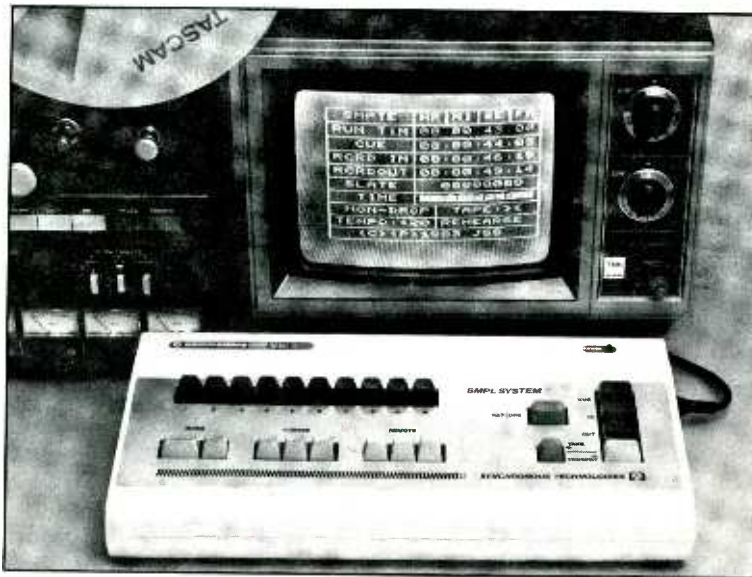
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Musicians Notebook

Synchronous Technologies' 'SMPL System'



This month we will discuss a product that I have been following closely for some time; it was designed by a good friend of mine, John S. Simonton Jr., who also occasionally asked me for advice and opinions during the design process. As you might expect, I think SMPL (pronounced “simple”) is fantastic—but then again, if a product was designed with many of *your* needs in mind, you’d think it was fantastic, too! So, I don’t expect anyone to feel that I can be objective about this...however, to not cover SMPL would be a disservice to *MR&M’s* readers, who expect me to write about important new devices relating to recording and music. Therefore, rather than write a typical review, this issue’s “Musician’s Notebook” will focus on what the SMPL System is, and why many people (certainly not just me) are very excited about its possibilities.

System Basics. The SMPL System automates several tape handling functions, and is the conceptual equivalent of a “robot tape operator.” The system includes a small computer, and a SMPL cartridge that plugs into the computer. You need a TV or video monitor (not included with the system) to display messages from the computer.

The computer controls the tape transport functions via a cable that connects the SMPL cartridge to the recorder’s remote control port. Most remote control ports work by switching a line to ground to initiate a function—ground the rewind line and the recorder rewinds, ground the play line and the recorder plays, and so on. SMPL grounds the appropriate lines to automatically select different transport functions. Note that even smaller recorders (Portastudios etc.) that lack a remote control port generally use similar switching technology, and can easily be modified to work with SMPL.

But how does the SMPL system know when to initiate the various tape functions? As it so happens, SMPL generates industry-standard SMPTE (Society of Motion Picture and Television Engineers) time code, which appears at a SMPTE OUT jack on the cartridge. This SMPTE time code information is then recorded as an “intelligent sync track” on one track of a multi-track machine. SMPTE time code gives running time in hours, minutes, seconds, and “frames,” with a frame being 1/30th of a second. Therefore, every 1/30th of a second SMPTE records a new piece of information on tape that uniquely identifies that 1/30th-of-a-second piece of tape.

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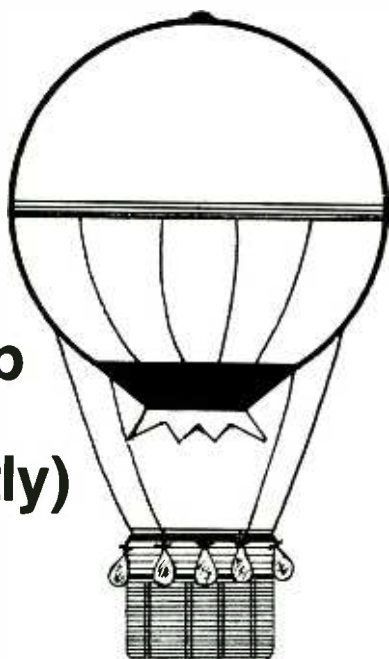
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One point before we continue: When most people see SMPTE they think solely of machine-to-machine, or audio-to-video, synchronization. SMPL is presently not intended for these applications, although being a computer-based system it can be retrofitted for enhanced operation at a later date. (In fact, Synchronous Technologies is currently working on a future implementation of SMPL that will allow audio/video sync; when this becomes available, older systems will probably be able to be updated for a nominal fee.) SMPL's main use is as a single-machine based system for musical applications and, as such, includes features not associated with traditional sync systems, e.g., programmable metronome, electronic drum/sequencer sync pulse output, and programmable punch-in/punch-out.

The Intelligent Index Counter. One of SMPL's most basic talents is to serve as a 100 percent accurate intelligent index counter. As you play back the SMPTE-encoded sync track through the SMPL cartridge's SMPTE IN jack, the TV automatically displays where you are on the tape. Unlike a standard index counter, though, this one cannot "slip"; and unlike most index counters, which are arbitrarily calibrated, SMPL tells you where you are on the tape to within 1/30th of a second. You can even lose the sync signal briefly (say, if there's a severe drop-out on the

Going Up (Slightly)



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tape, or the tape is physically damaged) and SMPL will still maintain perfect sync.

In addition, SMPL lets you assign a unique eight-digit "slate" number which also becomes part of the sync track. This means that every version of every song you record can have a unique identifier; when you play back a version, the screen will display the slate number. One application for this is when cutting several versions of one song. By assigning each version its own slate number, you can then note the slate number for the version with the best "feel." If you come back to the tape at a later date, having this slate number makes it simple to locate the right version out of several different versions.

SMPL starts the SMPTE code generation process by generating a one minute SMPTE-coded leader. You can put the machine into record at any point during this timed leader (I generally start recording about 30 seconds into the leader). After the leader ends, SMPL immediately starts generating the "real" (run-time) SMPTE code.

The SMPL Display. The TV display is the heart of the SMPL system, so before we can talk about some of SMPL's more advanced features, we need to discuss the meaning of the screen diagram shown in *Figure 1*.

The second line down from the top, RUN TIM (run time), shows how much time has elapsed since the timed leader stopped. Again, let me emphasize that you can start the recorder at any point during a song and the computer will pick up the SMPTE time code information. You need not start from the very beginning of the SMPTE track in order to obtain proper sync.

The next line down, CUE, requires a bit of explanation. As the tape rolls, pressing the computer's CUE button stores the run-time value in the computer's memory (also called the cue register) and displays this time in the CUE display. For example, if the first verse of a song is 1 minute, 17 seconds, and 12 frames into the song and you press the CUE button exactly at the beginning of the verse, the display will read a CUE time of 00:01:17:12. SMPL uses this cue time information during search-for-cue functions (described later).



Figure 1. Screen diagram of the SMPL System.

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The fourth line down, RCRD IN (record in), indicates a programmable punch-in point. You can set this value by pressing the computer's IN button as the tape rolls by. The next line down, RCRD OUT (record out), indicates a programmable punch-out point that works in a similar way to RCRD IN.

CUE, RCRD IN, and RCRD OUT are used together to automate the overdubbing process. This will be discussed more fully towards the end of the article, but the basic idea is that SMPL will automatically punch-in to record mode at the RCRD IN point, automatically punch-out at the RCRD OUT point, and rewind back to the CUE point so that you can do another take (or listen to the take you just played).

SLATE indicates the slate number discussed earlier which identifies a particular composition, and TIME shows the total time (elapsed leader plus run-time) if the tape is running, or displays STOPPED if the tape is stopped. There are four additional boxes below this line. The upper left-hand box, NON-DROP, indicates the type of SMPTE code being used. The upper right-hand box shows the current tape mode (play, record, rewind, fast forward, or stop). The lower left-hand box shows the tempo of SMPL's programmable metronome, while the lower right-hand box indicates the mode of operation (rehearse, entry, write, take, and locate). Let's now look at each of these modes in detail.

Operating Modes. SMPL's four different modes provide different ways of interacting with the system. Pressing a mode switch steps SMPL forward through the various modes, and a return switch similarly steps backwards through the various modes.

Rehearse Mode: When you first power-up SMPL, you are in rehearse mode. While in this mode, you can set cue, record in, and record out times in real-time by pressing the appropriate computer buttons as mentioned above. After entering these times, whenever you roll tape the computer will give you an audible (and relatively cheerful) "beep" at the cue, record in, and record out points *but does not actually switch the recorder into record*. The beeps are there to let you verify that the punch-in and punch-out points are indeed in the right places. During TAKE mode (accessed by holding down two buttons simultaneously), the audible beeps disappear and SMPL actually punches the recorder in and out automatically.

An additional pushbutton, TRANSPRT, is a multi-function switch when you are in rehearse or take mode. If the tape is stopped, pressing TRANSPRT will put the machine into play. If the tape is rolling, pressing TRANSPRT will cause the machine to seek the programmed cue point and "park" a second or so before the cue point.

Entry Mode: While in entry mode, you can enter cue, record in, record out, and metronome tempo using the computer's 0-9 number keys. There are also two cursor controls (cursor down and cursor right) to allow you to jump between the various parameters or move ahead to a specific digit to be programmed. Entering cue points numerically sometimes gives greater accuracy if you have an extremely tight punch that is difficult to hit correctly during rehearse mode. By going into entry mode, you can advance or retard the cue, punch-in, or punch-out points in 1/30th of a second increments.

Event Mode: In event mode, the screen display changes to eight lines indicating SMPTE code times for eight programmable "events." You enter EVENT times numerically using the 0-9 keys. We will discuss the purpose of this mode later on in the article.

Write Mode: Entering this mode lets you record the SMPTE sync track on tape. You can also enter the slate number while in write mode.

Locate: You do not specify this mode yourself; rather, if you have selected take mode the computer will automatically enter locate mode after passing the record out point. The machine then rewinds back to the cue point automatically so that you can either re-do the overdub or listen to what you just recorded. In rehearse mode, pressing the TRANSPRT key while the tape is playing (thus causing the recorder to search for the cue point) also puts SMPL into locate mode.

Before moving on, we should mention the remaining computer switches used by SMPL. There are switches for play, rewind, fast forward, stop, and record—just like a transport remote, except that this remote is on the computer keyboard instead of being in a little box. (By the way, SMPL does not interfere with the normal operation of your transport's controls; these can override the SMPL commands at any point.) Another switch, RESTORE, resets the whole system, erases any edit points, also acts as a panic button. There were a couple of times while learning the system that I hit the wrong switch at the wrong time, and SMPL ended up not responding to the computer's transport controls (a "lock-up" condition). Hitting RESTORE stops everything and puts you back in rehearse mode. Finally, let's not forget the EXCH button, a somewhat esoteric feature of great help to advanced SMPL users. This allows you to easily exchange times from one mode to another without having to re-enter the time individually for each mode.

Using Automated Punch-in and Punch-Out.

Since I do much of my work alone in the studio, I've come up with several ways to allow for punching in and out in overdubs without the aid of an engineer (in fact, in the July 1980 issue of *MR&M* I described how to build a footswitch to punch a TEAC 3340 in and/or out; several manufacturers adopted this idea subsequent to the article's publication). But SMPL makes the whole process, well, ...simple. I set the cue point a couple of measures before the punch-in point, and rehearse the part a couple of times while listening to the punch-in and punch-out "beeps" to make sure that the punch points are correct. If they are, I enter take mode and go for a take; if not, I go into entry mode and fiddle with the punch points until they are exactly in the right place. Then all I have to do is play, and SMPL takes care of the rest.

During either take or rehearse mode, when the tape passes the punch-in point the RCRD IN time changes to red. When the tape passes the punch-out point, the RCRD OUT time changes to yellow. These changes are visible on a black and white screen, but SMPL has a nice blue background and some other sexy color things happening that may make a color TV or monitor worth the extra investment.

By the way, you may have realized that while 1/30th of a second resolution allows you to set punch points very precisely, you can still be off by as much as 16.6

ms from the "true" punch point. So far this has not been a problem for me, since it's rather difficult to pick up on this small a time differential; most people need to hear at least a 20 ms time differential before they perceive two events as occurring at different times.

After the rehearsal or take is over, hitting the TRNSPRT key causes the recorder to rewind to the cue point. This is one of SMPL's most interesting features from a technical standpoint, since SMPL does not require any tach signal from the tape recorder in order to do its return-to-cue magic. What happens is that once SMPL goes into locate mode, it rewinds until it thinks it is at the cue point, stops, goes into play, and checks the run time. If the run time is within a second of the cue point, the machine stops. If the run time is within about 10 seconds of the cue point, the tape plays until it reaches the cue point, whereupon it stops. If the run time is far away from the cue point, the machine will either rewind or fast forward—whichever is appropriate—towards the cue point, and then take another "sample."

When SMPL first starts looking for a cue point, it can take three or four samples before it actually finds the point. But part of the computer program includes some artificial intelligence so that SMPL "learns" the machine's rewind characteristics. For example, if it overshoots the mark, it notes this and, next time, will hit closer to the cue point. After going through the "learning process," it usually only takes one or two samples for SMPL to find the cue point.

One caution: SMPL does not rock back and forth between rewind and fast forward, as a human operator would, before stopping. While this does not present a problem with modern logic-controlled transports, with older machines and professional machines using fast rewind times this could cause problems (such as tape stretching). I've been using SMPTE with an older Otari machine, and haven't had any problems; however, I assume that the brake pads are being worn out faster than they would be under normal operating conditions.

Driving Electronic Drums With SMPL. This is one of my favorite SMPL features. SMPL includes a metronome and 24 pulses-per-quarter note pulse train (the latter is suitable for driving E-mu, MXR, Roland, and other drum machines, as well as the "Master Synchronizer" I designed for PAIA Electronics). Fortunately, the metronome and pulse train achieve sync within milliseconds of starting the tape, regardless of where you are in the tape. Also, the pulse train will stay tuned off until you reach the cue point. Thus, you can set the cue point at the beginning of a particular measure, set up the drums in advance, and have them start right at the beginning of that measure.

Also, remember that most drum outfits have pulse outputs that can drive synthesizer arpeggiators and the like. With SMPL, since the drums are always in sync with respect to tempo, a synthesizer arpeggiator will be in sync as well if it is being driven from the drums. This represents a great improvement over the click track approach used by most drum machines for the sync-to-tape function, since with click tracks the only way to insure sync is to always start at the head of the click track. Being able to pick up sync at any point during a song is a very important advantage of SMPL.

Using the Event Mode. Event mode allows you to specify eight different run-time points. As the tape goes past the first point, a line brought out to the computer's user port goes positive (logic level = high). This line remains high until the tape goes past the second point, at which time the first line goes low (logic level = ground) and the second line goes high. In all, the user port provides a total of eight lines corresponding to the eight different programmed run times. These logic signals could be used for a variety of applications—programmable channel muting, synthesizer patch switching (for those synthesizers that include a patch advance footswitch option), start/stop of electronic drum machines, programmable stereo placement, and so on.

Another purpose of event mode is to provide pseudo-auto-location functions. For example, the eight events could indicate the start of the first verse, chorus, second verse, solo, third verse, etc. of a song. Since SMPL allows you to easily transfer an event time into the cue register, you can enter all important points in the song once using event mode, and then transfer these values as needed into the cue register for use during rehearse or take modes.

That just about covers the main aspects of SMPL, except for one other important point. Although using SMPL will cost you one track of your recorder, it may actually end up saving you tracks in the long run. How? Because SMPL can read the time code track from either the playback head or sync head. Now, suppose that you are driving a drum machine from SMPL's pulse output. There's no need to record that audio drum track on the multi-track recorder; you can use the SMPL sync signal to drive the drums *as you mix down*, and send the drums directly into the two track master (pretty sneaky!). Not only will the drums be in sync with the song, but you will save a generation by going directly on to the master. And if you have a sequencer that can also be driven by a 24 pulses-per-quarter note signal, it could sequence a synthesized bass line along with the drums during mixdown.

There is much more that could be said about using the SMPL system, but this column is already running pretty long. Like all computer-based systems, it takes a while to figure out how everything ties together; but with a little practice, using SMPL becomes second-nature and you can end up whizzing between the various modes without a second thought.

The SMPL System (computer and cartridge) lists for \$995. While a fair amount of bucks goes for the computer and cartridge, much of the cost (as with all computer software) covers the seemingly endless number of hours required to write a good, bug-free, useful computer program. Whether SMPL is cost-effective or not for you depends somewhat on what kind of music you record. If you use drum machines and synthesizers as extensively as I do, then SMPL is literally invaluable (my studio has already become totally dependent on SMPL). Still, no matter what type of music you play, the ability to do automated punches and identify where you are on the tape at all times is very useful. But I really don't want to get into the "I-recommend-it-or-I-don't-recommend-it" type of review writing; SMPL does what it claims to do, and if that sounds useful to you, then by all means check it out. I'm certainly very glad it's part of my studio.

VAL



bob grossweiner

GARAY

STAR

PRODUCER

Val Garay has become one of the most sought after producers in Los Angeles during the past few years due to his success with Kim Carnes, the Motels, and Dolly Parton. But for eight years prior to his smash production of Kim Carnes' "Bette Davis Eyes," Garay was the engineer for all of Peter Asher's hits with Linda Ronstadt—from 1974's *Heart Like a Wheel* through most of 1982's *Get Closer*—and James Taylor from 1977's *J.T.* through 1981's *His Dad Loves His Work*. In addition, being an arranger makes Garay a more valuable person in the studio control room.

A few years ago, Garay built his own studio, Record One, in Los Angeles, making him one of the few premier producer/arrangers with his own studio. Linda Ronstadt, James Taylor, Jackson Browne, Don Henley, Warren Zevon, and Toto are some of the artists who have recorded hit albums at Record One. In fact, the studio was the home to two Record of the Year Grammy Awards: 1981's "Bette Davis Eyes" by Kim Carnes and 1982's "Rosanna" by Toto.

"As an engineer," says the 41-year-old Garay, "I've always wanted to win a Grammy in engineering because I've always felt I was as strong an engineer in the business as anyone. I've been nominated twice for Linda Ronstadt's *Simple Dreams* and James Taylor's *J.T.*, but they were both in the same year and probably cancelled each other out."

"After all, I'm a songwriter, not an engineer."



Songwriters and engineers are not only equipped with very different kinds of talent, they need different kinds of equipment to bring those talents out.

No one is more aware of this fact than Steve Kipner. He's one of the most successful songwriters in the country. You'll find his words and melodies behind many of the industry's top recording artists. Like Olivia Newton John's "Physical", "Heart Attack" and her newest hit "Twist of Fate." Other contributions include songs for Sheena Easton, Dolly Parton, America, and Laura Branigan.

And behind Steve Kipner you'll find Soundcraft's 400B console. Because to create the sound that both audiences and artists respond to, Steve prefers the console that responds to him.

Steve chose the 400B for reasons that are as solid as gold. "I spend long hours in my home studio, and I never know when the creative spirit is going to strike, even at 3 AM. I spend time at this console laying down tracks, not patching and repatching, or fooling around with a lot of confusing controls. The Series 400B does

what I want it to do and lets me do it easily. The quality of the sound is equal to expensive commercial studio sessions, plus I've got the comfort and control of my home environment. After all, I'm a songwriter not an engineer."

It's easy to see why Steve chose the 400B. But of course, at Soundcraft we do more than build the kind of consoles that bring out the best in recording artists and songwriters. We also provide a full line of quality mixers to bring out the artist in the engineer.

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"As an engineer," says the 41-year-old Garay, "I've always wanted to win a Grammy in engineering because I've always felt I was as strong an engineer in the business as anyone. I've been nominated twice for Linda Ronstadt's *Simple Dreams* and James Taylor's *J.T.*, but they were both in the same year and probably cancelled each other out."

Working with Peter Asher was the key to Garay's career. It all began to blossom for the native Californian while working on Ronstadt's *Heart Like a Wheel*. "Huge," he beams. "I became one of the biggest engineers in the business. We set the standard for engineering. A lot of things in the engineering field were based upon me as one of the leaders of the state-of-the-art—drum sounds, guitar sounds. Listen to Andrew Gold's guitar on Linda's 'You're No Good' and 'When Will I Be Loved?' They're classics. People had never heard anything like that."

"At that point," he continues, "a lot of people were using dynamic microphones on drums. Dave Hassinger (who Garay learned engineering from) came from the orchestral school of engineering at RCA and used to do a lot of big orchestra dates, where they used very good quality condenser microphones—Neumann U67, which is a tube mic, and Telefunken 251, another classic-type mic. In the mic lock, Dave had four Telefunken's that were never used. I set them up on a drum set and that's when drums went from 'chinka-chinka-thump' to *huge*. It worked! Tom tom sounds that nobody had ever gotten before where tom toms literally lit up the speakers on the radio."

Garay has been just as bold as a producer. He is not afraid to use studio musicians if band members cannot cut it in the studio, as was the case with the Motels' *All For One* and *Little Robbers*. Although the band members felt inferior at the time, the records went gold and they began to learn how to really play as a band—both on stage and in the studio—to the point where the band members will probably record in the studio on their next album.

Garay helped create "the Los Angeles sound," the soft-rock that prevailed in the West Coast for most of the latter half of the 70s. In addition to his extensive credits (see the accompanying discography), there were many early Motown sessions Garay was not credited for

from when that record company first moved to Los Angeles. (Berry Gordy never wanted anyone to know who worked on Motown's albums for fear that they would be stolen away.) Garay engineered some of the early Jackson Five tracks and did some overdubs on one track of Stevie Wonder's *Talking Book*. Garay also did some vocal overdubs on the Rolling Stones' "Turd on the Run" from *Exile on Main Street*, and Karla Bonoff's eponymous debut album.

As *MR&M* goes to press, Garay has been commissioned to produce the new Santana album, which should downgrade some of the ribbing he has been receiving as a producer of primarily women singers—since Santana now features two male vocalists, Alex Ligertwood and returning Greg Walker. "Thank God," sighs Garay about the opportunity to produce male vocalists again.

Modern Recording & Music: How did you get started in the music business?

Val Garay: I started out in a bar band in 1962 in the Bay Area. I played guitar and was in and out of bands until 1970, playing with different people. In 1970, I was in Los Angeles, and I started to get into production. I realized that in order to align myself with real good artists, I would have to have a calling card. At that point, the only artists I seemed to be able to work with weren't the caliber of artists I ultimately wanted to work with. I couldn't really figure out how I could be someone they wanted to work with if there wasn't something I could do, or had done, to attract them to me.

I was sure I couldn't do it as a musician because as a musician I was just a little better than average. The studio I was working in at the time as a producer was owned and operated by probably one of the best engineers of the time—Dave Hassinger. He had just left RCA after 15 years, and he had done every Rolling Stones record from "The Last Time," through "Have You Seen Your Mother, Baby, Standing in the Shadow?," including "Satisfaction," "19th Nervous Breakdown," and "Goin' Home." He also did the first three Grateful Dead albums as engineer and producer and the first two Jefferson Airplane albums. He was a major, major engineer in Los Angeles. The Rolling Stones recorded there, as opposed to England, with him.

He was engineering for me a producer and realized that I was struggling and said, "You have a great pair of ears, I'd love to teach you to be an engineer." He was the best engineer in Los Angeles at the time. Basically, there were only four engineers in Los Angeles at that time who were music forces—Dave Hassinger, Al Schmidt, Richie Podolor, and Bones Howe. Podolor owned a small studio in the Valley called American Recording Studio where Dave Hassinger worked and learned as an independent engineer. Schmidt worked there too, and Bill Schnee started there. It's a pretty incestuous group of people because when Dave Hassinger went to RCA, Schmidt was the head mixer. He left to become a producer, which never happened, and went back to engineering. He taught Hassinger and Hassinger taught me.

MR&M: How long did it take you to get a basic understanding?

VG: I learned very quick—six months. I had my first hit record within six months with the Los Angeles-based group El Chicano's "Brown Eyed Girl," a remake of Van Morrison's hit.

MR&M: In becoming an engineer, what are the basic things you had to learn?

VG: I learned to work without sleeping—literally. I used to come in at eight in the morning, set everything up, work all day, work all night and get done sometimes at five or six the next morning, sleep on a couch in front of the console for an hour-and-a-half, wake up and start the whole thing all over. That was important because of the dedication. I was a monk for about four years; I didn't see anybody. I was always buried in the studio in Hollywood. And all the usual things like the ability to learn quickly, good taste, common sense...

MR&M: How hard was the technology part?

VG: I don't know anything technically about studios and recording. I do everything with my ears. I don't know an IC from a flashlight battery.

MR&M: But you eventually built your own studio.

VG: Well, I didn't take a soldering iron and...

MR&M: But you knew what equipment you wanted.

VG: You pick up a certain amount of technical data along the way through osmosis. You can't help it. But in terms of why an API console is better than a Neve console tech-

nically, I couldn't tell you. All I know is that it sounds better to me.

If you're talking from an audiophile sense, the less you know technically as an engineer, the better you are because I've never met a great engineer, with one exception—and only one exception of all the engineers I've met in my career—who had any technical background and who was also good at mixing. That is George Massenburg. Everyone else that I've met, that quality was a deterrent.

MR&M: Did you do a lot of experimenting until you found your niche?

VG: Not true! There's a system of recording that I learned from the very beginning and that foundation that I had is infallible, in my opinion, in terms of recording purposes. Where a lot of engineers learn in five studios in the first three years of their career by moving from one studio to another, they get nine different opinions on how to do the same thing. And by doing that, they never get a sound foundation. I learned from one guy in *one* studio and learned it his way. I knew his way was the right way because I watched and listened to the records he made. It was unquestionably not a case of luck: it was a case of understanding what he was doing; he had a system of operating. You embellish it as you get stronger, the longer you do it. And that's what I did.

MR&M: What about a person who takes a course in engineering?

VG: It's real difficult. All that does is teach you basic nomenclature, which doesn't hurt, but it really doesn't teach you a real understanding of how to make a good quality recording. I have a lot of ideas on teaching that I'm putting down on paper because Long Beach State has offered me a professorship to teach a class. I've always wanted to do it, but I've put it off because I never had the time. I'm going to make the time though and teach two classes a month. And after I do it, I'll be able to answer that more clearly. But at this point, all the classes I've ever seen are just too basic or too technical.

MR&M: Let's go back to what happened after your success with El Chicano.

VG: At that point, Dave Hassinger was still a drawing card at his studio, and Peter Asher came to him in the middle of producing Linda Ronstadt's *Heart Like a Wheel*, which he had started at another studio in Los Angeles. He came to Dave because he had problems recording the album

There's a system of recording that I learned from the very beginning and that foundation that I had is infallible, in my opinion, in terms of recording purposes.

and wasn't real happy at the other studio and wanted to know if Dave would do it. He said yes. About two weeks into the project Peter and I became very close because, at that point, Dave and I were working like a duet. I'd work for four hours, he'd work for four hours, and so on. He was basically trying to let people see that I was real good. He would force them by saying, "I've got an appointment in ten minutes so Val is going to take over," and then he would leave.

Peter became very comfortable with me very fast. Four days later, David stepped aside, and I finished the album. I made every album with Peter from that moment on for the next eight years.

MR&M: Are you still working with Peter?

VG: No. I started a Ronstadt album that never got finished, and then she went off to do the movie *Pirates of Penzance*. When they wanted to finish the album, I was unavailable. I was working with the Motels. I suggested George Massenburg, whom I'm a fan of, and they started recording the album but were uncomfortable with the mixes that George was doing. So they came to me and asked if I would give them five days of my time to mix as a favor to them so they could get their bearings again. When somebody listens to one person's style of mixing for eight years, no matter how good somebody else is, it's never going to feel comfortable. I mixed five or six songs, and then they took them back and played them for George. George realized, being as good an engineer as he is, what he was doing different from what they wanted to hear. He made some corrections and mixed the album for them. They only used two or three of my mixes on *Get Closer*.

Peter is one of my closest and dearest friends. Peter never made a record with the same engineer twice until he met me. Then for the next eight-and-a-half years, I engineered his albums exclusively.

MR&M: You were basically creating the Los Angeles sound.

VG: In terms of the press, I was a serious member of the Los Angeles mafia. The key to that sound was that Linda Ronstadt had always made the pretty, lilting kind of records. I took the old "See My Baby" rhythm and put some balls into it. If you listen to the tracks on her records, even though they might not be serious rock'n'roll songs, the tracks have smoked. They never had as much kick drum in a record until I did that; it just didn't exist. If you listen to a record before 1971, you'll never hear "poh pom pah" in the kick drum. It's just not there.

MR&M: When did you get the urge to produce?

VG: All the time I was engineering I tried to produce, but never having had anyone to teach me how to produce, it was scattered and not real pointed in terms of real production.

MR&M: What's the difference between engineering and producing?

VG: An engineer's job is to make sure that things sonically are happening; a producer's job is to make sure that musically things are happening. There's a huge overlap, but the one thing that an engineer doesn't concern himself with terribly (although I always do because I'm a musician and I think maybe that's what helped me) is orchestral arrangements and song quality. I've heard some brilliantly recorded records, but the songs just suck. Every year you always see a Sheffield Lab record in the Grammy Award nominations—sometimes two of them in a year—that are audiophile specialties, but the material isn't great. They're not looking for material in the nomination process; they're looking for audiophile. That's an engineering style record, not well produced.

MR&M: When did you start producing?

VG: I started producing in the 60s, but I wasn't any good at it until six years after watching Peter produce

for six years. I did a major production of Clive Davis in 1972. The band was Pan, and Clive paid us a fortune and signed us to Columbia Records. We spent close to \$200,000 making the album, which, in those days, was a ridiculous fortune. It was released the day before he got fired—May 28, 1973.

MR&M: When did you start feeling *confident* as a producer?

VG: The first record I felt confident about producing was in 1976 when I produced Pablo Cruise's second album, *Lifeline*, for A&M. It was a good album, but I got into another unfortunate timing situation when the week it was released Peter Frampton's live album began to break at A&M, and the only thing they would think about was that album. It was a huge, huge album.

MR&M: At the time you started producing, were you still engineering?

VG: I still do.

soloist. It's difficult for him to take the guitar away and just sing into the microphone. You always need that part of the security. I'm trying to get away from that because it's too much work.

MR&M: What was your first successful production?

VG: I did a solo album, *One More Song*, with Randy Meisner in 1980. We had two hits—"Hearts on Fire" and "Deep Inside My Heart." Then the next album I did was Kim Carnes' *Mistaken Identity*, which contained "Bette Davis Eyes."

MR&M: What was your input in Kim doing "Bette Davis Eyes," which Jackie DeShannon recorded about five years earlier in a vastly different interpretation?

VG: The song was about six years old when I heard it for the first time. It was pretty much by accident the way it occurred. Donna Weiss, who wrote the lyrics, called my office and said she had just written a hit song

songs; Kim asked which one and Donna said "Bette Davis Eyes." Prior to this, Kim told me that she made an album with another producer, and they didn't get along. She came to me and I finished *Romance Dancer*. In the process, the producer presented her with this song she really loved. But then the song disappeared, and she could never figure out why. In reality, it disappeared because the producer wanted the publishing rights on the song, and the writer wouldn't give it to him, so he shoved it.

I asked Donna to leave me a demo tape of "Bette Davis Eyes," which everyone should hear because if you think the Jackie DeShannon version is funny, this one is hysterical. I listened to it and loved it. We started to rehearse it the way it was on the demo, and it was ludicrous. You would've thought it was a Leon Russell/Delaney Bramlett version of the song. I sat down with a guitar and tried to restructure chords to make it a little simpler. Then Bill Cuomo, her synthesizer player, came up with a great riff in the beginning, and I said to Bill that we should try to find a way to make that riff run through the entire song. He took the song home that night—it's very complicated how it runs through the tune—and worked all night. We rehearsed it for five days, and by the time we finished rehearsing the song, I knew we had a big hit.

MR&M: How did you start working with Dolly Parton?

VG: She called me and asked if I would do her album.

MR&M: Were you surprised?

VG: A little and not! I was surprised because it's always nice when someone of that stature wants to work with you. I had worked with her before as an engineer when Linda used her on a couple of her records. So she knew who I was. It's always nice when someone like her wants to work with you. We had such a fantastic time and became such close friends. She's one of the most unbelievable artists I've ever worked with.

MR&M: It has been said that your major successes have basically been with women singers—Kim Carnes, Martha Davis of the Motels, and Dolly Parton.

VG: Now, why has this been said? That's funny! People say that to me all the time.

MR&M: Are you more comfortable with women singers?

VG: I grew up with a bunch of



MR&M: Is it difficult to do both at the same time?

VG: It's not so difficult because I've engineered so long that it's really second nature. I'm uncomfortable when I don't have my hands on the controls. It's like a guy who's in a band and suddenly becomes a vocal

for Kim Carnes. She wanted to come over and play it immediately. It was a good song but wasn't the right song for Kim. We thanked her and told her how much we appreciated her coming over and playing it for us. Then Donna said that the reason she came over was that Kim liked one of her

sisters so I'm very comfortable working with women. But I've worked with James Taylor, John David Souther, and Andrew Gold as well. When I was working with Peter, he was the producer, but I had a lot to say. If someone doesn't want to hear my ideas in terms of production of a record, I don't think I would work day and night with them for eight years. I'm not saying I was the producer, but I said to Peter once, "You know, someday we should get together—the two of us—and produce a record." He looked at me and laughed and said, "what do you think we've been doing?"

MR&M: Do you think people came to work with Peter because of you?

VG: No. I don't think so. It was a very incestuous circle of people. John David Souther wrote songs for Linda, and Peter and I worked on his album. Andrew Gold played in Linda's bands, and then we did his record. I'm sure that in their working with Peter at that time there was maybe a 5 percent draw by the fact that Peter worked with me.

MR&M: When people come to work with you as a producer, are they looking for a certain sound or a hit formula?

VG: My records have a unique sound, I've been told. I've never noticed it because it's like you don't notice your face because you look at it every day. I don't notice the sound of my records because I listen to them every day. Placed against another record, I guess they do sound real specifically stylized in a certain way. There's a grain that runs through them. A singer on the records that I make is real obvious in that he or she is the singer—you don't have questions about is there enough voice, is it buried in the track. It's real obvious that the singer is specially presented, and some people don't make records like that. Listen to Dolly Parton's records and the one I just made. There's a major difference! The production is stronger; it's got some real power to it. It has depth, strength, sonics. She sounds like she never sang so good in her life. In reality, she probably sang as well on every record, but you just don't hear it.

MR&M: Why did you build your own studio?

VG: I built Record One in 1979 because the studio I was working in at the time—the Sound Factory, where I made a lot of hit records—was going through some personnel

changes. The owner was no longer involved on a day-to-day basis. The equipment started to deteriorate, and they weren't replacing it. I was afraid of falling into a trap where everything around me would fall apart, and I would be stuck. So rather than wait for that to happen, I built my own studio, which is basically a copy of the Sound Factory.

I have one studio and am building a second one now. It cost \$2 million to build this 10,000 square foot complex—studio, offices, living space for the artists working here with a huge living room and fireplace, a lounge, a full kitchen, a television room, a full rehearsal studio, a complete shop, a management office, and my office.

MR&M: Any bedrooms?

VG: No! We have to get rid of them once in a while.

MR&M: What equipment do you have?

VG: It has an API console that was made in New York in 1979. It was the last one to come out of that factory before it went out of business. I picked it because it was the best console ever made. They don't make them any better. They just started to make them again.

I don't like English recording consoles because they sound too electronic to me. The other American consoles are not nearly as good. I use 3M tape machines, which are no longer made, and most of mine have been completely remanufactured and hot-rodded for what I like.

MR&M: Such as?

VG: Again, as the years have gone by, I've figured out certain things that I like. 3M probably made the best sounding 16-track ever, and one of the reasons was that the best sound is where you have a piece of wire soldered and the signals pass through a piece of wire with nothing in between it. And as the state-of-the-art progresses, they add little bits and pieces along the way—the winky-dinky lights go on and off—and through all the shit that they added, it dilutes the quality of the sound. Around 1969-70, when they started making the machines, all the switching in the machines were all relays—the pieces of metal that go "chunk"—and the signals passed through these pieces of copper that are boxed together magnetically in a relay. The next generation—the M79 series that 3M started making—were all switched by FETs, an electronic switching, which I feel dilutes the sound. So I took all my multi-track machines, all

my two tracks, and all of my M79 3M's and retrofitted all my FET stuff with relays, which they now make—this is all technical garbage, by the way—measured it and reduced the distortion by about a half. Then my two-track, which I mixed on up until about a year ago. Most people were mixing on a quarter-inch two-tracks, I built one of the first half-inch machines in Los Angeles. I went to Saki, the biggest manufacturer of heads in the area, and they built the heads for the machine. Then I experimented with different electronic components, changing the sound of the machine until it sounded to my ears what I thought was correct. Then I measured it. Oddly enough, when we measured it it was flat—measurably flat from about 20 cycles to about 20,000 cycles. I tend to trust my ear! That machine is practically hand-made. You can buy them now—Ampex and MCI make them—but according to Doug Sax of the Mastering Lab, who is Mister state-of-the-art himself, said that my machine I mix on is probably as good or better than anything he has ever heard. He has mastered every record I've made for ten years.

MR&M: I presume that you would say that your studio is state-of-the-art. The term has loosely been used by practically every studio. What does state-of-the-art mean to you?

VG: State-of-the-art means that you have the technology that's available in the recording industry and you have the insight to what people consider to be the finest recording equipment available to the general public.

MR&M: When we talked with Martha Davis of the Motels, she said that you hand-picked her microphones for both studio use and concert use. Which ones did you pick and why?

VG: On stage, she uses an HME wireless that we had built for her with a Shure SM57 head in it. They originally came with a Beyer head, but we put a different microphone head on it. Everytime she dropped it—it has a big ball—it would hit the floor first. So we put a different microphone head on it that was more durable. It doesn't sound quite as good as a Beyer head because the Beyer head is a more broadband mic, because she keeps breaking them.

In the studio, she uses a Neumann U67. That's the only mic I've ever used for any singer because it sounds great to me on any singer. It's an old

Val Garay's Discography

Produced and Engineered by Val Garay

- 1984 Santana (Columbia)
Dolly Parton *The Great Pretender* (RCA)
- 1983 The Motels *Little Robbers* (Capitol)
Joan Armatrading "Drop the Pilot" and "What Do Boys Dream" from
The Key (A&M)
- 1982 Kim Carnes *Voyeur* (EMI-America)
The Motels *All Four One* (Capitol)
Kenny Rogers "I'll Take Care of You" (Liberty)
Marty Balin *Lucky* (EMI-America)
- 1981 Kim Carnes *Mistaken Identity* (EMI-America)
- 1980 Randy Meisner *One More Song* (Epic)
- 1979 Leah Kunkel *Leah Kunkel* (Columbia)
- 1978 Craig Fuller and Eric Kaz *Craig Fuller/Eric Kaz* (Columbia)
- 1976 Pablo Cruise *Lifeline* (A&M)
Mr. Big *Photographic Smile* (Arista)
- 1973 Pan *Pan* (Columbia)

Engineered by Val Garay

- 1982 Linda Ronstadt *Get Closer* (Asylum)
- 1981 James Taylor *His Dad Loves His Work* (Columbia)
Gilbert & Sullivan's *Pirates of Penzance* (Broadway cast recording)
(Elektra)
- 1980 Linda Ronstadt *Mad Love* (Asylum)
Linda Ronstadt, *Linda Ronstadt's Greatest Hits, Vol. 2* (Asylum)
- 1979 James Taylor *Flag* (Columbia)
Bonnie Raitt *The Glow* (Warner Brothers)
- 1978 Linda Ronstadt *Living in the U.S.A.* (Asylum)
John Hall *John Hall* (Asylum)
- 1977 James Taylor *J.T.* (Columbia)
Linda Ronstadt *Simple Dreams* (Asylum)
Neil Diamond *I'm Glad You're Here With Me Tonight* (Columbia)
Eric Carmen *Boats Against the Current* (Arista)
The Four Seasons *Helicon* (Curb/Warner Bros.)
- 1976 Linda Ronstadt *Hasten Down the Wind* (Asylum)
Linda Ronstadt *Linda Ronstadt's Greatest Hits* (six tracks) (Asylum)
Andrew Gold *What's Wrong With This Picture?* (Asylum)
James Taylor *James Taylor's Greatest Hits* (three tracks) (Warner
Brothers)
Jackson Browne *The Pretender* (Asylum)
J.D. Souther *Black Rose* (Asylum)
Orleans *Walking & Dreaming* (Asylum)
Jennifer Warnes "Right Time of the Night" (Arista)
- 1975 Linda Ronstadt *Prisoner in Disguise* (Asylum)
Andrew Gold *Andrew Gold* (Asylum)
Stanley Turrentine *In the Pocket* (Fantasy)
The Blackbyrds *City Life* (Fantasy)
Donald Byrd *(High) Steppin' Into Tomorrow* (Blue Note)
Elton John "Philadelphia Freedom" (Strings and horns) (MCA)
The Four Seasons *Who Loves You* (Curb/Warner Brothers)
Frankie Valli *Closeup* (four tracks) (Private Stock)
- 1974 Linda Ronstadt *Heart Like a Wheel* (Capitol)
The Blackbyrds *Flying Start* (Fantasy)
Seals & Crofts *Diamond Girl* (Warner Brothers)
- 1972 El Chicano *Celebration* (Kapp/MCA)
Seals & Crofts *Summer Breeze* (Warner Brothers)
Marvin Gaye *Trouble Man* (soundtrack) (Tamla)
The Mamas & Papas *People Like Us* (Dunhill)

Mixed by Val Garay

- 1983 Paul Seymour *Paul Seymour 2* (Boardwalk Records)
- 1980 Kim Carnes *Romance Dancer* (EMI-America)
- 1976 Funky Kings *Funky Kings* (Arista)

tube mic. Barbra Streisand has only used one vocal mic, an M49, which is of the same ilk—the Neumann era, the late 40s, early 50s—just a slightly different mic. It's almost as good, in my opinion, maybe even better for her voice. I never heard her on the two mics. Most artists don't believe that [the Neumanns] are that good or there can be so much difference until you stick two microphones in the studio, let them sing the same four bars in one and then the other, then take them to the control room. Then you play them back the tape, and they pick the Neumann microphone.

MR&M: Do you do anything special in the studio to get your sound? Any tricks?

VG: I don't use a lot of effects. I try to make things sound rich and strong and with punch; that's about it. One of the few effects I use is a Synare, which I first used on "Bette Davis Eyes"—the "chew, chew" sound.

MR&M: Do you try all the new equipment that is manufactured?

VG: No. I try some of it.

MR&M: How do you decide what to try?

VG: I read a lot of publications, like *Modern Recording & Music*... I see what's available on the market. The same way people decipher what film to go to and what film is not worth seeing, it's the same with equipment. Of course, at some point you miss something great, but you'll get it anyway because enough people talk about it so you'll take another look.

MR&M: What have been some of the best improvements in equipment over the past few years?

VG: The options are becoming incredible. They're broadening so fast that there's just an immense wealth of things available that make life a lot easier.

MR&M: What are you going to put into your second studio?

VG: A 1968 API console, which was originally built for Marvin Gaye's studio in Los Angeles. API never built two consoles the same. (It was taken from Gaye in a foreclosure when he went through bankruptcy. Then the bank sold it to a third party, who kept it for awhile and just sold it to Garay.) The studio part is completely different from any other studio. It's in the same building, which I own. It's a huge room with an 18-foot ceiling. The control room is identical to the first, the same equipment. The space used to be the rehearsal studio.

State-of-the-art means that you have the technology that's available in the recording industry and you have the insight to what people consider to be the finest recording equipment available to the general public.

MR&M: Why did you decide to build another studio?

VG: If I book the first studio out for a month day and night, I can't work in it. I'm basically building the second studio for me so that the other studio can be booked out. But you know what will happen, don't you? As soon as I finish this studio, everyone will want to book it. It's always the way it happens—believe me. This still can be used as a rehearsal studio as well when it's not used to record.

MR&M: Who else has used your studio?

VG: Linda Ronstadt recorded *Mad Love* and *Get Closer* here. James Taylor recorded *His Dad Loves His Work*, Jackson Browne did *Hold Out*, Warren Zevon recorded *The Envoy*, Toto recorded some of *Toto IV* and mixed all of it here, and Timothy Schmidt and Steve Perry of Journey are recording solo albums now.

MR&M: Why do you think people want to use Record One?

VG: A lot of people want to use it, but the problem has been that a lot of people can't get in. When Peter and I were working there all the time and Greg Ladanyi was working with Jackson Browne on *Hold Out*, a lot of people called up saying they loved the sound of the records and wanted to book the studio. They couldn't get in, and that's why I'm building the other studio.

MR&M: How do you decide who uses your facility?

VG: The studio is bookable, but people don't think it is. It's a big misconception. We're open to anyone, but people don't think that way. They

think it's a private studio. It's completely open to the public.

MR&M: Are your rates comparable to other studios?

VG: Absolutely. We're competitive with anyone in town. To give you an idea about the quality of the studio, I know that there are a lot of studios around and people tell you that they're all great. How many studios do you think there are in the world?

MR&M: Tens of thousands.

VG: What do you think the odds of the (Grammy Award) Record of the Year—a pretty good judge based upon people's opinions—two years in a row coming out of the same studio? My studio! 1981's "Bette Davis Eyes" by Kim Carnes and 1982's "Rosanna" by Toto.

MR&M: What do you attribute to that?

VG: A quality studio. I think that speaks for itself about the quality of the studio. I designed the method of operation. It's an incredibly efficient studio and staff. Recently I started working with Bruce Botnick, who was working with Steve Perry here. Bruce has been around for a hundred years, like me. He came to me after being in the studio for three days and said that this was the most efficient studio he has been in in his life. One, because I'm a maniac—I love everything to be perfect—and second, because I'm an engineer. When a pot squeaks or a tape machine is not running properly, I know about it because I'm in there working. So the maintenance staff is in there constantly dealing with an engineer that's also the boss.

Hacker's Digest

Man's best friend? No, it's not a dog. I'm referring to my computer—it's the best friend I've ever had. That's a little weird, you say; this guy must be sick or at least badly adjusted. But I contend that computers *are* the best of friends. Who else do you know who can entertain you, educate you, challenge you, help you with your work, be completely obedient, and be—well, a lot of fun? Okay, maybe there's still few things that people friends are good for, but computers are becoming more and more companionable. At least you have to admit that they're more fun than pets. (I'll do no such thing—Ed.) I'll bet more kids ask for computers at Christmastime than for puppy dogs. The fact is that computers are getting to be pretty smart, and thus are able to seriously engage our attention...and affection, and animosity. In short, they are beginning to inspire us to humanly respond to them; likewise, they are beginning to take on human characteristics of their own. In a few years, when the sciences of robotics and artificial intelligence have taken root, I think our distinction between men and machines will be quite blurred.

Edutainment

Meanwhile, a lot of people are buying computers and taking them

home to find out for themselves what all the excitement is about. A very curious phenomenon is taking place, one which economists and social scientists are watching very carefully (and predicting to be the next big social trend). They call it *edutainment*. In other words, they foresee a widespread use of home computers for education and entertainment—a kind of private university-theatre concept in which the individual purchases the hardware and software he needs to support his own learning and entertainment. They also foresee companies making tons of money off this trend. Predictably, there is tremendous competition among computer manufacturers to lay claim to their share of the market. The result has been fierce competition and fantastic price reductions, as they attempt to persuade the consumer to make a small donation to the cause. My private demography shows that 25 percent of you already own computers, 70 percent would consider buying one, and the other 5 percent can't figure out how to put the batteries in your flashlights. I'd like to discuss with the 70 percent group some of the ins and outs of the Great Computer Marketing War currently playing at your favorite store.

It's a Jungle Out There

Decreasing manufacturing costs,

cut-throat competition, and the willingness to take a loss now to insure a place in the market later are all combining to drive down the price of game, personal and small business computers. Prices have fallen so dramatically that some systems are now marketed as impulse-buying items. Sales figures reflect this pricing; sales of low-end computers were 2.4 million in 1982, and probably reached five or six million in 1983, thanks to mass marketing. Commodore is probably the production king, manufacturing more than 110,000 microcomputers a month; its VIC-20 alone accounts for about 70,000 units a month. Its wholesale price is \$125, but incentives to dealers allow them to sell it for \$89. At that price, the profit margin is small, yet existent; Commodore cuts costs by manufacturing most of its own semiconductors; the production volume itself creates greater efficiency. In addition, they have redesigned the VIC-20 and have begun production of a new model with a parts count of less than 30, down from 70. Of course, the big profits aren't from the computers themselves, but from potential software and peripheral equipment sales. Profit margins here run about 10 percent to 15 percent.

When it was introduced in 1982, the VIC-20 sold for \$299; now the price is \$89. That kind of price reduction has characterized the entire small computer industry. For

example, the Texas Instruments 99/4 made its debut in 1981 at \$525 dollars; in the Spring of 1983 the upgraded 99/4A sold for \$100! The smaller TI 99/2, which was supposed to sell for \$100, will be sold as scrap silicon. The Atari 400 began life in 1980 at \$630, and later sold for less than \$80 dollars. But life expectancy for microcomputers dictates that each model's days are numbered. Atari has dropped the 400 and introduced the 600 model instead, and cut prices and improved performance of the 1200. The competition among small computers—the under \$500 (and dropping fast) category—is tough; manufacturers are holding on, to preserve an implicit demand for new products and software. IBM, Apple, and other heavyweights have under \$1000 computers in readiness, introductions that would put further pressure on the low-end computers. In addition, portable yet powerful computers are swooping down through the price structure; it is expected that portability will be the key feature in coming years.

If things sound rough in the low-end computer market, it's even rougher for stand-alone video games.

It is predicted that they will cease to exist in a few years. It isn't that they aren't popular—far from it. The problem is that they only support games, whereas slightly higher-priced computers run all sorts of programs, including games. As the low-end computer prices slide downward, video games will be crushed underneath. In the meantime, game computer prices are being cut; the Atari VCS 2600 game might sell for as little as \$50 in the near future, as look-alike systems appear on the market. Ultimately, the only hope for the survival of the video game will be its upward evolution into a general purpose computer. Atari is introducing a computer keyboard for its VCS 2600, Coleco offers the Adam computer module for programmer/game-players, and the Mattel Intellivision game will have a computer keyboard addition.

And if things sound rough for video games, just take a look at Texas Instruments stock; The Wall Street Journal reported that in two days in June, 1983, the value of the stock fell \$1.2 billion when the company announced that its home computer

business was in trouble. This dramatically illustrates the problems of survival in the home computer market as price-cutting cuts both the profit margin and the margin of error allowed in predictions of how the consumer will respond to a product. Clearly, only manufacturers with low-cost production methods and keen marketing strategy will prosper. Computer manufacturers are suddenly finding themselves in a previously unfamiliar territory—the mass consumer marketplace and its often unpredictable whimsy. Of course, that danger only thinly conceals the potential rewards for the corporate winners. An indication that the home computer market, the country's fastest growing mass market, has captured the corporate attention is the revenues for advertising. Television ads for computers tripled in 1982, up from \$26 million to \$78 million. IBM alone spent \$20 million for TV advertising; Commodore spent \$14 million.

Texas Instruments spent a lot for television, too, but apparently no one was watching. While TI's stock hit the skids last summer, Commodore

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computers were outselling TI computers by a margin of four- or five-to-one. In 1982 the two companies were close competitors in sales figures. Ironically, the problem for TI was its technically respectable and big-selling 99/4A. The pricing of that computer for \$150 set the stage for tremendous sales...and tremendous competition, as competitors matched and exceeded the price cut. TI continued to sell the 99/4A and apparently did not develop a more cost-effective system, or a more cost-effective way to produce the 99/4A, choosing instead to sell the 99/4A close to cost and hoping that software and peripheral sales (and an increased market share) would pull them through. When competitors continued to cut prices and introduce improved models, TI cut its price to \$100, a below-cost figure, in an effort to support sales. Simultaneously, a shock hazard was discovered in the 99/4A's power transformer. Shipment was halted for a month, excess inventory piled up, and the rest is red ink. The company's public statement that they hadn't produced "the right products, for the right growth markets, at the right time," didn't particularly help sales. The TI-99/4A is history now.

In a slightly bigger league, the IBM PC has sold more than 300,000 units in two years and has set a new standard for personal computers in the \$2,000-\$5,000 price range. Long the giant of giant computers, its entrance into the small computer market was eagerly awaited and expected to redefine the nature of the market. It was expected that no matter what the quality of the computer, IBM would have great success on the strength of its perceived image and extensive marketing network. As it turned out, the machine was pretty good, if a little conservative, and IBM's image and marketing were as good as expected. The computer uses the Intel 8088 8-bit microprocessor, which provides a high degree of compatibility with the Z80 and 8085 microprocessors and therefore facilitates the conversion of existing software. In addition, the 8088 is compatible with the 8085 family of support chips (8284A clock generator, 8288 bus controller, 8259A interrupt controller, 8253-5 timer, 8237A-5 DMA controller, and 8255A I/O ports) which are familiar and field-proven chips. A more interesting approach would have been a design

with the Intel 8086 16-bit micro-processor and its support chips (80188, 80186, 80286) or the more advanced and intrinsically mightier microprocessors, the Motorola 68000 or the Zilog Z8000. But IBM's conservatism runs deeper than its employee's dark blue suits.

Everyone Loves a Winner

On the other hand, there's nothing better than a sure thing. Sales of the IBM PC have been excellent and demand has outpaced supply from the very beginning. IBM has repeatedly increased PC production and shortages continue. The XT model with a 10-Megabyte hard disk, mini-floppy disk, and 128k of RAM carries a price tag of about \$5,000. At its introduction, dealers were reportedly being allotted only one for every seven ordered! The curious result is that some computer stores are showing losses because they don't have a product to sell. If you think that enterprising and competitive companies have let this fact slip by unnoticed, you obviously aren't very enterprising yourself.

Shades of 'Sleeper'

Of course, imitation is the highest form of flattery, and many computer manufacturers are finding it to be the highest form of profitability as well; IBM PC clone products are now widely appearing. Everything from complete system look-alikes to compatible circuit cards and software are cashing in on the IBM PC popularity. Ironically, IBM has historically been a very tightly held company in terms of sharing its sales, but the PC has been a flourishing exception to its monopoly philosophy. One compatible and cunning computer is the COMPAQ, which offers everything the IBM offers, and something the IBM doesn't—a handle. Its portability, lower price, and availability, make it an attractive product, especially in today's trend toward smaller systems that occupy less desk space or can be stored when not in use, or taken along on business trips, or from office to home. Many executives who use the company's IBM find the COMPAQ to be a good personal choice; its MS-DOS is operationally identical with IBM's PC-DOS. And its keyboard has the keys in the right places, down to the nearest micron. At 28 lbs, and \$2995 (128k and 1 mini-floppy) it is representative of the up-and-coming,

small yet powerful computers. But you might want to pause before you write a check; rumors abound that two companies are preparing to introduce IBM PC system clones selling for \$900.

What's Next?

The future of the hardware scene will obviously hold revelations of more sophisticated processing, cheaper and faster storage, increased portability, and lower prices. But the exact nature of the marketplace is still unclear; heavyweights such as Digital Equipment will undoubtedly attempt to vigorously promote their own personal computers, while everyone is waiting to determine the impact of the Apple LISA, a computer long on conceptual innovation, but perhaps short on assured marketability. The IBM PC Junior is already carving out its share of the market. Rumor has it that it's already back-ordered by eighteen months. Pay your money and get in line. And don't overlook the Japanese; they are methodically entering the U.S. market via printers and monitors; the long-awaited small computer invasion is still being awaited. The Sony SMC-70 has been notably unsuccessful, but don't think they've given up.

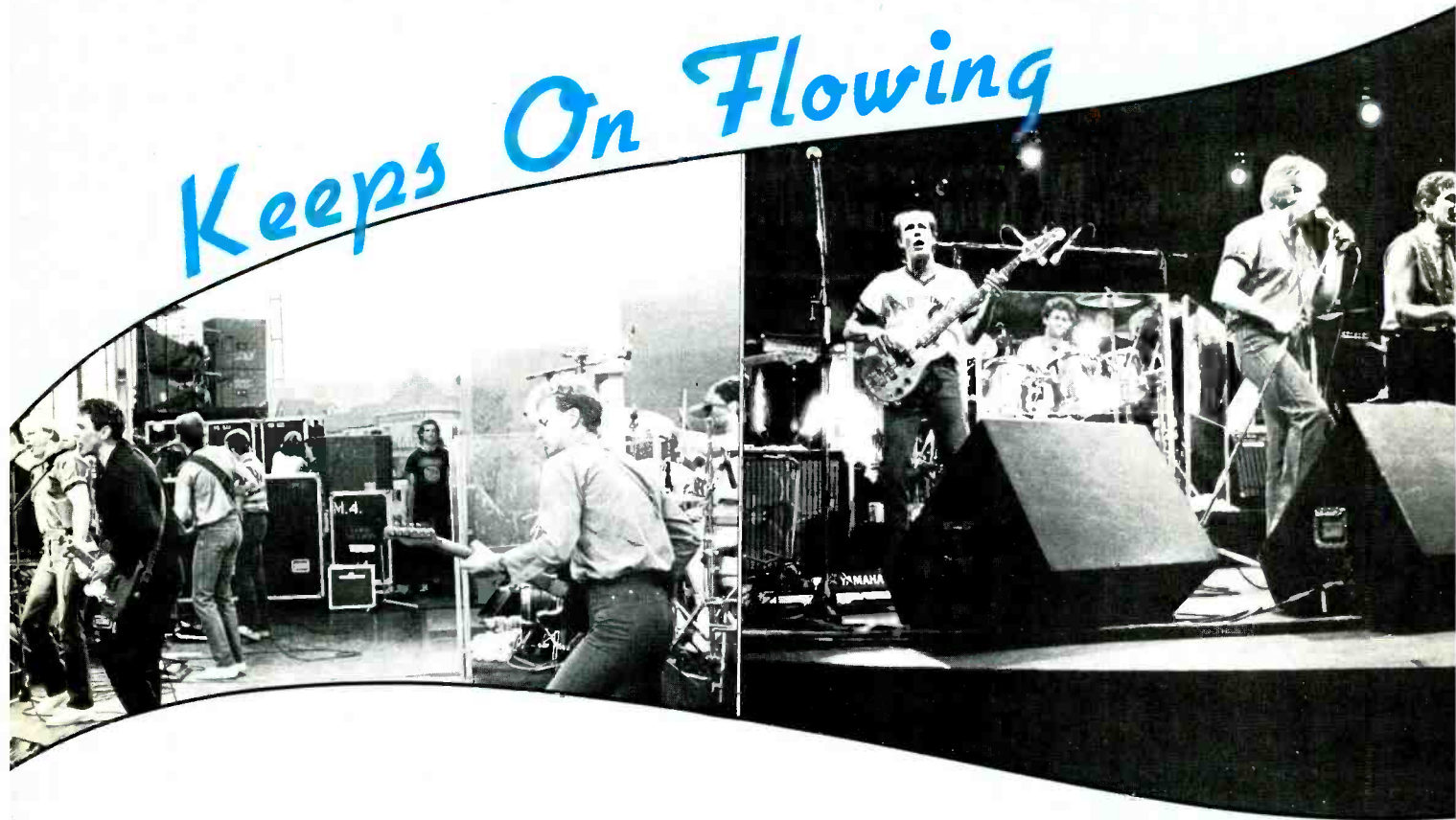
A word about waiting. You say to yourself—gee, the prices are getting lower and lower, and the computers are getting better and better, wouldn't it be best if I waited to buy one? The answer is, of course not. Sure it will be cheaper later and anything technological is destined for obsolescence, that's the cost of buying into technology. But the important point is that you have to get in and begin to reap the rewards that computers have to offer. If you are true to your philosophy, you will never buy. So go ahead—get started! Later on, buy a newer one. Also bear in mind that a computer fundamentally combats obsolescence because it is a software device. While your hardware will be superseded by something cheaper and offering more features, it will probably be compatible with the latest software for years to come.

You should go ahead and start having fun. Tell all your friends to get lost and settle down in front of the screen. I've got a speech synthesizer for mine, so it can respond when I talk to it. My next project is to program it so that when I whistle, it will say... woof! woof!

melinda newman

LITTLE RIVER BAND

Keeps On Flowing



Long before Men at Work sang the praises of the land Down Under, fellow Australians Little River Band were flowing up the American charts.

The six-member band has hit the top of the charts with an almost boring regularity. In fact, it is the only act to have Top 10 singles on Billboard's Hot 100 annually from 1978 through 1982. The band's second album, *Diamantina Cocktail*, received the first gold record ever awarded to an Australian group. Four of its subsequent albums have gone gold or platinum.

And yet despite its undeniable success, the band remains largely unidentifiable in the States. While most listeners can sing their numerous hits, including "Reminiscing," "Cool Change," and "The Other Guy," most are unable to name the band behind such tunes.

Maybe if they'd made more of a scene or trashed some hotel rooms their names would be better known. But instead, they just make very good, successful music, refusing to be typecast into any one category. Just as soon as you've placed them neatly into the Adult Contemporary/Top 40 file, they cut an album that could just as easily be played on AOR stations. It's not that they're trying to confuse anyone; it's just that there are such a variety of tastes within the band and its individual members, that different sounds keep emerging.

In no case is this better exemplified than on the band's latest effort, *The Net*. Released on Capitol Records, the album exhibits a bluesier, gutsier and harder sound than any of the group's previous works.

Produced by the band members and Ernie Rose, who also engineered the record, the album is the first to feature new lead singer John Farnham—who replaced Glenn Shorrock—and Stephen Housden, David Briggs's replacement. Three of the founding members remain: Graham Goble, electric and acoustic guitars; Derek Pellicci, drums; and Beeb Birtles, electric and acoustic guitars. Bassist Wayne Nelson joined the band in 1980. David Hershfelder, slated to become LRB's seventh member, played keyboards.

According to Goble, Farnham and Housden have added a versatility that the old band didn't possess and pumped new life into the veins of remaining members. "Both John and Stephen made it possible to play music that wasn't possible to perform with the other lineup. Stephen can play lots of different guitar styles, whereas David Briggs had one guitar style," Goble went on. "If you write a rock song, Stephen's great on the guitar, and if you write a blues song, then he can play blues as well as he plays rock. The same is true of David (Hershfelder)."

"I was brought in to provide orchestral type sounds," Hershfelder said. "The band already knew they wanted a gutsier sound when I came in. I was basically the icing on the cake."

But the real difference has been Farnham. Australia's most popular solo male singer since he was 17, his acrobatic voice adds depth and emotion to the band. He breathes new life into the songs made popular by Shorrock as well as creating a style all his own on the new ones.

Stephen can play lots of different guitar styles, whereas David Briggs had one guitar style," Goble went on. "If you write a rock song, Stephen's great on the guitar, and if you write a blues song, then he can play blues as well as he plays rock. The same is true of David (Hershfelder).

"John made it possible because of his vocal range (said by Hershfelder to be three octaves) and his style," Goble said. "I figured that eight out of the ten songs on *The Net* album could not have been performed with Glenn at the lead. John's a dream. From a songwriting point of view, there's nothing that he can't sing—from rock'n'roll to ballads. He's the perfect vehicle for anyone's songs."

Farnham has also made it easier when performing the old hits: "A lot of the time, as in the case with 'Reminiscing,' the key had to be changed to accommodate Glenn's vocal range," Goble said. "With John in the band we went back to the key it was written in, and it's just much better. There was always a limitation with Glenn, not because of him, but because I was always writing outside of where his limitations were."

The Net was recorded at AAV Studios in Melbourne on a Harrison 4032 board connected to two 24-track Ampex MM1200s locked together with SMPTE time code. The five months spent on the project allowed for the tastes of the individual members as well as for the band as a unit to shine through.

"I've felt for a long time that their greatest work would come when they learned to allow one another the freedom to do the things that they absolutely believed in—whether it was right for everybody in the band or not. *The Net* is the closest thing to that," said Rose, who has worked with the band, as engineer or consultant, since it was formed in 1976.

Much of this change came through

the group playing together on the band track. "The main thing we did differently on *The Net* is that we played together live a lot of the times said Goble, "whereas on a lot of the previous albums, we stacked it."

Instead of striving for perfection, the band went more for the exciting live sound. "You get to such a level of perfection that you get blocked in the studio. You always think 'We can do it a little better,' Housden said. "It's only now that the band has realized that's a lot of crap, because nobody listens to that sort of thing; they listen to the initial excitement."

According to Rose, the ultimate result of playing together was a much better arrangement and sound. "I think that some of the instrumental arrangements on this album are very, very good. I haven't always thought that in the past," he said. Because he had to learn the band's style, Farnham overdubbed most of his vocals, something he hopes to avoid on the next album. "I personally like to put the vocals down with the band track and give as much as I can, but it really didn't happen on this album. It will be on the next one," he said.

To go along with the tighter sound, Derek Pellicci wanted a clean drum sound. Thus, Rose constructed a drum booth specially designed to eliminate reverberation at low frequencies. "In general terms, my philosophy was to build a drum booth that was as absorbent as possible at low frequencies. It sort of has an inverse reverberation level," Rose said.

"The principle of the drum booth comes from an experiment we did with putting the drums in an anechoic chamber, one that had no floors as such—the floors being totally absorbent, just like the walls. The drums were suspended on a frame in the middle," he continued.

"We used a grilled floor that is effectively transparent at low frequencies and used a lot of subfloor base absorption. In other words, we didn't have to deal with the floor as a low frequency reflector," said Rose. "In terms of using it for our purposes, it was fairly successful. In terms of a generally used drum booth, there are problems; drums don't sit very well on a grilled floor."

The special booth required "nothing unique" in mic placement on Pellicci's custom-built Sonor drums and Zildjian symbols. A Beyer M88 was used on the kick drum. The snare alternately took a Sony ACM-33P (Australian model), Neumann U89 and an AKG 414. Sennheiser 441s were used on the higher toms with Electro-Voice RE20s on the lowers. PZMs were used as overheads.

A whole range of amplifiers were used in the studio to bring out Housden's guitar licks from his 1965 Stratocaster with Seymour Duncan pickups. Rose mainly relied on a Fender Twin Reverb amp, but at different times used a Yamaha, Evans, Roland and six models of Marshalls.

Housden also played a 1967 Fender Telecaster with three pickups and a custom-built body. "I thought if I had a heavier body on the guitar I could get a thicker sound, but I still wanted to keep the Fender sound. I went to a guy who's a furniture maker, and he built the body for \$5," Housden said. "It's got a totally different bridge that's usually used on Gibsons. The strings are going over that, but still through the body like they do on a Fender. It's quite unique. It still has the twanginess, but it's a lot thicker and warmer."

Goble's guitars were generally run through a pair of Roland amps, mic'ed with Neumann U87s. For acoustic numbers he used an Australian-made Maton. His preferred electric guitar is a "mint condition" 1954 Fender Stratocaster.

Rhythm guitarist Birtles ran his 1972 Gibson Les Paul through a Yamaha amp, also mic'ed with a Neumann U87. A switch from Marshall to Yamaha amps after

First Under the Wire has made Birtles a happy man. "I used to hate my guitar sounds," he said. "But since I've been using Yamaha amps my sounds over *Time Exposure* and *The Net* have greatly improved. I've been happy with my sounds, and that's really rare."

Birtles reserved his Les Paul for the more rock'n'roll sound on *The Net*. He also used a Yamaha guitar, a refretted 1963 Esquire with a maple body and Seymour Duncan pickups and a L-series Stratocaster with Seymour Duncan pickups as well.

Most of Nelson's Yamaha bass was taken direct. However, on the songs with heavy distortion, such as the title track and "You're Driving Me Out of My Mind," he played through a Yamaha amp.

"For *The Net* we put my amp wound all the way up, flat out just distorting the brains out of it in an echo chamber and then added direct to it. Then we mixed the two together," Nelson said.

His Yamaha has a one-piece construction. "I was playing old jazz basses, and they were getting beat up on the road. It was breaking my heart to see them getting torn up," Nelson remarked. "I wanted something that was one piece, and I knew that if I was going into a monitor, a new woods bass, as opposed to a vintage one, was what I wanted." He also recently acquired a 1962 vintage Precision, which he likes for its "huge, big, massive bass sound."

Hershfelder's Prophet 5 and Hammond Organ were taken direct into the control room during overdubs.

The newest member, lead singer Farnham, warbled into a Neumann U87. He also used a PZM.

The members of the band kept their instruments tuned to a calibrated tuner developed by Rose during *First Under the Wire*.

Estimating that the band spent 20 percent of its time "either tuning instruments or discussing whether they were in tune," Rose recorded an A440 from a crystal oscillator on one track of the 24-track machine and piped it into the tuners in the studio. For every band track the tuner was calibrated to the same A440. For overdubs, the A440 from the tape was used.

The tuner has other applications as well. Rose also uses it to determine tape speeds. "As a general standard, I record A440 on anything I record, no matter who it's for, and I monitor

the tape speed with a strobe tuner. I've detected so many cases of tapes running off speed that wouldn't have been picked up otherwise," he said.

"Another advantage is if someone says they'd rather play their part in E, you can slow the tape down a tone. It's such a basic thing I've been surprised that some smart tape manufacturer hasn't put strobe lines on the back of his tapes," he said.

Although the band used AAV's Eventide harmonizer, dbx limiter, UREI LA-3A compressor and 1176LN limiter, Rose brought in the majority of the outboard equipment from his own rental company to create just the right sound. Brought in were an AMS stereo harmonizer, AMS digital reverb, EMT 251 digital reverb, Quantec reverb and Dynamite Dynamic controls with a combination gauge stand, limiter, compressor and De-Esser in one unit. "It's very rare that I remember what I did (in the studio) because I used multiple effects with subtle touches of each one," Rose said.

An abundance of special effects, such as street noises, broken glass and rushing water, found their way onto *The Net*. Used liberally throughout the album, they complement the music and help form the perfect images for each song. Goble said the band has always used special effects when recording, although this was the first time they had made it onto the pressed vinyl.

"Unless effects are very well recorded or very tastefully used, they can make an album sound like a novelty record," said Rose. "I don't know if we previously had the right application or had gone to the trouble of doing it correctly."

Nothing was sacred when it came to finding the right effect, including toys taken from the members' children. "We had a Mattel Speak and Spell saying 'This is the Net' in a mechanical voice," Goble remembered. "We wanted to indicate some sort of mechanical situation." That effect, however, did not make the final cut.

When able, the band used sounds already made, such as the street sounds on "Easy Money." When the desired effect couldn't be found, the band created it. Such was the case with the rushing, ethereal-sounding water on the title track. "For 'The Net' we actually rented a boat and took it out on the bay with tape recorders and mics and went to the trouble of

Lord Nelson and LRB

Necessity is the mother of invention—or at least good sound systems. Dissatisfied with conventional PA systems, Little River Band turned to engineers Ernie Rose and Michael Wickow, principals of Lord Nelson Pty. Ltd., to develop a concert system based on studio technology.

"We wanted to come up with as accurate a mix as possible," said Rose. "In the studio you can only make your decisions as accurately as the monitor system will allow you. To a reasonable degree, this also applies to stage. A singer who has the ability to adjust the tonality of his voice and the way he projects himself cannot make that decision accurately if he doesn't hear his voice accurately."

Among those who sing the system's praises are Larry Gatlin and the Gatlin Brothers Band, Liza Minelli, Poco and Rick Springfield.

Little River Band, which owns part of the company as well, was used as the prototype for the 2½-year long project because, "They're as demanding a band as I've ever come across in their needs on stage," Rose said (the six-member group often uses as many as 12 monitors). The system provides enough equipment for the most rigorous of artists. A partial list includes a range of Shure microphones, eight dbx 160 compressors, a Roland 555 tape echo, and two Yamaha 1040 electronic cross-overs. The only items not supplied are amplifiers and speakers. According to Rose, however, the system is compatible with any kind of speaker equipment.

"We were very careful to match all the components all the way across the board," he continued. "The system is put together in such a way that it is very modular in its capabilities of being re-patched or changed around."

On stage, LRB lead singer John Farnham hears his vocals through floor wedges with custom-built horns with JBL 2441 and Yamaha 6681 compressor drivers and JBL 2205 low-frequency drivers. Mixing for wedges is done on a Yamaha PM2000 (interchangeable with the house console) with 32 inputs and 14 outputs.

The real value of the system, according to Rose and Wickow, comes in the monitor operator's ability to mix in stereo, which allows him to hear a truer representation of what the members hear on stage. Because the performer on stage hears not only his monitor, but sound from those around him, Rose designed a system that allows the operator to hear the same sound merely by adding a mixer.

But what a difference a mixer makes! Because of the addition, the operator is able to hear "virtually what the band hears on stage," said Rose. "He can place himself almost, in a sense, on stage by listening to the monitor and make a more realistic judgment as to what the person on stage is hearing instead of taking things totally out of context.

"He actually has a mixer that can mix together as many of the output channels as the band and he wishes. It is possible for him to have everybody's mix on at once and panned in a field that represents the band; or, he can solo each mix. He can hear what effect the guy on the left and the guy on the right have," remarked Rose.

With a conventional system, all outboard equipment has to be patched in every day—a tedious process since most bands tend to travel with as much equipment as they can get away with, Rose noted. With the Lord Nelson system set-up and tear down time is much shorter because of its multi-

ple patchbay. The monitor board allots for a patchbay with 360 access points, the house console, 288. All outboard equipment is patched in once at the beginning of the tour. "The same multipins are plugged in interfacing the various racks every day, so that anything that has to be done is done at one time on the patchbay," Wickow said.

Given that a sound crew member's days are short on sleep and long on work, the system has the added boost of supplying morale to the troops. With the estimated three-hour shorter loading time facilitated by the system, a crew member has more time for enjoyable activities, which over the length of "a three or four month tour can make an enormous difference to morale," Rose said.

Another attractive feature of the system is the power distributor rack, which can handle dual voltages of 240 and 110 volts simultaneously. Of particular interest to artists who perform worldwide, the system can supply "any voltage, on any stage, anywhere in the world," Wickow promised.

"Because of discrete grounding, a 110 volt amp can work right along side a 240 volt amp and be connected to the same earth with none of the hum problems often caused by separate transformers," Rose pointed out.

The system also operates with a line facility to prevent drainage often associated with outdoor venues.

Capable of being "a loud system as well as a good one," the system is equally effective for Little River Band's softer sound as for Def Leppard's metal rock. "A lot of bands want to hear a highly equalized sound. That's easy to achieve because we have, in effect, a 31-band graphic equalizer on every send," Rose said. "Since the monitors are reasonably flat, they can be molded into any shape with an equalizer." The system provides 12 Yamaha Q1027 graphic equalizers.

Aside from the ability to produce any sound, the system can be adapted to any size application. Because the system is modular, an act can rent from one board and three monitors to all the monitors and microphones.

recording the effects specially," Rose said. "The sound on the song is double the speed of the original."

After they finished cutting tracks, the album was mixed at New York's Power Station by Bob Clearmountain, the man behind David Bowie's "Let's Dance." Nelson, the sole American in the group, was the band's representative for the two-week session.

"The Power Station has a rack of 24 old Pultecs," Nelson remarked. "Bob records on a solid state logic recording disc with a solid state logic computer system that does computerized mixes. So once the mix is set up, you push a button and the computer memorizes all the settings and prints it out on a little card."

The system made it easy and quick to redo a song, Nelson said. "All you have to do is put the card back in the computer and punch it up and it'll tell you what all the sounds are for on each track."

Because of its design, the building served as a perfect echo chamber. Clearmountain set up speakers in the six-story building's stairwells to create the desired effect. "He put a mic in there and a huge monitor speaker and ran the track into that monitor speaker. The sound would change drastically from day to day depending on what the weather was like. But Bob has such great ears, he could just about compensate for everything," Nelson said.

Upon completion of the album, the band embarked on a 100-date World Tour which took them through North America, the Far East and Europe.

The band has spent a lot of time developing the perfect system to combine for the best possible house and stage sound. "I've got a great respect for the band," said Michael Wickow, who mixes the house sound. "They care about the quality of their reproduction. I've worked with people who just don't give a damn about their audience or what they want. These guys genuinely try to put on the best show they can."

And it shows. The band's live show combines sheer talent with unabashed enthusiasm. The 90-minute performance highlights Farnham's voice as well as showcasing the other members through various solos.

"On stage I jump around like a ratbag and carry on," Farnham said. "I get absolute joy out of singing, and it doesn't cost me anything," he said laughingly.

The audience loves it, but Farnham's acrobatics keep Wickow

jumping. "I have to chase John more than [I did] Glenn," he said. "He gets really excited. When he's not singing, he'll be right on his mic clapping or playing tambourine, which is great. Unfortunately, though, his hand claps sound more like thunder claps, so I can't leave his microphone open."

Farnham, as well as Birtles and Nelson, uses a Shure SM58 for his vocals. Goble uses a Shure SM57, which Wickow says he's terribly fond of. "He's into colors for different moods. Every year, we had to paint his mic a different color," Wickow said. "I told him I'd get him a gold one, so he's very happy about that."

Goble modifies his acoustic Maton for live shows. "We had a special electronic crossover network built into the guitar, a Sony condenser mic and a pickup in the fretboard of the guitar," he said. "Then I run that through four wedges dispersed across the stage with a Dimension D."

Hershfelder's keyboards are taken direct from his own mix. "I have a 12-channel mixer and a stereo board. My Fender Rhodes goes through a stereo chorus. The synthesizers (a Prophet 5 and Korg Poly 6) go through a Korg digital delay which is stereo, so they spread out nicely. The Korg EPS-1 is a stereo keyboard. What goes out front is a direct feed of my own mix," he said.

A Martin system is used for the main house speakers. "Each side has 12 Martin bass bins with two 15-inch JBLs in each one," Wickow explained. "Then I have six Martin low-mids which have two 12-inch JBLs. For high-mids I'm using Renkus Heinz horns and Emilar drivers on the high frequencies. The power amps driving the system are AB systems for the bottom and high-mids and H & H for the lows."

For the overall mix, Wickow likes to make the sound as full as possible with "vocals generally up above everything, because they deserve to be heard."

As spokesmen for Yamaha equipment, Nelson, Birtles, Housden and Goble all use Yamaha pedal boards as well as assorted other effects including Korg digital delays and Memory Men. Both Housden and Goble plan to expand into racks by the next tour.

"I go into a Yamaha board and use a chorus, flange and an MXR distortion box, which I run into a graphic equalizer," Housden said. "I have a line selector switch, and as soon as I hit that, I'm into the equalizer and

the distortion at once. I just EQ the distortion so they match up. "One thing that I do that's a bit different from other guitarists is that I have a separate amplifier for my echo effects," he continued. "The main amp is a Fender Twin Reverb with Altec speakers. For the effects I'm using a Roland chorus amp. Through that I have two channels; one takes the Roland Space Echo and also the chorusing. The advantage is that if Michael wants my echoes a bit louder, he can just turn it up because each amp is mic'ed separately."

The band is currently in the process of finding a producer and engineer for the next album. Although delighted with Rose's work over the years, both sides agree that it's time to part company—at least for a while.

"We need a change," Housden said. "In the past the band has become too critical. They've layered things in the studio and done things to perfection. And then we realize that we're playing better live than we do on the album with all that perfection."

Rose stressed that he has a fabulous relationship with the band in and out of the studio, but because of the members' constant desire for perfection, "eight hours in the studio with them is like 15 hours in the studio with anyone else," he said.

"They're an enormously demanding band," he said.

The addition of Hershfelder is a clear cut move in that direction. The band's version of Thomas Dolby, he's moving the band from the old into the new age of synthesizers. "I want to branch out into a computer keyboard and figure out a way to use it live as well as use totally digital synthesizers, like an Alpha Syntauri and a PPG. "Synthesizer sounds are going in the way of computer technology to create your own wave shapes and totally create your own sound. I want to get into that level rather than being limited by the set wave forms," he said.

"The next album will be a bit more radical," Housden said. "We want to keep the AC [Adult Contemporary] audience, but also appeal to everyone. We just like to move forward and not be stuck in that adult contemporary type thing because most people like that don't change. The band is full of creative people who want to do something different all the time. We love the variety." Having said that, Housden also realizes that listeners like to be able to categorize

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artists. "It's unfortunate that people want to pigeonhole us because I think this band does all styles better than any other band. I think we'll always be able to do that live. Once the audience is there and they hear something like 'Reminiscing,' which definitely wouldn't be a new wave song, they love it and can't deny that it's done well because there's so much feeling in it. But we wouldn't put that on the new album. It'll be synthesizers and effects."

So Little River Band will roll on, combining the best of the old with the

ducer there to take the weight off your shoulders."

Admitting that by turning over the reins, the band is, in part, relinquishing some of its power, both Goble and Birtles stressed that the band wants to work on its musicianship and turn the administrative end over to someone else.

"We know we can deliver the right album; we just want to be with the right people," Goble said. "We won't let an album come out that we don't agree with; we just want to try some different inputs."

I've felt for a long time that their greatest work would come when they learned to allow one another the freedom to do the things that they absolutely believed in—whether it was right for everybody in the band or not. The Net is the closest thing to that.

new and continuing to confuse the listeners and programmers who try to pigeonhole them.

"We're really looking forward to doing the next album," Nelson said. "It's going to solidify the direction for us. "Over the years they have continually put me under more pressure than anyone else I've worked for by a large margin. They're all highly astute and attuned to what's happening and demand a high degree of attention."

The Net is the first album produced by the group without the benefit of an outside producer since the band's early projects. John Boylan produced *Sleeper Catcher*, *Backstage Pass*, and *First Under the Wire*. George Martin was the man behind *Time Exposure*. While very pleased with the results of *The Net*, there is a consensus among the band members to bring in an outside producer on the next album to take away some of the pressures and to help direct energies.

"To produce the album and be the artist as well, something has to suffer," Goble said. "When you're producing yourself... whoever's not on the track is behind the glass. It's a lot more comfortable to have a pro-

The trend toward more progressive music is one the band hopes to continue with the next album. "I think we're hoping to come out with a bit of a harder sounding album, even harder sounding than *The Net*," Birtles said.

"We're not New Wavers," he said, in what some might consider the understatement of the year. "I don't think we ever will be or want to be, but there's nothing wrong with wanting to record an album with extremely contemporary recording sounds."

The Net was a real transitional album; John had just joined and we were finding our feet in the studio. The more we work live, the tighter we get and the more ideas we come up with. We have to change with the times. Without trying to jump on trends, you can't help but be influenced by what's going on around you."

"We're all keen to exploring new sounds," Hershfelder added. "We're not just going to use gimmickry or jump on the bandwagon and sound like any other new music band, but we certainly are going to make use of everything that's available to us."

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Narada Michael Walden

*the
message
and
the
music*



Narada Michael Walden is a true anomaly on the pop music scene: a musician whose eyes and ears are tuned to the street but whose heart and soul follow a full-time spiritual path. Last year Walden released his seventh solo album, *Looking At You, Looking At Me* (Atlantic), which is every bit as powerful a musical statement as anything else on the pop/r&b dance market. Yet everything Walden does, he does with his devotion to "the Supreme being" in mind.

Walden grew up in Michigan, the oldest of six children. The town in which he was raised, Plainwell, outside of Kalamazoo, was primarily a white environment, thereby exposing the young Michael to rock music as well as the local Detroit black music. Even in his youth he wanted to play drums; when he was eight he received his first set. His influences, he recalls, were as diverse as Ray Charles and the Beatles (he loved Ringo's drumming) and later on, Jimi Hendrix. He played in several

rock/r&b bands in his teens, and funk bands as he approached his twenties. But it wasn't until Walden heard John McLaughlin's Mahavishnu Orchestra (at age 21) that he found his calling.

"When I heard McLaughlin and read some of the spiritual things he was writing on his album covers, I was deeply moved," recalls Walden. "I wanted to find out more about that; it stood for truth to me." What Walden found out was that McLaughlin was a devotee of the spiritual master Sri Chinmoy. Walden found himself drawn to the man's teachings and became a disciple himself. Sri Chinmoy him the name Narada, which means "Supreme Musician," and few of his fans and peers would disagree with that tag.

Walden was obviously thrilled when McLaughlin asked him to join his group to replace departing drummer Billy Cobham. Soon the troupe, with Jean-Luc Ponty on violin, recorded the LP *Apocalypse*, with ex-Beatles producer George Martin at the knobs. He appeared next on the Mahavishnu album *Visions Of The Emerald Beyond*, and was then asked by Jeff Beck to contribute drums to his *Wired* LP. Next came Weather Report's *Black Market* album. Then, Walden decided it was time to go solo.

He recorded for Atlantic Records and by the time of his third solo album, he scored a hit single with "I Don't Want Nobody Else." In 1979 the LP *The Dance Of Life* fared extremely well and yielded two more hit singles. Walden then decided to direct his attention to producing others in addition to his own work.

One of his first projects was the debut album of singer Stacy Lattisaw, who was 14 at the time. Out of that liaison came the smash cover of the Moments' "Love On A Two Way Street," which made it high into the **Billboard** Top 100, establishing both Lattisaw's reputation and Walden's as a producer. He has since worked with other women singers, including Phyllis Hyman, Angela Bofill and the Sister Sledge group, as well as jazz artist Don Cherry and r&b singer Carl Carlton.

Speaking with Walden, one is moved by his soft-spoken sincerity and honest evaluation of his music and life. As a performer who still practices meditation (whereas his former Chinmoy-mates McLaughlin and Carlos Santana have dropped out

of the movement), Walden is obviously at peace with himself and his work. He understands his position in the music world and is content to make good music and spread his message to those who want to hear him. Plus, the guy makes some hot records. What more can you ask for?

Modern Recording & Music: You were raised in Michigan, near Kalamazoo, so did the Detroit sound play a big part in your musical upbringing?

Narada Michael Walden: Yeah, it did, as a matter of fact. But, you know, in Michigan so much was happening back then, in the Stone Age, that we got a nice cross-breed of music. So I really feel blessed that I was exposed at such an early age to so much music.

MR&M: One of the good things about back then is that you could listen to one radio station that would play all those different forms, whether black or white. Now radio is so much more segregated.

NMW: It's horrible. People can't even hear you. I'm not talking about white people or black people or grey people, I'm talking about *people* people. But that's just an experience we're going through, part of the evolution of man.

MR&M: Or the de-evolution, as Devo would call it.

NMW: That's right. That's what it is.

MR&M: What made you choose the drums as your instrument?

NMW: I don't feel so much that I chose them as that it was predestined. I just came out wanting to beat on things.

MR&M: An aggressive kid, huh?

NMW: Not so much aggressive as that I just love rhythm. When I heard records I would gravitate toward what the drummer was doing. My instinct was to grab pots and pans and boxes and play along.

MR&M: Did you have a favorite drummer?

NMW: Yes, a guy named Louis Hayes, who played with Horace Silver. He was 18 at the time he joined Horace's group, and man, he was just beautiful. Some of the stuff that Joe Morello was doing with Dave Brubeck was wonderful. Then my dad bought me a collection of all the jazz greats, and one of the guys who moved me the most was Max Roach. He played a very melodic thing called "Cherokee."

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MR&M: Your own first groups were rock bands, though.

NMW: A mixture. My very first group was called the Ambassadors. I was 11 and the organist's uncle owned a jazz club called the Ambassador Lounge. All the jazz organ cats like Jimmy Smith and Jimmy McGriff played there. After the big guys would play, we'd be the little squirts trying to imitate what they were doing. After that I went to rock because all the kids in the schools I was going to were into rock; that's what was happening. They were mostly white kids and in some bands I even played bass...to Grand Funk covers!

MR&M: You were in a group called the New McGuire Sisters. What relation did that have with the original McGuire Sisters?

NMW: None. It was just a pun. The music was just so different and we were such freaks that we just thought it would be a good idea to call the band that.

MR&M: When did you meet John

McLaughlin and start working with him?

NMW: I met Mahavishnu at a concert he was playing in New Haven, Connecticut. He was playing with Billy Cobham and Jan Hammer, the Orchestra. He was doing music from the *Birds Of Fire* album, his second album. I'd loved his first album, *Inner Mounting Flame*, and his work before that with Miles. But the first time I saw him [McLaughlin] was in Connecticut and he was the epitome of beauty; he was like a diamond. The spotlight was on him and he was dressed all in white and just playing exquisitely. He touched me. I said if he can do that, I want to

paid for the demo and they turned it down. Atlantic was the last company I went to and they signed me. The first album was kind of progressive fusion, which was what they wanted, plus I had some Jeff Beck styled stuff on it and some r&B. The album didn't really connect with the rock fans and didn't really connect with the r&b fans. I guess it was just a little ahead of its time. There was a song on that album called "Delightful" and Atlantic felt we should do something more commercial, in that vein. So the second album was *I Cry, I Smile*, which was all songs and not so much of the playing aspect. After that, they said "Go for the throat. Disco's out

knocking your head against the wall all day. When you do that you walk around feeling miserable all day. There has got to be a life that's not so high that you can't get to it.

MR&M: Is there anything musically that you haven't done and would still like to do?

NMW: I'd like to do a classical album. I've used short pieces on my albums, just like two minutes of meditative music. But I'd like to do a whole album of that. I have a group called the Warriors in which I just play drums; it's a progressive group much like Mahavishnu Orchestra. I'd like to do an album with them. I'd like to do an album of just meditation music. This (what I'm doing now) is fine because it's music that gets out into the world and people can identify with it. But at the same time I think that we need more artists to offer something (in a spiritual vein) that's not so heavy on the gospel side, but is music you can just listen to. Not music belonging to a specific sect, but just music that is inspired.

MR&M: Do you find that among your following you have mostly people into a spiritual trip such as yours, or is it an audience that just likes the music for its own merits?

NMW: I would hope that there are more people with a spiritual belief, not necessarily Sri Chinmoy, but something. You see, many people look up to musicians, and most musicians don't realize that responsibility. That's no good. I think instead of having to come down to their level, we should bring them up.

MR&M: But it's entirely possible for someone to be in a dance club dancing to your music and never realizing what the lyrics are about.

NMW: Oh, absolutely. It happens all the time. In fact, the best way to get across the message is through a ballad, so people can listen.

MR&M: You currently produce yourself and other artists, but in the beginning you worked with other producers. What did you learn from them that you now use yourself?

NMW: I learned from Tom Dowd that you can produce without being a tyrant. You don't have to be so overbearing in your views that you overlook the artist. So now when I produce, I try to capture the artist and not my ego. I also learned from George Martin—who produced the first album I worked on, Mahavishnu's *Apocalypse* album. He was like Tom in that you wouldn't even know he

But the first time I saw him (McLaughlin) was in Connecticut and he was the epitome of beauty; he was like a diamond. The spotlight was on him and he was dressed all in white and just playing exquisitely. He touched me. I said if he can do that, I want to do that.

do that. I wanted to meet him and be more like him so someone took me backstage and I told him I played drums. I also knew that if meditation was helping him then I wanted to get into it.

MR&M: What does your name, Narada, mean?

NMW: Narada means "Supreme Musician." Narada was a sage who lived during the time of Krishna. He was supposedly the first musician, and he'd sing devotional songs to God. The people would be so thrilled with the feeling of devotion that they'd go to their knees and pray. Sri Chinmoy has given me this name to inspire me to be a soulful musician and to offer inspiration to people.

MR&M: What made you choose to leave Mahavishnu and begin a solo career?

NMW: I had just finished writing four songs for Jeff Beck's album, *Wired*. The album went gold for Jeff and I said, well, if I can do this for Jeff I can do it for myself. So I put a demo together with David Sancious playing keyboards and Red Gomez playing guitar, and all the companies I gave it to turned it down. In fact, Columbia

now, and you're a drummer. So why not do something with a heavier rhythm?" They said if I couldn't get a hit from that album they'd have to let me go. I had a hit called "I Don't Want Nobody Else." Then I toured and had my first experience playing for black audiences. I opened for Patti LaBelle, and it was a beautiful experience, but you have to open yourself to a new way of doing things. I was accepted because I gave them everything I had, but it was definitely different.

MR&M: You always try to say something in your songs, but at the same time you have to make a record that will sell. Is it difficult to achieve that balance of meaningful music and a product which will appeal to a mass audience?

NMW: I try not to force it; I try to be natural. I feel that if I can feel a oneness with the people, then they're going to feel it too. Yes, I meditate. Yes, I'm a disciple of Sri Chinmoy. Yes, I believe in the Supreme and light and joy and all the good things. And I do want to let kids know that there is another way besides just drugs and sex. There's got to be something better in this world than

was there, unless he wanted you to know. It's better that way; there's no need to make a person feel inhibited or choked.

MR&M: There still has to be someone to make decisions, though.

NMW: Oh, sure. But sometimes decisions will make themselves. You know, decisions are greater than all of us. I just try to do what the music is asking for.

MR&M: After an artist calls you to produce them, what's the first thing you do?

NMW: To be honest, I say, "OK, they're calling me because they need a hit." Otherwise they don't need me. Angela Bofill already wants to produce herself, so when she calls me it's because she needs a hit. So I don't make any pretensions about it; we go for it. There's nothing sadder than to make albums that just sit on the shelves. Angela makes beautiful music, but sometimes you have to shock the public and wake them up. They forget, and take you for granted. But you can't say "If I don't get a hit now I'll get one in five years." If you don't get one now, you won't be making records in five years. Record companies today don't have money to babysit. So the first thing I do when someone calls me is to find a hit song.

MR&M: Do you find all the musicians and songs when you produce an artist?

NMW: Yes. It depends on who the artist is, though. Angela likes to have a say. The guys I usually work with are great. The bassist is Randy Jackson, and what a soul. We call him the King. I use a guitarist from Italy named Corrado Rustici. On keyboards I used Frank Martin and David Sancious.

MR&M: Do artists have something in mind when they ask you to produce or do they prefer to leave the direction up to you?

NMW: I think they call me for whatever expertise I may have in deciding what may be good. Not because I know everything, because I don't, but I do spend a lot of time keeping up with what's going on. I feel as capable of doing something like the Thompson Twins or the System on the funk side as doing something on the rock side.

MR&M: You've mainly stuck to producing women singers.

NMW: Because that's what's been happening. After I produced Stacy Lattisaw and she had a big hit record, that's what followed. I did the Sister Sledge girls, Phyllis Hyman and then

Angela Bofill already wants to produce herself, so when she calls me it's because she needs a hit. So I don't make any pretensions about it; we go for it. There's nothing sadder than to make albums that just sit on the shelves.

Angela Bofill. I most recently did Patti Austin. But I've also done Carl Carlton, who's a great singer.

MR&M: How would you compare working with the women you've produced? How did Stacy, Angela and Phyllis differ?

NMW: Stacy needed me to do a lot of the songwriting and picking of songs. But if she has a feeling, I want to know about it. Angela plays a bigger role and has a good idea of what she needs and wants.

MR&M: There's no cut-and-dry method, is there?

NMW: No way. If you can imagine directing a film, Meryl Streep may not know what she wants you to do whereas Robert DiNiro would know exactly what he wants to do. The less I have to say, the better it is.

MR&M: Do you use any special setup in the studio or is it different in every case?

NMW: It's different. You should have seen what the studio looked like for my last album; it was a clutter of instruments all around. I started recording with my microphone, synthesizer and drum machine in front of me, with my bassist and guitarist around me. I kept many of the vocals that I did while playing the keyboards that were in front of me. If I used drums, I'd overdub them later. I always try for the biggest, richest sound I can get. I had an engineer named David Fraser, who's a young, aspiring engineer and really keen. We worked at the Automatt in San

Francisco. I feel very comfortable there, but I feel that I can go anywhere and make a good album. The basic thing is the song; you have to have the song. The drums are good and have to be right, but first the song has got to be great.

MR&M: As a drummer, how do you feel about drum machines? I know you've used them so I take it you're not against them.

NMW: I think we should use them, to further ourselves. They are so precise it's unbelievable. I aspire to having that kind of timing in my own playing; many times I use it just for that; I put it into my headphones and groove along with it while I'm cutting drums. That way I know from top to bottom the time is perfect. It depends on what you're going for; if you want the kind of recording that demands the breathing and naturalness, that's one thing. But with things of a heavy dance nature you don't want them to rush and drag; you want it perfect. It's a great discipline to try to groove to it. And not just fast tempos but slow ones, too.

MR&M: Is it more difficult or easier to produce yourself than to produce others?

NMW: It's more difficult. You have to be able to detach yourself to tell right from wrong. You have to be able to be objective about the take. I don't think there's any great mystery to making records. You have to follow what your heart says and look to your inner being for inspiration.



So You Wanna Be a Rock'n'Roll Star: The Video Scene

In our last demo article we mentioned the burgeoning role of music video. It's clear that video, more than any other single factor, is reshaping not only the music business, but also the marketplace—that is, the way listeners relate to music and incorporate it into their everyday lives.

In addition, it would seem that video is made-to-order for demo work. If a picture is worth a thousand words, why not walking, talking pictures of the artist in action? It isn't surprising that a lot of people have begun thinking along these lines—so many, in fact, that any self-respecting record company A&R office today has a video playback system set up right alongside the audio gear. Video demos are becoming increasingly common and increasingly sophisticated. There's been so much interest in this subject that I thought it might be helpful to devote a couple of installments to video production, especially as it applies to your own demo project.

This month, we'll explore some inexpensive—maybe even free—avenues for access to video production facilities which you can use to produce your own video demo. Then we'll get you started with scriptwriting and begin to prepare for your shoot.

Where to Find Inexpensive Access to Video

As you begin your video demo, the most immediate and pressing problem you'll face is gaining affordable access to production facilities and experienced crew people. The rest of your production strategy will depend on how you solve this particular problem, so we'll deal with it first. Fortunately, you have a number of options available.

Schools, Colleges, and Visual Arts Programs. One way to get cheap access to video facilities is through

schools and colleges that offer courses in video production. These usually have complete small-format studios, portable gear and editing facilities available to their students. Even if you can't see enrolling in video classes yourself, you can probably find any number of talented students in these programs who would jump at the chance to get involved in a music video project. After all, they have to produce a certain number of projects each term in order to complete the course, and what video student isn't hip to the future of music video?

Sometimes local art organizations and museums have film-study classes or video access programs. These are worth looking into; either you can get involved yourself, or you can make valuable contacts with potential directors and crew people.

Public Address Cable. Cable television companies are required by law to set aside a certain number of channels for public access programming. They also have to provide production facilities and trained assistance personnel on a free, first-come, first-served basis. This means that if your area has cable television service, you have a television production facility available, free of charge, complete with trained personnel to help you use it. (You may have to invest some time in orientation classes, learning how to use the gear before they'll turn you loose with it, but how bad can that be?) You also have a ready outlet for your finished work—the public access cable channels. Granted, public-access programming can be a little funky at times, and you may have to squeeze your project into an already crowded production schedule, but the price is right. The experience you gain and the contacts you make can be an excellent springboard to more sophisticated avenues of production.

QUARTERFLASH - "TAKE ME TO HEART" VIDEO

VIDEO

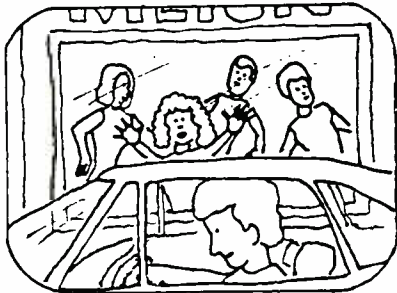
AUDIO

She turns away as if to look into another camera

Shot of window from street again; male model (MM) at wheel of car stopped between us and window; we can see Rindy singing to him from inside the window, but he doesn't notice her;

he reaches as if to adjust car radio;

he seems to be listening, but does not see Rindy in window beyond him



singing with her hands pressed against the glass as he pulls away out of frame

Rindy in her apartment (set), singing chorus; camera trucks around her to reveal pix of MM on wall, photo gear, etc. and winds up facing her window, which in turn faces MM's apt. window as if across an alley

We move (or zoom and dissolve to imply movement) through her apt. window, into his apt.

MM lying on cot/bed with one arm behind his head, the other draped across his chest--eyes closed as if napping (he is still dressed)

His eyes open;

he stares up at ceiling without moving, then

rolls over on his side, trying to get comfortable

THERE YOU ARE

Gtr riff

IN YOUR CAR

AND SUDDENLY YOU HEAR ME

DO YOU WANT ME?

DO YOU WANT ME?
Inst. build into chorus

TAKE ME TO HEART
I PROMISE YOU A MIRACLE
TAKE ME TO HEART
YOU'RE GONNA BE MINE

TAKE ME TO HEART
YOU KNOW IT'S JUST A MATTER OF
TIME (Inst. suspension)
00-00-0

Three snare shots to:
I'M ALWAYS ON YOUR MIND

Snare triplet
I'M THE CHILL THAT NEVER LEFT
YOUR SPINE

Snare triplet

Figure 1. A sample page from the actual shooting script of Quarterflash's "Take Me to Heart" video.

Cable and Commercial Broadcasters. Many cable companies have production facilities that they use to produce their own local cable programs. (This is separate and distinct from public-access.) Similarly, most commercial television stations produce their own local talk shows, “magazine” programs, and the like. You may be able to coax the producers of one of these local programs into doing a segment that features your act. You could wind up with a broadcast-quality demo tape at virtually zero expense, plus the added benefit of some free media exposure!

Quarterflash got a big break when they were still an unsigned bar band by taking this strategy one step farther. They managed to convince a local television station to produce a free one-hour videotaped concert, simulcast in stereo by a cooperating radio station. The program aired in prime time, outscored its network competition in the local ratings, and became the pilot for a successful series of simulcast concerts featuring local musicians. The TV and radio stations were able to sell the program to their sponsors at a substantial profit, and the band got a tremendous amount of free exposure. The secret of success here is the same as the secret of marketing a demo—have your act together; do your homework; show the station that you understand the market, and demonstrate that you can deliver a product they can sell.

Preparing For Your Video Demo

Okay, let’s assume you’ve managed to gain access to video production facilities, and that you’re ready to start work on your project.

Determining Your Budget. The first step is to establish your shooting budget, if any. This will tend to determine the technical options available to you and define your scripting limitations. While there is a direct connection between the size of your budget and the *technical* quality you can achieve in video, there is *no* such connection between money and quality of *content*. You don’t need to spend a fortune; just be as inventive and original as you can with what you have to work with. In a video demo, as in your audio demo, the content of your tape is much more important than its technical quality.

Writing Your Script. Many artists, even at the national level, leave the content of their videos up to the director and limit their involvement to showing up and performing as directed on the set. In this case, each prospective director or production house develops a treatment or script for the project and submits a bid saying, in effect, “here’s what we’ll give you for the amount of money you have to spend.” The director and script are then selected as a package.

Other artists prefer to get more involved in the creative process, contributing ideas or even writing their own scripts. In an effort to maintain more creative control over their videos, Quarterflash hires an independent writer/producer—guess who—as their creative consultant on video projects. My job is to serve as a sort of “utility infielder,” covering any untended bases in production and insuring that the complex myriad of details flows smoothly along a productive course. With their “Take Me To Heart” video, for example, the band had a very definite idea of the visual mood they wanted, so I served as art director

for the project and wrote a detailed shot-by-shot script. (You may remember seeing this video on MTV—it started out with Rindy in a store window singing to a mannequin.) *Figure 1* is a sample page from the actual shooting script.

You may want to use a similar split-page format for your own script; it’s commonly used in video and will be familiar to the production crew. The left column, labeled “video,” describes the action to be shot. (This may include a few general camera directions, or even a rough sketch showing how a particular shot should look.) The right column, labeled “audio,” indicates what we’ll hear on the soundtrack during each shot (in a music video, the lyrics to the song or key musical cues.)

Using a script like this, the art director can see how the sets will have to be designed, production assistants will know what props they’ll have to collect, the director and his camera crew can determine what special lenses, cranes, and lighting equipment they’ll need, and everyone involved can begin to formulate a mental picture of what the finished product will look like.

For a “live performance” video—whether actually live, or lip-synced to a pre-recorded audio track—the scripting will consist of laying out the arrangement of the song, then clearly defining any specific action you want to capture in the performance. Include any solos, highlighted stage moves, or special visual effects. (“Immediately after the bass cabinet explodes, Vito leaps from behind his drum kit, races to the edge of the stage, and plays a blistering bongo solo.”) This will be necessary for the production crew to set up appropriate lighting, camera moves, audio cues, and so forth.

A big part of writing for video is having enough experience to know what can and can’t be done within your technical and budgetary limits. You should work closely with your director and pay heed to his advice on the practical aspects of actually translating your scripted ideas onto the screen. If you really don’t know much about film or video, you may be able to get a better finished demo by turning over the scripting and production entirely to someone with more experience.

Teamwork and Creative Control. This points up a basic characteristic of video production—it’s *absolutely* a team effort. No matter how broad your expertise, it just isn’t physically possible to handle all the production details yourself. You must necessarily give up some direct control over your production and entrust critical tasks to other people. This may be difficult to adjust to at first—especially if you’re used to working in a small audio studio where you handle all the details yourself, hands on. A critical factor in successful video production is your instinct to know when to keep control, and when to turn it over to someone else. Should you write your own script? Direct your own production? Design your own lighting? Supervise your own audio mix? Do your own editing? Your ability to make these kinds of decisions objectively and wisely will literally make or break your project.

Next month, we’ll go step-by-step through an actual MTV *concept video* shoot, then take you behind the scenes at the taping of an HBO Concert Special for a look at some *live performance video* production techniques.

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Ambient Sound

What's Really Wrong With CDs?

While recording engineers and others continue to debate the merits and demerits of Compact (digital) Discs, recording studios and recording companies, large and small, seem more than eager to climb on the CD bandwagon. At the recently concluded Winter Consumer Electronics Show in Las Vegas, I learned that by the end of 1984 there should be around 3000 different CD album titles available in the United States, bearing at least a dozen or more labels. Manufacturers of CD hardware have, for the first time, banded together with major (and not so major) producers of CD software to form an association known as the Compact Disc Group. Their sole *raison d'être* is to promote the CD concept and to educate the consuming public concerning the merits of this laser-read music storage medium.

But all the while, the grumbling goes on about the "inferior" sonic quality of CDs. And it comes not only from the so-called "underground" audio press, which I and other serious audio people would ignore—if they were alone in their complaints. Many knowledgeable listeners, both amateur and professional, complain about a harshness at the high end of the spectrum. There are reports of a diminution of stereo "depth" and of poor stereo imaging. In tests where analog LPs were "A-B'd" against CDs made from the same master tape, the LP version has often won out in terms of musicality and overall sound quality. Such contests have been widely reported, of course, primarily by those who stand to gain the most if the CD is bad-mouthed.

A Serious Investigation

At the same Consumer Electronic Show referred to earlier, I and several of my colleagues were invited to audition a product recently developed by that well-known audio innovator, Bob Carver. It seems Mr. Carver, with the aid of a leading psychoacoustician, has been studying the problems associated with CDs ever since he heard his first CD more than two years ago. The first thing he told us was that *there was nothing inherently wrong with the standards established for CDs*. In other words, all those who have been saying that the inventors of CDs chose too low a sampling rate ("It should have been 50 kHz—or 80 kHz—or 100 kHz, etc.") were incorrect. Similarly, all those who have been insisting that the 16-bit sample standardized for CDs is too *low* ("It should have been 18 bits—or 20 bits—or 32 bits, etc.") are equally wrong.

Right off the bat, I was pleased to hear that Carver was not going to take on those mathematicians who, more than a century ago, clearly defined the parameters required for accurate translation of an analog waveform to its digitally sampled counterpart. Fourier, Nyquist, and the others were not about to be contradicted by the audio engineer from Seattle! I guess part of my satisfaction arose from the fact that for many months now I have been preaching the same sermon; namely, that there's nothing inherently wrong with the basic CD system. My contention, right along, has been that if, indeed, CDs sound bad (and let me

state right here and now that recent additions to my CD collection have been much better than some of the earlier ones), then the problem must lie with the *software* and not with the hardware or the system itself.

Isolating the Problems of CDs

Carver explained that through careful time domain and spectral analysis he and his associates determined that differences between analog disks and their CD counterparts, when they do exist, are primarily associated with differences in the ratio of the L-R (difference) signal to the L+R (monophonic content) signal. On those compact discs that seem to lack ambience and spatial detail, this ratio is measurably smaller than it is on the analog counterparts of those same discs. To illustrate this difference Carver employed the simple means that we have all used at one time or another. He applied the "L" signal to the horizontal input terminals of an oscilloscope, while the "R" channel signal was fed to the vertical inputs of the 'scope. Careful synchronization of an analog turntable and a CD player enabled him to observe the resulting lissajous patterns generated by the outputs of the analog disk and to compare them, for the identical musical passage, with the lissajous pattern obtained from the equivalent CD.

In some cases the reduction in level of the L-R signal relative to the L+R signal measured as much as 1.5 to 2.0 dB, compared with the ratio of L-R to L+R for the analog disk made from the same master tape! Carver reasoned that since spatial detail and hall ambience are contained almost entirely in the L-R signal, a diminution of the L-R/L+R ratio results in an audible loss of musical qualities—the very loss that many have been complaining about.

Differences in Equalization Characteristics

When directly comparing a digital disc with an analog recording made from the same master tape, Carver discovered an even more surprising difference. He found that the digital disc exhibited a rising high end above about 1000 Hz, with its maximum difference (compared with the analog disk, which he assumed to have a "flat" overall frequency response characteristic) occurring in the 3 to 4 kHz region. Carver maintains that this difference in the octave-to-octave energy distribution is responsible for the subjectively harsh, hot, bright sound that many people hear in the mid-range frequency region of CDs that they *don't* hear when they listen to analog LPs.

All A'Dither

The third element which Carver believes contributes to some people's displeasure when they listen to CDs involves some rather subtle and unexplored areas of psychoacoustics and has to do with the fact that we *do* hear a constant "noise floor" when we listen to LPs, whereas that ever-present noise floor is not present (at least not audibly) when we listen to CDs. Carver suspects that perhaps our brains have been so accustomed to the combination of some background random noise when we listen to recorded sound, that its absence actually induces a feeling of unpleasantness. His solution (though he is not quite as firm about this

one as he is about the first two problems) is to add a measured amount of random noise when mastering CDs—not enough to cancel one of the most notable benefits of CDs, but enough to restore some of what we think we like about the sound of LPs. Digital audio engineers have, in fact, been adding random noise to CD masters right from the beginning. This noise is referred to in digital jargon as "dither," and while its purpose differs somewhat from that suggested by Carver, the net result is the same. What Carver is saying here is simply that we may have to introduce more of this "dither" noise than was thought necessary by recording engineers up to now.

A 'Black Box' to Fix the Problems

As you might have guessed, all of this research by Bob Carver was not solely for the sake of science. In true fashion, Mr. Carver has come up with another of his famous black boxes. This one is called a Digital Time Lens. (When asked why he chooses names which rarely describe the actual function of his products, Carver has been known to reply, "Since I invented it, I guess I can call it anything I like!"). The device is placed between the digital player and the associated preamplifier or amplifier. The first thing it does is to matrix the "L" and "R" signals to form L+R and L-R signals. The L-R signal is then boosted in amplitude, relative to the L+R signal and the two signals are re-matrixed to produce modified left and right signals. In addition, the device inserts an equalization characteristic designed to restore the octave-to-octave balance which Carver feels was originally intended by the musician and recording engineer.

A 'Temporary' Solution

Carver made no attempt to suggest *why* the differences that he has discovered between LPs and CDs exist. He leaves that to the rest of the recording industry. Much to his credit, he further stated that his "Digital Time Lens" is offered as a temporary solution to a problem that he believes will not be with us for very long. In other words, he feels (as do I) that the reasons for these differences between LPs and CDs will be discovered, or at least compensated for at the studio or during the mixdown and final mastering, and then his box can be relegated to the closet where audiophiles keep such other memorabilia as CD-4 decoders, SQ decoders, multi-position phono equalizers (that pre-date the RIAA standard playback curve) and the like.

My purpose in telling you all about this is certainly not to suggest that you run right out and buy a Carver Digital Time Lens (though some of you may well want to see if it does what it claims to do). I will say that, with several of the demo discs played by Carver during his presentation, I certainly did hear a difference when his "black box" was switched in—and so did most of my colleagues who attended this session. I would say, too, that to my ears, the music did seem to have greater depth and less of a brittle harsh character than it had before Carver threw the switch. My real purpose in talking about all this is to encourage the recording industry to follow through on this research, and if, indeed, Carver's findings are substantiated by others, to determine what we're doing wrong that's producing these *measurable* and sonic differences between LPs and CDs.

Lab Report

len feldman

Soundcraftsmen PCR800 Stereo Power Amplifier



General Description: The PCR800 is an extremely compact dual channel power amplifier that delivers as much as 205 watts of power per-channel into an 8 ohm load (300 watts into 4 ohm speaker loads) at any frequency from 20 Hz to 20 kHz. While the amp is equipped with an extremely quiet-running ventilation fan, that is not the reason why its designers were able to compress so much power into so small a cubic space. The reason for its compactness has to do with its efficiency, and that, in turn, has to do with its newly developed power supply, which Soundcraftsmen calls "Phase Control Regulation." We'll have more to say about this remarkable and different power supply approach presently.

During normal operation, the fan revolves at a fairly slow speed. Only in the event of a substantial increase in internal temperatures does the fan switch to its higher speed. At that high speed it is quite audible. The only control on the front of the amplifier is an on/off rocker power switch, which is augmented by a blinking green light that continues to blink during use of the amplifier. Faster than normal blinking of this light informs the user that either the high speed mode of the fan is being used or that PCR action (more about this in a moment) is taking place to maintain continuous operation of the amplifier at optimum high power output. Two red LEDs on the front panel, if lit, indicate that clipping is taking place; therefore a distorted waveform is appearing at the output of the amplifier.

Input jacks at the rear of the amplifier are of the standard RCA (phono tip) type. Speaker terminals are color coded, and arranged so that the distance between the hot "A" channel terminal and the hot "B" channel terminal is the same as that between the hot and common terminals of a single channel. This makes bridging of the amp for greater power in mono quite simple (hot-to-hot terminal connection can then be done using a standard double-banana plug). If Soundcraftsmen DX series preamplifiers are used with the PCR800, provision is made on those preamplifiers for inverting the phase of one of the outputs so that no further inversion is necessary at the input of the amp for bridged mono operation. If the amp is to be used in the bridged mode without such a preamplifier, an external bridging adapter would be necessary.

How Phase Control Regulation (PCR) Works: Soundcraftsmen, the Santa Ana, California-based U.S. manufacturer of high-tech audio equipment has always been at the forefront of new audio innovations, particularly in the field of audio amplifiers and equalization equipment. The company has managed to gain a high measure of respect in both the consumer and professional sectors of our business. It was Soundcraftsmen, in fact, who came up with the original idea of the stepped-voltage power supply. In attempting to patent the idea more than a decade after they invented it for use in non-audio applications, they

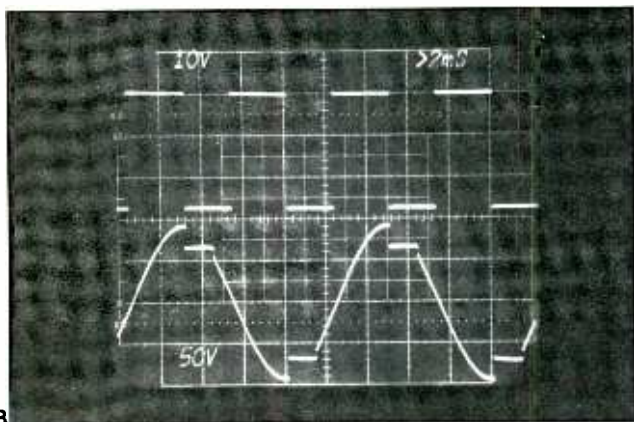
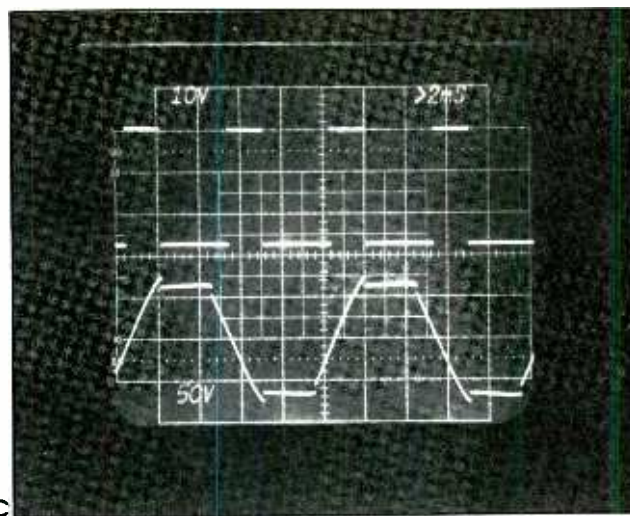
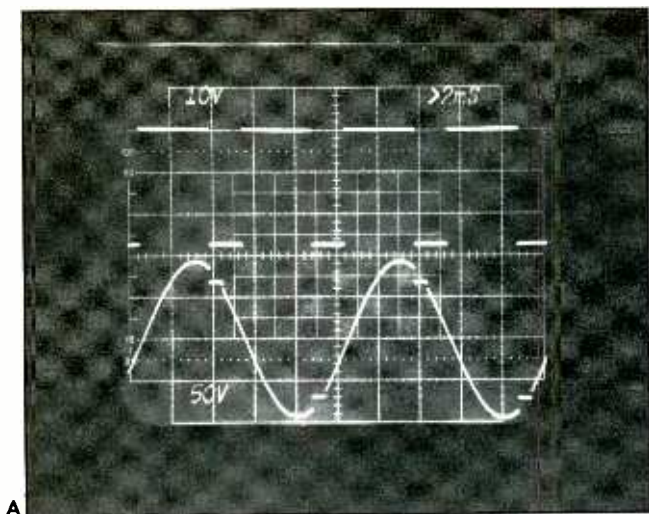


Figure 1. SCRs in power supply of PCR800 fire conduct for time required to deliver correct amount of power to load. (A) shows conduction when demand is low, (B) shows medium conduction, and (C) shows SCRs delivering almost maximum power.

discovered that a patent for the idea of a power supply that switched its voltage levels on demand had already been granted—again, in a field other than audio. So they never attempted to gain a patent. As a result, variations of the stepped-voltage supply idea began to appear in the products of a number of manufacturers and are still featured in amplifiers that are currently available.

Phase Control Regulation of this sort can be used to perform many functions within the amplifier, both for reliability (circuit protection) and to compensate for variations in line voltages. For example, thermal sensors positioned near the output transistors as well as within the windings of the power transformer itself will monitor temperature. If it exceeds a predetermined amount, that fact can be used to reduce the conduction time of the SCRs, with a resulting lowering of supply voltages to the output stages. Lowering the supply voltage in this manner reduces current through

the output devices and a cooling of the output devices (or the power transformer, if it was overheating) takes place.

Because of the fixed reference voltages established for the system, variations in power line voltage can be monitored in much the same way, such that in the event of a “brown out,” the amplifier’s supply voltage will be regulated so that virtually full power output can be delivered. Conversely, if power line voltage should rise, say, to 125 volts or even 130 volts, the angle of conduction of the SCRs in the power supply would be reduced so as to maintain constant supply voltage to the output stages without any danger of exceeding their current or dissipation ratings.

Since the Phase Control Regulation circuitry is not in the audio signal path of the amplifier, it does not in any way degrade audio signal quality. Of course, if for any reason the SCRs have to “shut down” supply voltage by some amount, the maximum undistorted power output that the amplifier is then capable of delivering will also be reduced; that simply means earlier clipping or amplifier overload—with no danger to the amplifier itself or to any of its component parts. In fact, if a dead short is placed across the speaker terminals of this amplifier (a condition which can easily occur when an “invisible” strand of speaker cable bridges across from Common to Hot), all that will happen is that the supply voltage will smoothly drop from its ± 70 volts down to ± 10 volts or even lower, in a smooth but rapid manner. Remove the short circuit and the voltage rises up smoothly again, to its full value, as the SCRs resume conduction over a much greater angle of the A.C. input waveform to the power transformer and normal operation is restored.

The power supply approach used by Soundcraftsmen in this design results in an amplifier that has little or no so-called dynamic headroom (extra power output capability under conditions of short-term musical peak signals). On the other hand, however, it can provide more of its continuous rated power under the extreme line voltage variations found in many “real world” operating situations than would be the case with conventional “soft” power supply amplifier designs.

Now Soundcraftsmen has come up with still another approach to efficient amplifier design. They call it

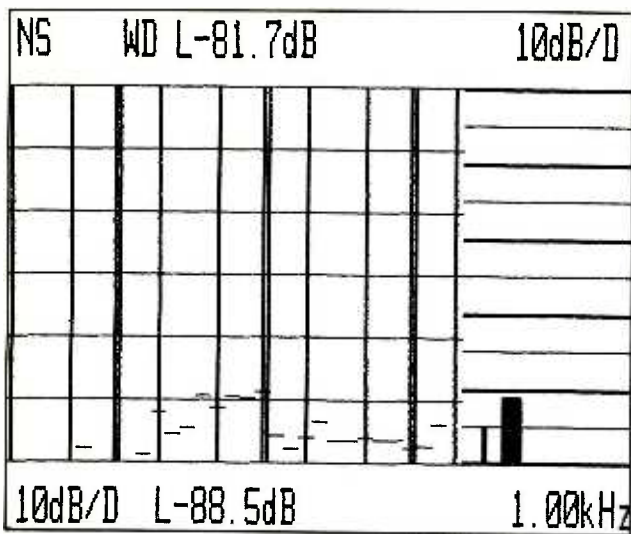


Figure 2. S/N analysis of PCR800. Top figure (81.7 dB) is overall A-weighted S/N re: 1-watt output.

Phase Control Regulation, or PCR. The first of their products to employ the principle is this powerful PCR800, a deceptively small power amp that measures only 8½ inches by 4¾ inches by 12 inches in depth and weighs a mere 18 pounds.

How PCR Works: As Soundcraftsmen explains it, the major thrust of legitimate engineering efforts in amplifier design has focused on power supply design improvements. It is, after all, the power supply of an amplifier that is the source of energy that is indirectly responsible for driving the loudspeakers. The most desirable characteristics of an “ideal” power supply would be huge power capacity, low output impedance and good transient response. The power supply employed in the Phase Control Regulation amplifier incorporates all of these attributes and has the added benefit of being substantially lower in cost than would be possible using conventional circuitry.

PCR is essentially a highly efficient means of controlling the average power supplied to the output stages of an amplifier. It utilizes a process of rapid switching which connects and disconnects an A.C. supply to a load for a precisely optimized fraction of each A.C. (60 Hz) cycle of the line voltage. When the amplifier is delivering a low amount of power (light load), only a small fraction of each A.C. cycle is used to provide power; when power demand is heavy, the full A.C. cycle is used to deliver power to the output stages.

In order to fully understand the operation of the PCR supply, a brief review of conventional, or “linear” power supply circuitry may be helpful. In a conventional amplifier’s power supply, the 120 volt A.C. line voltage is supplied to a power transformer which provides line isolation and adjustment of the A.C. voltage level at its output. This voltage is full-wave rectified by a bridge rectifier consisting of ordinary diodes. The output of the diode bridge rectifier supplies pulsating D.C., positive and negative

supply voltages which are then filtered by large capacitors to provide the actual positive and negative voltages that are used to power the output transistors of the amplifier.

In the PCR800 power supply, which incorporates the new phase control regulation circuitry, the A.C. input voltage is also applied to the power transformer for line isolation and input voltage adjustment. Instead of the output voltages being applied to a diode bridge rectifier, however, the output voltage of the transformer is rectified by SCRs (Silicon Controlled Rectifiers). Unlike conventional diodes, these devices can be controlled by voltages applied to an extra element which they contain (called a “gate”). By proper control, SCRs can be regulated so as to conduct for varying portions of each A.C. cycle—any angle from 0 degrees (non-conduction) to 180 degrees (conduction over half the A.C. cycle, much like a conventional diode). Operating as the source of supply voltage for the amplifier, the output voltage from the SCRs is smoothed by filter capacitors to provide the required positive and negative supply voltages at the output stages of the amplifier. The output level of the D.C. voltages is constantly compared to a precision reference voltage and an exact error-eliminating signal is applied to the phase control regulator. This regulator controls the conduction time of the SCRs, maintaining the output voltage at a precise fixed level (see *Figure 1*).

Test Results: The Soundcraftsmen PCR800 delivered 211 watts-per-channel into 8 ohms at mid-frequencies, and an almost as great 205 watts-per-channel at the frequency extremes of 20 kHz and 20 Hz for its rated THD of 0.05 percent. At rated output, THD measured 0.01 percent at mid-frequencies, 0.04 percent at 20 kHz, and 0.038 percent at 20 Hz. We measured the power output capability of the amplifier at lower impedance loads of 4 ohms and 2 ohms. With 4-ohm loads, the amplifier delivered 305 watts-per-channel at mid frequencies and more than 275 watts-per-channel over the entire audio frequency range for its rated THD of 0.05 percent. Even when 2-ohm loads were connected to the amplifier, it managed to deliver better than 230 watts-per-channel at mid-frequencies and just over 200 watts-per-channel over the entire audio frequency range. SMPTE IM distortion at rated output measured 0.023 percent, while CCIF (twin tone) IM measured 0.005 percent. Frequency response was flat, within 1.0 dB, from 6 Hz to 100 kHz; within 3 dB from 3 Hz to 200 kHz. As you might have guessed, based upon this “stiff power supply” design philosophy, Dynamic Headroom was practically nil, measuring a mere 0.21 dB.

Input sensitivity referenced to one watt measured exactly 100 mV, which corresponds to 1.4 volts for rated power output (into 8 ohms). A-weighted signal-to-noise with reference to one watt measured 81.7 dB, as shown in the noise analysis plot of *Figure 2*. Adding 23.1 dB to that figure (the dB ratio between one watt and 205 watts) results in a S/N figure of 104.8 dB, or very close to the 105 dB figure claimed by Soundcraftsmen. Damping factor was very high, with a reading of around 200, referred to 8 ohms, using a 50 Hz test signal. Slew factor was better than five, while slew rate measured around 45 volts-per-micro-

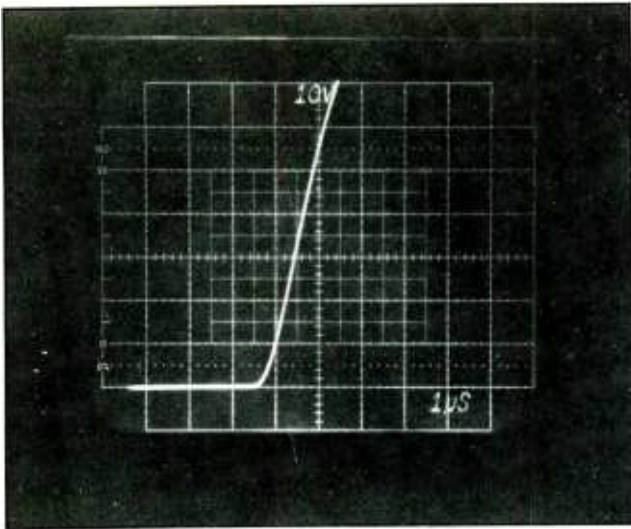


Figure 3. Slew rate of the PCR800 exceeded the 40 V/ μ sec claimed spec.

second. Slew rate was a remarkable 45 volts-per-microsecond, better than the 40 V/ μ sec claimed. The fast slew rate of this amplifier is illustrated in the scope photo of *Figure 3*.

Comments: If there's one thing that you want from an amplifier that's used in the field for sound reinforcement—or as a monitoring amp in a small studio—it's reliability under any conditions of operation. Thermal shut-down or, worse, catastrophic failure of an amp during an important recording session or auditioning session can be both frustrating and costly to all concerned. To be sure, the Soundcraftsmen PCR800 is not configured as a "pro" piece of gear (it uses neither

phone jacks nor XLR connectors for its inputs), but it is a "pro" piece of gear in a more important sense. No matter what load this amp sees, it will continue to operate. Mistreat it thermally and all that will happen is the fan will rev up to the higher of its two speeds. If you still insist upon letting it run even hotter, the next thing that happens is that the power supply voltage gradually becomes lower and lower, keeping the output stages within safe operating limits (albeit at the expense of available maximum output power).

At the urging of the people from Soundcraftsmen, we decided to carry our reliability tests to the extreme. We simply shorted out a pair of terminals for one of the channels to see what would happen. (How many times has that happened to you accidentally in the field? We created this deliberate short while the amp was delivering close to its rated power! Believe it or not, all that happened was that sound stopped coming out of the loudspeakers. There was no smoke—no blown fuses—and, most important of all, no blown output devices (they are all MOSFETs incidentally). When we released the short, in a matter of seconds, power supply voltages were restored to their correct, full values and clean sound was restored. We're told that inside of a year or so, Soundcraftsmen may offer a pro configured version of the PCR800. All that would mean is that the input connectors would be changed. For the moment, we think the PCR800 can serve equally well in hi-fi as well as pro applications. Here's an amp whose innovative power supply circuitry makes it small and relatively light in weight for its power rating; one that sounds great and is not likely to give up just when you need it most. Add all of that to its remarkably low price, and it would seem to be the answer to any audio or recording enthusiast's dreams concerning "ideal" power amplifiers.

SOUNDCRAFTSMEN PCR800 STEREO POWER AMPLIFIER: Vital Statistics

SPECIFICATION	MANUFACTURER'S CLAIM	LAB MEASUREMENT
Power Output	205 W. at 8 ohms 300 W. at 4 ohms 275 W. at 2 ohms 600 W. Mono (Bridged)	208 W. 306 W. 245 W. N/A
Rated THD, for 8 Ohms (20 Hz to 20 kHz)	0.05% or less	0.04%
SMPTE-IM Distortion	0.05% or less	0.023%
TIM Distortion	Unmeasurable	Confirmed
CCIF-IM (Twin Tone)	N/A	0.005%
Signal-to-Noise Ratio	106 dB (re:full output)	105.8 dB
Slew Rate	More than 40 V/ μ sec	45 V/ μ sec
Rise Time	Less than 2.2 microseconds	Confirmed
Frequency Response	20 Hz to 20 kHz, +0.1 dB	6 Hz to 100 kHz, +1.0 db
Input Sensitivity	N/A	1.4 V for rated output
Dimensions	4 $\frac{1}{8}$ " x 8 $\frac{1}{2}$ " x 12" d.	Confirmed
Weight	23 lbs	Confirmed
Price: \$449.00		

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The Market Place

what's new in sound and music

ALLEN AND HEATH BRENNELL MIXER

Allen and Heath Brennell's SRM-186 Mixer is designed as an on-stage monitor mixer for use by artists requiring up to six independent mixes within their performing environment. The mixer is intended for use with a high quality monitor system (i.e., speakers, amplifiers, equalizers, etc.). Both the needs of the artist and the engineer are satisfied by extensive use of patch and insert points and the liberal use of status LED indicators throughout. Incorporation of an internal passive microphone splitter system eliminates the need for costly external systems. The engineer's portion of the monitor system is designed so that external processing gear can easily be patched into any of the six individual groups and monitored through the PFL (Solo) system, exactly as the artist is hearing it. The engineer has a choice of monitoring—using headphones or his own speaker system. A Mute switch is provided on this output to eliminate the need for adjusting engineering monitor levels when switching between headphones and speakers. A separate LED meter is used to follow the PFL (Solo) function



of the mixer. This prevents confusion that could occur if one meter was used for multiple functions. Physical layout and color selections have been chosen for ease of operation under low light conditions, as are often encountered on stage wings during a

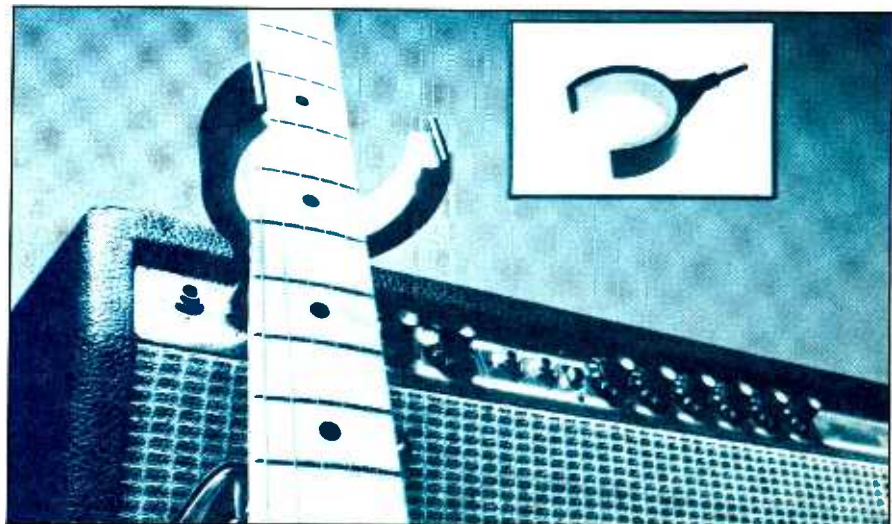
performance. BNC connectors are provided for use with optional gooseneck lighting fixtures. An arm rest is provided for engineering comfort during long performances.

Circle 25 on Reader Service Card

TEKFORM'S GUITAR GRABBER

TEKForm Products' new Guitar Grabber is designed to be a convenient alternative to the traditional guitar stand. Made of a single piece of high-strength plastic padded with thick foam rubber for protection, the Guitar Grabber plugs instantly into the front panel of any guitar amplifier. It provides a safe resting place for the instrument whenever it's not in use. The Guitar Grabber is small enough to fit in any guitar case, and it doesn't take up space on even the smallest stages. The list price is \$6.95.

Circle 26 on Reader Service Card



ELECTRO-VOICE STAGE SYSTEM SPEAKERS

Electro-Voice's new Stage System speaker line features re-designed enclosures constructed of a high-density-aligned-fiber, waterproof hardwood material called Road-Wood™. Offering the strength of plywood with superior acoustical properties, the new enclosures are covered with a special black high-density carpet material and protected with heavy-gauge steel corners. Other cabinet details include removable expanded metal grilles, recessed input panels and handles, and oversized rubber feet. New components were engineered, assembled in the six new systems, and packaged to survive years of road use. Among these components are a new die-cast constant directivity horn, extended-coil high-power woofers, and a one-inch pro-music titanium driver. The EV exclusive VMR™ (Vented Mid-Range) cone driver has been improved with a new edgewound flat-wire voice coil and is now constructed with high-temperature adhesives. The all-new compact S-1202 is a two-way, 300-watt, time coherent, constant directivity sound reinforcement system featuring the one-inch pro-music titanium driver coupled to an EVM Pro-Line 12S woofer. Two new monitor systems, the FM-1202 and FM-1502, are each two-way 300-watt constant directivity floor monitors. Both feature the new pro-music high frequency driver while the FM-1202 offers an EVM Pro-Line 12S woofer; the FM-1502 is supplied with an extended-coil 15-inch proprietary woofer. The S15-3 sound reinforcement system and



S18-3 keyboard system were re-designed to increase power handling to 200 watts (continuous) and upgraded with the new high-power VMR™ and special long-coil 400-watt woofer design. The new models are designated S-1503 and S-1803. The popular SH15-2 club sound reinforcement speaker is renamed the SH-1502. Power handling has been increased to 200 watts by applying EV proprietary high-temperature technology to the woofer and adding the new pro-music one-inch titanium

high-frequency driver to the system. New low-frequency vent tuning has substantially improved bass performance in this system. Completing the Stage System line is the model S-200, a compact speaker system. Previously introduced, this high-power speaker features a molded enclosure that improves portability and optimizes the performance of this lightweight (36 lb.), heavy-duty performer.

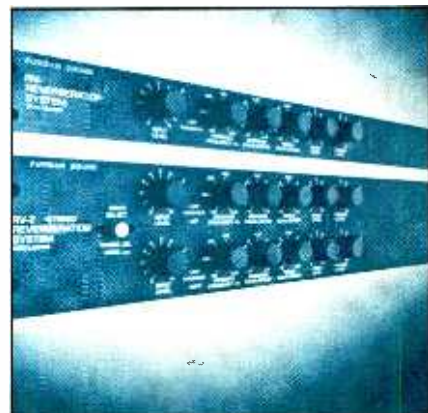
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FURMAN SOUND STEREO REVERBERATION UNIT

Furman Sound's RV-2 Stereo Reverberation System consists of two complete reverberation systems, each with its own 16-inch triple-spring reverb tank, limiter circuitry, and controls for input level, Equalization, and "Wet" and "Dry" Output level. Also included are a ground-lift switch, power-on indicator, and an LED that indicates whether or not the limiter is above threshold. The unit also features a Stereo/Mono switch. When in the Stereo position, the unit generates lifelike stereo

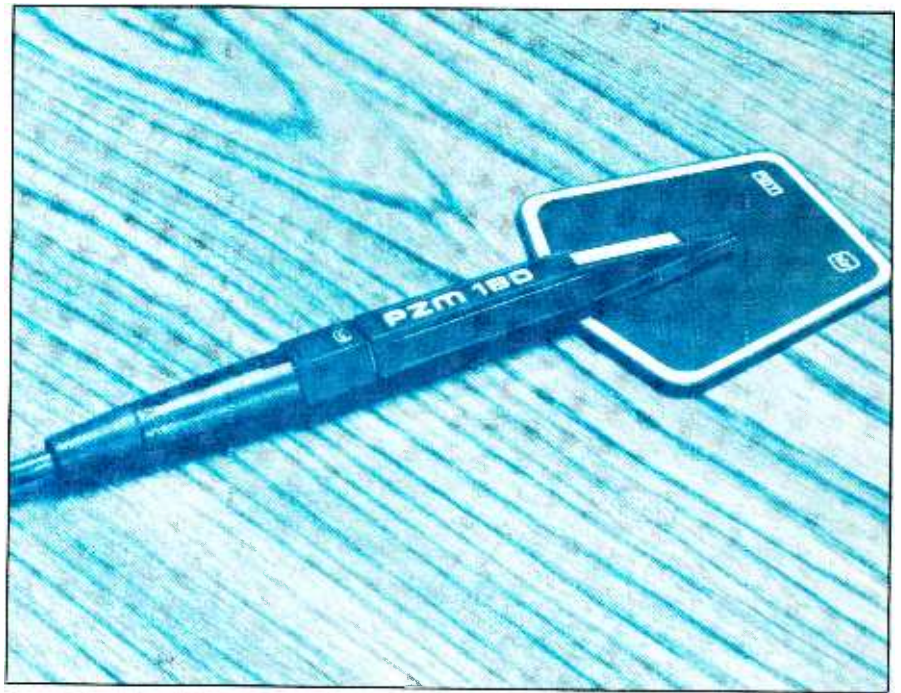
reverberation from a monophonic source. Alternatively, the two channels can be used independently (i.e., with two separate instruments, or Right and Left of a stereo pair), or they can be patched in series to deliver an extremely dense monophonic reverberation. Standard units are equipped with ¼-inch phone jack inputs and outputs. Balanced inputs and outputs are available as an option and are in addition to the unbalanced connectors.

Circle 28 on Reader Service Card



CROWN PZM MICROPHONE

The Crown PZM-180 Pressure Zone Microphone is specially designed for use on surfaces such as tables, floors, or walls. It is intended for the serious amateur and the beginning professional as a general purpose microphone suitable for applications such as conferences, interviews, group discussions, home video productions, broadcast news and sports, and music recordings. The PZM-180 utilizes the Pressure Recording Process™, in which a miniature condenser microphone capsule is arranged very close to a sound-reflecting plate or boundary. The capsule is mounted in the "pressure zone" just above the boundary, a region where sound coming directly from the sound source combines in phase with sound reflected off the boundary. This eliminates phase interference between direct and reflected waves for clearer, more natural reproduction. An integral handle allows the microphone to be hand-held, stand-mounted, or simply laid on any hard surface. The PZM-180 can be phantom or battery powered, and requires no external power supply interface. Self-contained electronics adapt the unit for phantom powering, or the micro-



phone can operate for hundreds of hours on its self-contained "N-cell" battery. Connecting the microphone to a phantom power supply disconnects the internal battery. The output is balanced, low impedance, available at an integral XLR connector. In addition, the microphone is

compatible with all professional recording and sound reinforcement equipment. The PZM-180 is supplied with a battery for powering and a windscreen to reduce pickup of wind noise and breath "pops." Suggested retail price is \$169.00.

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MICRO PRO'S TROUBLE-SHOOTER

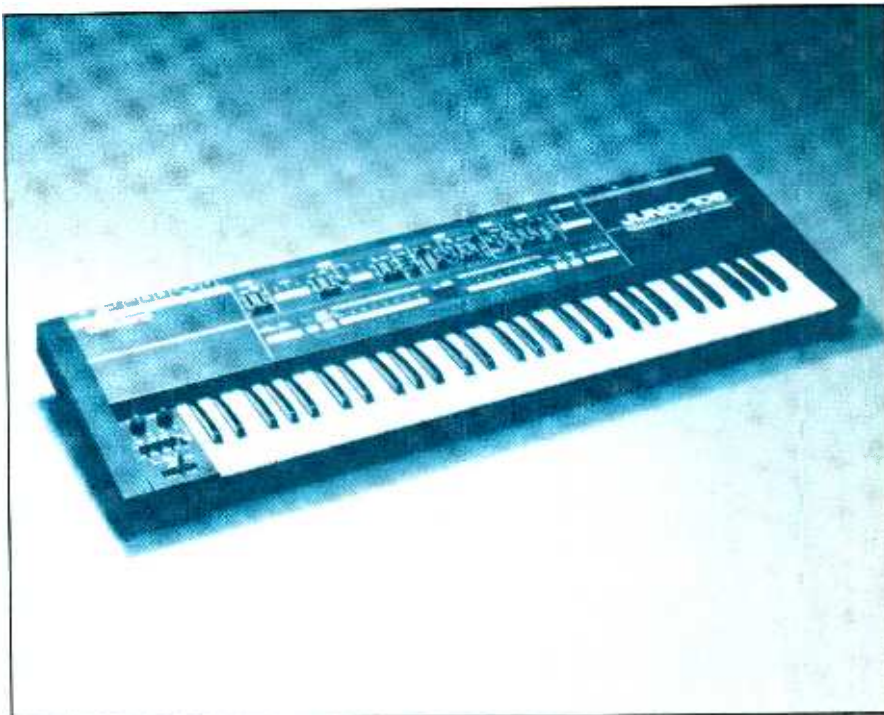
Micro Pro's Port-A-Tone features both tone source and cable continuity modes of operation. First, the Port-A-Tone acts as a 1 kHz tone source with -40 dB mic, -10 dB line, and 1 watt speaker level output. Next, the Port-A-Tone tests phono and 1/4-inch phone cables for shorts and opens, and three-conductor mic cables for shorts, opens, and phasing (pin polarity). The Port-A-Tone is a fast, easy way to troubleshoot any audio system. It measures 4-in. by 2 1/2-in. by 1-in. Encased in cast aluminum, the unit is road tough and equally handy in the studio. At a price of \$129.95, the Port-A-Tone is designed to meet an essential need of audio professionals.



Circle 30 on Reader Service Card

ROLAND SYNTHESIZER

The JUNO-106 is the newest addition to Roland's popular JUNO line of synthesizer equipment. A six-voice programmable polyphonic synthesizer, the JUNO-106 updates the classic JUNO features with expanded memory, Portamento, and MIDI interface capabilities. The JUNO-106's 61-note (5 octave) keyboard provides plenty of room to stretch out. Its 6 DCOs (Digitally Controlled Oscillators) retain precise pitch under all circumstances. Each DCO has its own fully programmable VCF, VCA, and Envelope Generator. There's also an LFO and the distinctive Roland Chorus circuit for vibrant string and organ patches. Performance controls include a Portamento section (a new JUNO feature), joined by an extensive array of left-hand controls, including full bender facilities, LFO trigger sensitivity, and master volume. Roland has endowed the JUNO-106 with more on-board memory than any other previous JUNO synthesizer. The memory presets are arranged in two groups, A and B. Each group contains eight memory banks, each of which can hold eight user-programmable patches—giving the player a total of 128 memory programs. Foot-pedal switching between memory programs can be accomplished via a rear panel Patch Shift jack. A built-in Tape Interface for off-loading



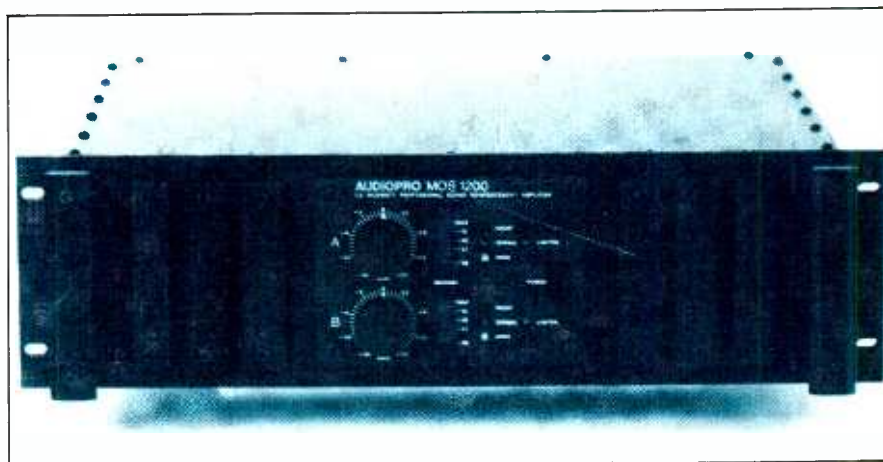
program material onto cassette complements the unit's ample on-board memory. The JUNO-106 is equipped with MIDI In, Thru, and Out capabilities for interfacing with other MIDI-equipped keyboards, drum machines, sequencers, etc. The MIDI bus connector allows the JUNO-106 to transmit and receive the full gamut of MIDI commands

including note events, bender moves, LFO modulation, and program changes. Roland's new JUNO-106 comes with both stereo and mono outputs plus a headphone jack. It measures 39.68-in. wide by 4.6-in. high by 12.6-in. deep. Suggested retail price is \$1,095.00.

Circle 1 on Reader Service Card

YORKVILLE SOUND AMPLIFIER

Yorkville Sound's latest addition to their AUDIOPRO line is the MOS-1200, a two-channel sound reinforcement amplifier. The MOS-1200 incorporates MOSFETs in the output stages running in tandem with large S.O.A. bipolar devices driven with separate internal power supplies. As a result, the MOS-1200 operates stably under high-demand conditions while providing 3 dB of dynamic headroom. Nominal power into 8, 4, and 2 ohms is 200, 400, and 600 watts respectively, per-channel. Nominal mono bridged power is 800 watts into 8 ohms and 1200 watts into 4 ohms (ratings ref. 117 VAC line). Dual, tunnel-type heatsink assemblies and thermally regulated two-speed fans maintain safe operating temperatures at all power levels. Open-load conditions as well as low-load/shorted load conditions have LED indicators and non-interruptive protection features. Additionally, the DC



offset protection permits at least 10 seconds of continued AC "ON" time after the speakers have been protected and before the circuit breaker trips (this is a DC sampling period; actual speaker protection engages within 0.25 seconds). 10-segment, floating-bar level displays illuminate fully at the clipping threshold and then flash with increasing speed as the level exceeds the threshold. Dual, linear

limiters engage automatically to soften clipping at and above the threshold. THD is 0.02 percent or less at 1 kHz at all nominal power ratings; hum and noise is -95 dB; slew rate is 50 volts-per-microsecond; damping factor is greater than 500, and frequency response is 10 Hz to 20 kHz, ± 0.1 dB.

Circle 2 on Reader Service Card



MAKING TRACKS

The **Waitresses** are cutting new tracks for an upcoming release at **Unique Recording**. **Jimmy Rodeo** is producing, **Steve Ettinger** is engineering, with **Roey Shamir** and **Mike Nicoletti** assisting... Also at Unique, producer **Larry Blackman** has just finished mixing **Cameo's** *She Strange* album for **Polygram Records**. **Steve Jerome** is engineering with **Tracy Melvin** assisting... Currently at **Bullet Recording**, **Ronnie Milsap** is in cutting strings for his upcoming **RCA LP** with co-producer **Rob Galbreath**. **Scott Hendricks** is engineering... At the **Automatt**: **Echo And The Bunnymen** are cutting tracks for an upcoming **Warner Brothers** release. **Dave Frazer** is engineering with **Ray Pyle** assisting. **Herbie Hancock** was also in mixing digital audio for his full length **CBS** video. **Ken Kessie** and **Maureen Droney** were at the board... The upcoming **Jacksons'** LP, *Victory*, due for release this Spring, is the first album ever to unite all the males in the Jackson family. *Victory's* songs have all been co-written and co-produced by the Jackson brothers... At **Kajem Recording**, production tapes were made for **Yes** for their U.S. tour by Yes engineer **Nigel Luby**... Southern New Wave rockers **Will Rambeaux** and the **Delta Hurricanes** are recording their first EP at **Treasure Isle Recorders** in Nashville. **Sam Borgerson** and **Kenny Greenberg** are co-producing the project with **Tom Harding** engineering... Activity at **Hot Licks Studio** has included **The Kendalls**, **Gene Watson**, **Michael Martin Murphey**, **Leon Everette**, **Moe Bandy**, **Mel McDaniel** and **Lee Greenwood**, all working on television tracks for the Nashville Network's new show, "New Country..." **Bill Pinkney** and the original **Drifters** are back in the studio recording a single on **Christopher Records**, with producer **Rick Sandidge** at **Sandcastle Recording Studios**... **Island Records** has released two new albums, *Caribbean Sunset* by **John Cale** on the **Ze** label and *Making History* by **Linton Kwesi Johnson** on **Mango Records**... **A&M** recording artist **Chuck Mangione** took time from his tour and stopped into **Criteria Recording Studios** to record a title track for a film. Mr. Mangione has also started cutting basic tracks for his new album on **Columbia** with **Deodato** producing... Two video edits have just been completed at **Century III Teleproductions**. "Don't Say Goodnight," by **John Butcher Axis** is the video from the single on his new album. The second is **Ebn Ozn's** "Bag Lady," a track from their recently released record for **Elektra Records**.

ON THE ROAD

Australia's recording group **Midnight Oil** has embarked on their first tour of North America. They are receiving widespread airplay both on radio and video channels with their debut single "Power and the Passion..." **The Fleshtones** will be touring Europe for five weeks, after which they will return to the U.S. for three weeks of concert dates on the Gulf Coast... A floating jazz festival featuring such artists as **Mel Torme**, **Woody Herman's** big band, **George Shearing**, **Zoot Sims**, **Dizzy Gillespie** and **Joe Williams**, will set sail in October. There will be two special seven day cruises on **Norwegian Caribbean Lines'** the **S.S. Norway**... **John Denver** has begun a 50 City tour. Although his stage set-up appears to be elaborate, he is appearing completely alone... The Jacksons' tour, which will premiere the music of their new album, *Victory*, is scheduled to begin in mid-June. The three month tour will reach fifteen cities and include 40 concerts. **Michael Jackson** will design the staging for the upcoming tour...

& MUSIC...



EURYTHMICS: *Touch*. [Produced by David A. Stewart; engineered by Jon Bavin, recorded and mixed on Soundcraft equipment.] RCA AFL1-4917.



Performance: **Controlled liberation**
Recording: **Comfortably technotic**

There are no startling novelties on *Touch*, which presents more Eurythmics' etheric, Gaelic funk patted down into even, tight grooves. Complete with a mariachi-laden, south-of-the-border cousin to *Sweet Dreams*' "This Is The House" ("Right By Your Side"), a bluesily belted sister to "Wrap It Up" ("Regrets"), and a chant-based complement to "I've Got An Angel" ("Aqua"), *Touch* is a smoked-mirror reflection of their "homemade" first release.

The addition of the bright, funky bass of Dean Garcia and a horn section utilizing the skills of Dick Cuthell (uncredited on *Sweet Dreams*) pulls Lennox and Stewart even further away from the synth band school, but the keyboards still remain an unremovable backdrop for these organic splashes of tone color.

With the help of arranger M. Kayman, Stewart makes a smooth transition to live strings and adequately demonstrates an awareness of the differences between bowing and electronically summoning this sound. We're also treated to a larger sample of his skill as a guitarist, with stylings that range from the spry

acoustic guitar on "Aqua" to the upright heavy metal lead on "Who's That Girl?"

Created in a new, technologically complex studio, one wonders whether Stewart and Lennox chose to make use of any of the "found" instrumentation that was so charming on *Sweet Dreams*. "Cool Blue," the quintessential cut, with its unique synth envelopes and sparse rhythm game, displays an array of questionably sourced percussion, and features Lennox shifting between a sultry croon and tense yet ever-controlled vocal musing. The following cut, "Who's That Girl?," shows the Eurythmics at their derivative best, with "Eleanor Rigby"-ish eighth note strings, a guitar part plucked from Nile Rodgers, Motown chimes and even a keyboard riff from "Sweet Dreams."

One of the most endearing qualities of Eurythmics music lies in the way Stewart sets up a stylized musical framework and then saves it from terminal stereotypicality by introducing one or several radically "improper" elements. Lennox's voice is the common orange in the barrel of apples. With characteristic steel-edged fragility, she disrupts the

languor of "Here Comes The Rain Again" and smoothes out the disconnected rhythmicity of "Aqua" with steady, even vocal tones. The most technotic song, "Paint A Rumor," is spared from robotic insensibility by naturalizing blasts of funk bass and talking drums, and edged even further away from the machinery by the twists and turns of mideastern keyboards.

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TREBAS INSTITUTE OF RECORDING ARTS

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On the heels of an impressive debut, Dave and Annie have shaken up their bag of musical tricks and pulled out a second batch of semi-sweet tunes that, if not dazzling, are at least appealing for those with an appetite for Eurythmics brand of musical treats.

—susan borey

PRETENDERS: *Learning To Crawl*.

[Produced by Chris Thomas; engineered by Steve Churchyard, assisted by Jeremy Allom; recorded at Air Studios, London.] SIRE 23980.

Performance: **Multi-layered**

Recording: **Sharp**

Chrissie Hynde continues to stake her claim as the last of the great, traditional singer/songwriters. That doesn't just mean that she sings her own songs. It means that she writes compelling music and intelligent, insightful lyrics, and defines them herself. Because the tragedies and triumphs of her personal life have been so well-publicized recently, much attention has focused on the lyrics of *Learning To Crawl*, but the music reveals just as much. It reflects, extends and is inseparable from those lyrics, helping make *Learning To Crawl* some of the most worthwhile rock to spring thus far from the eighties.

Hynde exposes a little more of herself than on the past two Pretenders albums without losing any of her edge. On the opening two cuts, the singles "Middle Of The Road" and "Back On The Chain Gang," she presents the same basic problem—finding the strength to go on in the midst of advancing age and personal loss—from two perspectives. The searing, double-barreled guitars and the haunting, deliberately distanced background wailing of "Middle Of The Road" evoke the violence and bleakness that Hynde races through. "Back On The Chain Gang," which follows, provides a softer lament about death. Hynde's voice expresses—at once—anger, resignation, confusion, and love. Here, the lead guitar is alone, and ignites the song with a slow, steady flame.

Each cut explores some different territory, and each is in itself a marvel of contrasts. In "Time The Avenger," the protagonist gets his

comeuppance in the methodical, loud fury of the guitars; but Hynde's voice embraces the lyric and her voice is so fully-mic'ed that it's hard not to hear a crack or two of compassion. "Thumbelina" also doesn't quite deliver what appears on the surface. It seems to celebrate rockabilly-style, Hynde's life with her new daughter, but the playing is just a little too subdued and somber, and Hynde ends the song with a twist of irony: "What's important in life/Ask the man who lost his wife."



The most stimulating section of the album contains Hynde's pair of rhythm and blues songs. A "Miss You" bass line creeps through "My City Was Gone" and, as the snare drum undulates, Hynde's voice drifts lower and lower. A remake of the Persuaders' "Thin Line Between Love and Hate" bites even deeper. The opening single piano notes are so piercing that you can feel the fingers plunking down on them; Hynde tries to remain removed from the situation, tries to stay in subdued control, but as the song moves she pours out everything she has in a succession of rhythmic twists and vocal crescendos.

Producer Chris Thomas deserves much of the credit for giving the album this cohesive sound, even as the Pretenders as a group were in turmoil. (Though the band has been officially reformed since the death of guitarist James Honeyman-Scott, several studio musicians play lead parts here.) Thomas has shaped a sound as close as possible to live under studio conditions, and has given Hynde's voice—her singing voice, her compositional voice, her lyrical voice—the environment it needs. More than anything else,

Chrissie Hynde is a survivor, constantly challenging herself and her listeners. She may not be the most accessible pop artist making music today, but she's more than worth the extra effort.

—rob hoerburger

MILES DAVIS: *Heard 'Round the World.* [Kiyoshi Itoli, Rudy Wolpert producers; unknown engineer; recorded live at Kohscienkin Hall, Tokyo, Japan, July 14, 1964 and at "Berliner Jazztage," Berlin, Germany, September 25, 1964.] Columbia C238506.

THELONIOUS MONK: *Tokyo Concerts.* [Teo Macero, producer; unknown engineer; recorded live at Sankei Hall, Tokyo, Japan, May 12, 1963.] Columbia C238510.

Performance: **Vintage Miles matched with weak sax accompaniment, vintage Monk with perfect accompaniment**

Recording: **Clean and clear for live concerts from the Sixties**

Here are two more discoveries from the seemingly elastic vaults of unreleased jazz from Columbia. Both are very much worth your hard earned dollars even if you possess relatively complete collections of Miles and Monk. Here's why:

The Miles is a two record set with one record featuring the Miles quintet in Japan with the usual David band of the early Sixties, except for the odd presence of Sam Rivers on sax. The other disc has Wayne Shorter replacing Rivers on sax and was recorded in Germany. Since Shorter was such an essential part of that great Sixties Davis sound, and Rivers was a stopgap replacement prior to Shorter entering the group, I had assumed the German sides of this set would be the most notable. Not so.

The Japan sides are remarkable for a number of reasons. Davis performs the *definitive* version of "My Funny Valentine"—and with such heartwarming sweetness that the cost of the two record set is justified simply by this perfectly shaped version. While the trumpet solo by Miles makes the piece what it

is, Rivers in no way tarnishes the composition with his solo. The rhythm section of Tony Williams and Ron Carter is totally entralling throughout, and Herbie Hancock plays with a whispering beauty that makes me wish he hadn't caught that viral infection during the last decade called "electro-funk." Sam Rivers was clearly in transition when this recording was made; he had not yet crossed into the twilight zone of the avant-garde. One part of his soul (or one hemisphere of his brain?) still had ties to the old bop players, and his slippery and husky bop-flavored

tones can be heard with some gratitude on the frenetically upbeat "So What" and "Walkin'." It's not that Rivers can't stand up to solos by Miles and hold his own; he is simply an inappropriate match. That fact probably kept these extremely lively recordings in the vault too long. It's interesting to note that the German record also suffers from the same flaw. Here's Davis doing some glorious out-of-body-travel-type solos on "Milestones" and "Autumn Leaves" while Shorter enters (and loses, believe me!) the John Coltrane look-alike contest. He had not yet found his personal voice and his sax stammerings are sometimes...gulp...embarrassing. The German record is also weaker than the Japan date because it features anemic new versions of the "So What" and "Walkin'" on the Japan record. So record buyers are treated to two takes of two compositions that are better recorded on other Miles records. Quite a deal. But Miles is such a star throughout—spend the money for his mastery.

The Monk set is so consistently worthwhile that I really can't comprehend why it wasn't released sooner. Quite a few Monk compositions presented here have been covered on other Monk recordings, but Monk and Rouse sound as bold and tough as ever. I was also taken by the consistently high quality of the rhythm section consisting of Butch Warren on bass and Frankie Dunlop on drums. I am more familiar with the Monk recordings in which he had no less than Wilbur Ware keeping time on bass with Art Blakey or Roy Haynes on drums. I found Warren and Dunlop to be as creative in keeping up with Monk as those more famous musicians were.

The set opens with the classic "Straight, No Chaser," which is a lovely showcase for all of Monk's

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musical signatures. There's his quirky sense of rhythm, his individual sense of how to maintain a spaciousness within any melody. "Pannonica" is a great vehicle for Rouse to shine on sax, which he does throughout this set until the last cut on the second of this two record set, "Epistrophe." His fine articulations on "Jackie-ing" give that tune a gutsy gallop lacking in some of its earlier recorded versions.

Monk is, at various times, dryly funny (hear his charmingly clumsy introductions to "I'm Getting Sentimental Over You") and tearfully maudlin (hear the pathos undergirding "Just A Gigolo.") He is never less than fascinating. If the inclusion of "My Funny Valentine" makes the purchase of the Davis set essential, "Blue Monk" performs that function for this set. The version here has more of a "Blue note" quality than any other version on vinyl.

Recording quality is quite good on both the Davis and Monk sets. There are a few minor details in the Davis recording that bothers me. Hancock's piano has a fuzzy and dull tone at times, while Carter's bass gets a little too low in the mix. No complaints do I harbor about the recording of the Monk.

The pressing is quite another story since sides three and four were on extremely warped vinyl. Monk, even if he's gone from this physical arena, deserves a higher quality embodiment.

norman weinstein

The Jazz-Life Force: Svend Asmussen and Coleman Hawkins

nat hentoff

Svend Asmussen has been a world-class jazz violinist since the 1930s. And yet, although he is much admired by American musicians, his American audience has always been quite small. The reason may be that such of his European peers as Stephane Grappelli and Jean-Luc Ponty have traveled here much more often than Asmussen and have had many more recordings available in the States.

In any case, the dauntlessly cheerful Asmussen has now made his first album in this country with American jazzmen. It was cut in the summer of 1983 for Bob Thiele's Flying Dutchman label, and the rhythm section is extremely right for the swinging Dane: pianist Derek Smith, guitarist Bucky Pizzarelli, bassist Milt Hinton, and drummer Oliver Jackson, Jr. All of them have the same deeply relaxed way of making time flow as Asmussen does. And all have a warmth of sound and a lyrical thrust that he also shares.

Asmussen is, first of all, a player of exhilarating verve, wit, and sheer buoyancy. He can also be sensuously contemplative on a ballad and sometimes so gentle that it's as if a spring breeze has taken over his instrument. The songs range from "June Night" and "Lazy River" to "When Day Is Done." Like Stephane Grappelli, Asmussen somehow seems to have more youthful elan with each passing decade. This album should finally prove to American listeners that Grappelli is not the only ageless wizard of the jazz fiddle.

The recorded sound is a model of an engineer's listening to each and every strand in these collective improvisations.

If Svend Asmussen especially represents the sunnier, more care-free dimensions of the jazz life-force, Coleman Hawkins exemplified the more explosive, sometimes ferocious, always boundingly competitive dimensions of survival in jazz. A particularly intriguing cross-section of Hawkins

before live audiences has been assembled in *The Coleman Hawkins Set*, one of a series of valuable reissues on Polygram Classics of the Norman Granz Jazz at the Philharmonic concerts.

These historical events are from JATP sessions in 1949 and 1950, along with a set seven years later. For the first two, Hawkins is backed by Hank Jones, Ray Brown, and Buddy Rich (three of the sides have never previously been released). The blazing 1957 date, which has the crowds roaring as if it were a Super Bowl game, combines Hawkins with Roy Eldridge, who was every bit as competitive as the originator of the jazz tenor saxophone. With them here, interestingly, were three-quarters of the Modern Jazz Quartet: John Lewis, Percy Heath, and Connie Kay.

On every track from every session, Hawkins played as he invariably did—as if this were the last performance he would ever give and therefore he intended to give everything he had. The man had extraordinary presence. When he got on stage, he seemed two feet taller than he actually was. And now, all these years after he died, he still bursts through these grooves with enormous life.

The recorded sound captures the excitement of those JATP nights and especially of the lightning bolts that Coleman Hawkins hurled so prodigiously. The sound isn't 1984 state of the art, but would you quibble if you had a set of Beethoven himself swinging?

SVEND ASMUSSEN: *June Night*. [Bob Thiele, producer; Bob Simpson, engineer.] Doctor Jazz FW39150.

COLEMAN HAWKINS: *Jazz at the Philharmonic/The Coleman Hawkins Set*. [Bob Thiele, producer; Steve Baldwin, reissue engineer.] Verve 815 148 1, distributed by Polygram Classics, Inc., 810 Seventh Avenue, New York, NY 10019.

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