

*Some Practical Advice
For Recording Mellotrons,
B-3s, Pipe Organs and
Esoteric Synths*

CAPTURING THE Keyboards

BY RICK CLARK

Keyboards have always provided an endless array of colors and nuance for music projects, adding tone to an underbed or singing solo in an extended bridge. Listen back to Charles Earland and Jimmy Smith funkying up jazz on the B-3, or the Moody Blues' Mike Pinder's dense, orchestrated Mellotron atmospherics, or NRBQ's wildman Terry Smith bashing a clavinet into one of the coolest rock 'n' roll instruments, or E Power Biggs' grand pipe organ performances of Bach, or the amazingly subtle and musical application of analog synth on The Beatles' masterpiece Abbey Road.

So, in this applications feature, the focus is on keyboards. (We've also included a sidebar on choosing and maintaining a studio piano. For information about piano recording, refer to the "Recording Piano" feature in November '97 Mix.) In this feature, Tony Visconti, Cookie Marenco, Leanne Ungar and Christopher Greenleaf describe their advice and experiences recording everything from pipe organ and Fender Rhodes to synths and Mellotron. Mix would also

like to thank Anne Catalino and Matt Rollings for their input.

ALL
PHOTOS TAKEN
AT OTR STUDIOS
BY MUFFY KIBBEY



cousin the Chamberlain. They are not dissimilar in concept—they are both keyboard samplers that play prerecorded analog tapes. [Mr. Chamberlain left the Mellotron organization to start up his own eponymously named keyboard company.]

I started recording Mellotrons as early as 1968, after hearing that haunting flute intro to "Strawberry Fields Forever." In London, in 1968, you could actually hire that very same Mellotron. The Beatles hired to play that very

same flute sound and also that flamenco guitar run used at the beginning of "Bungalow Bill" [by pressing one key]. One could also request the sound effects library rack of tapes that The Beatles also used for the jet airliner wheels squealing at touchdown at the beginning of "Back in the USSR." Even before hot string sounds were available on early ARP synthesizers, the Mellotron afforded the average Brit pop band a sleazy opportunity to have a string section on their record, and it

TONY VISCONTI

Over the past three decades, Tony Visconti has produced, engineered, mixed and arranged orchestral parts for some of the most innovative artists in pop and rock music, including David Bowie, T-Rex, the Moody Blues, The Move, Iggy Pop, Wings, Sparks, Straubs, Badfinger, Gentle Giant, The Radiators, Boomtown Rats and many others. Most recently, Visconti was wrapping up production on Arista band Rustic Overtones.

One of the most exotic keyboards to record is the Mellotron, and its first

Here is my Mellotron credo:

A good Mellotron is a sampled Mellotron.

A good Mellotron sample is looped.

A good Mellotron loop is Autotuned.

—Tony Visconti

HOW TO SELECT AND MAINTAIN A RECORDING PIANO

BY MICHAEL C. VECCHIONE

Here are some practical suggestions for selecting the right piano and, equally important, finding a competent piano tuner/technician.

FINDING THE RIGHT PIANO

What is the best piano? This is not an easy question to answer, because no two pianos sound exactly alike. In fact, two pianos with consecutive serial numbers from the same manufacturer may sound completely different. When selecting a piano for purchase or rental, always write down the serial number. Some respected concert stage pianos may not necessarily be the best choice for critical recording. A good concert piano may project well, yet lack extreme clarity. Concert hall acoustics may mask extraneous mechanical sounds, which recording microphones will reveal.

The ideal recording piano is a grand; a minimum length of 6 feet is recommended. In general, pianos 6 feet and larger produce powerful bass, with solid mids and highs, and graceful *pianissimos*. Some smaller grands will not exhibit these qualities because of inadequate string length. Also, the soundboard area of a 6-, 7- or 9-foot grand is much larger than that of a 5-foot or baby grand. Generally, the larger grands also offer higher quality in design, materials and workmanship. Try to buy the largest piano that you can possibly afford, even if you have to do a little creative financing. Also, purchase a high-quality

artist's bench with the piano (a leather seat covering is best), and schedule regular bench maintenance.

GET HELP

When shopping for a piano, get help. A registered piano technician or an experienced pianist can "test drive" a piano and should be able to point out any problems, some of which a nonplaying recording engineer may not notice. For example, if a piano does not "sing," and notes have a short decay, no amount of editing or re-recording will fix it. A piano with an inferior tone may end up an impediment rather than an asset.

Also, keep in mind that, if you are paying a consultant's fee, his or her opinion should not be influenced by any potential sales commission. Free advice may only be worth what you pay for it.

PREPARING THE PIANO

Any new piano needs to be prepared before delivery. Prep work should include a thorough tuning (balancing of pitch, temperament, octaves and unisons), action regulation (geometrical adjustment of all moving parts to achieve the optimal touch), hammer tone regulation (manipulation of hammer felt to modify the instrument's timbre) and voicing (ensuring that the hammers address each string with optimum consistency).

If prep work is not done, or is done poorly, it could cause some unpleasant surprises during a session. Final tone regulation and voicing should always be done in the room where the piano will be recorded. You may want to have your own piano technician do this work.

FINDING A PIANO TUNER/TECHNICIAN

A skilled and reliable piano tuner/technician is essential.

—CONTINUED ON PAGE 42



wasn't synthesized; it was the real deal, real strings.

It isn't so strange to learn that the Mellotron was intended to be a home keyboard, an alternate to an electric organ. The infernal mechanism that played a 7-second piece of tape at the touch of a key was not meant for heavy studio or road use. I have witnessed many times a Mellotron tape rack spewing its contents all over the control room floor. It was a gifted roadie who knew how to wind the tapes back onto their rack.

There are special ways to record a Mellotron. The Moody Blues were one of the first groups to get a reasonable quality sound from this instrument. Justin Hayward confirmed to me that Mike Pinder used to smooth out the erratic wobble of the tapes and the limited 7-second playback by recording the same parts triple-tracked and playing slightly ahead and behind the beat so that the wobbles would smooth out a little by subsequent overdubs. In my early use of the Mellotron I did this too, with session players like Rick Wakeman and others.

The only way to record a Mellotron was from its direct output, to get cleaner access to those tapes. It had built-in speakers, but they made the sound even more intolerably low-fi. The tapes were divided into three discrete tracks, so you had a violin, a cello and a flute available on one tape rack. It was soon discovered that you could have a violin and flute sound simultaneously by jamming the tape playback head between settings. This is a physical procedure, not electronic switching. One can only assume that tape head azimuth was never a strong point of Mellotrons.

In recent years, the Mellotron has had a renaissance, and many of these old beasts have been resurrected from scrap heaps. In the late '60s it was apparent that the tapes were not getting any younger or fresher with constant use. I've heard that nowadays there are enthusiastic Mellotron users who've found the original master tapes and are

making copies for current use. This may be all well and good, but then there are the tape heads themselves, which are rutted almost beyond use on some units. In the '80s I realized that there will come a point when the last Mellotron or Chamberlain will fall sideways into the dust, so I decided to record and sample as many Mellotrons as I came across.

I first did this when recording with the Moody Blues in recent years. I produced the albums *The Other Side of Life* [featuring the single "Your Wildest Dreams"], *Sur La Mer* [featuring the single "I Know You're Out There Somewhere"] and *Keys of the Kingdom* (seven tracks). The Moodies were reluctant to use their old Mellotron, kept in storage for over a decade, because of its inherent unreliability. I coaxed their road manager to dust it off and fire it up, and I found the most exquisite string sample. Justin told me that they commissioned the string sounds themselves because they didn't like the original batch that came with a Mellotron. I had my assistant engineer run a DAT as I played and identified each note of the chromatic scale. I then sampled only the best notes based on clarity and the least amount of "wow" and "flutter." Then I spanned them along the keyboard as Akai S1000 samples—a good, clear G# would also have to substitute for a wobbly G and A. The results sounded better than any Mellotron on the planet.

We used the results on tracks of *Keys of the Kingdom*, and of course I retained the samples for my personal sample library. The Moodies are using my sampled string patch on their live dates to this day. What is even more special about my samples is that I looped the notes very carefully so that I am not limited to the 7-second length restriction.

I was also fortunate to have a friend in Los Angeles who has an excellent Mellotron in his possession—Jan Paulshus, a salesman for Roland. He kindly allowed me to stick his instrument's output into my portable DAT recorder, and I played every note of every tape he possessed. Let's face it, these Mellotron tapes will never improve with age. They can't loop either. My philosophy is this: A good Mellotron is a sampled Mellotron. As for the wobble of the tapes, wow and flutter, I intend to start resampling from my DAT originals and run these samples through my Pro Tools rig to even out some of the more vicious wobbles with my

—FROM PAGE 40, SELECTING A PIANO

Ask for recommendations from the local symphony hall or conservatory of music. Another option is to call the Piano Technicians Guild Inc. at 816/753-7747 or e-mail to ptg@ptg.org; this not-for-profit, nationwide professional organization has a membership of more than 3,500 piano tuner/technicians, mostly located in the U.S. and Canada. The PTG's nationwide directory will list a Registered Piano Technician (R.P.T.) in your area.

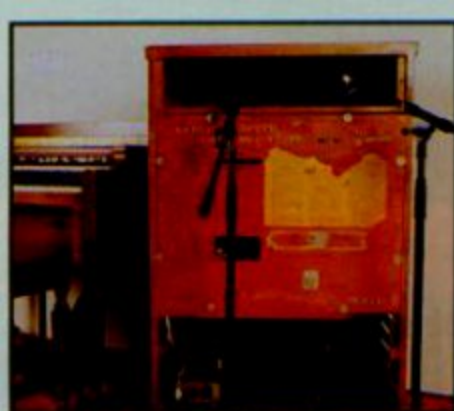
Tuning for recording takes a long time—allow enough quiet time for a thorough job. I like to spend a minimum of one-and-a-half hours on a recording piano, and I find that only after the fourth tuning does a piano begin to reach its full potential. Although efficiency and accuracy are attributes of any good technician, a job done in haste could ruin a session. If your tuner does a "fine" tuning in less time than it takes to review a 45-minute DAT, get another tuner.

Tuning is as individual as a signature, so although it is useful to have a short list of tuners available, I'd recommend against using two tuners for the same project. If the piano is the featured instrument for critical classical or jazz recordings, it may be worth having a technician on duty during the sessions. The investment will provide peace of mind for both engineer and artist.

HUMIDITY CONTROL

One piece of equipment I highly recommend is a piano humidity control system. Your piano technician can professionally install one of these. Studios can lack the proper humidity, and replacing a cracked soundboard caused by a dry environment could cost big bucks. And never let clients place drinks on the piano. A one-dollar cup of coffee, accidentally spilled onto the action, could cost several thousand dollars in repairs. Protect your investment. ■

Michael C. Vecchione is an R.P.T. and recording engineer in Baltimore, Md., and specializes in recording piano preparation.



Hammond Leslie cabinets offer lots of miking fun. Here, two AKG C-414s capture the swirling upper horn, while the bass rotor is miked in mono.

Antares Autotune plug-in.

Here is my Mellotron credo:

A good Mellotron is a sampled Mellotron.

A good Mellotron sample is looped.

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An obvious bonus to having a looped, optimum keyboard scaled Mellotron patch is that it is MIDI-addressable—you can pitch-bend, play dynamically, use a sustain pedal and add chorus effects, etc. These enviable features are lacking in the standard, vintage Mellotron. The original, first-generation Mellotron players clamored for these features.

As for keyboards, an electronic keyboard is a musical instrument, not just a playback machine. An engineer thinks nothing of reaching for outboard equipment, compressors, equalizers, effects boxes, etc., when recording guitars, drums or vocals. With modern synths, sound designers give you their versions of onboard effects added to their patches, and, in most cases, they are not what you would want. I try to take the effects off by accessing them in the synth's menu and then process the dry patch according to what the song demands. For lead sounds, a fat tube compressor really toughens it up. The best way is to actually play the synth through a hot guitar amp, mike it and maybe blend it with the direct signal. A brass patch can benefit from being made punchier by putting a gate across the output and a compressor after the gate.

I'm currently finishing an album for a group called Rustic Overtones, on Arista Records. Their keyboard player, Spencer Albee, uses vintage keyboards almost exclusively—a beat-up Hammond B-3, a Clavinet and a Wurliizer electric piano. For a crunchier sound on

the Clav and Wurliizer, we put them through a SansAmp, the Swiss Army knife of guitar amp simulators. Sometimes the Clav actually sounded like a shredder guitar. Of course, there is nothing like a dedicated guitar pedal to help spice up a keyboard, which is something we did on many tracks.

COOKIE MARENCO

Cookie Marenco is an independent engineer and producer working mostly in the San Francisco Bay Area. She has worked with Max Roach, Charlie Haden, Mary Chapin Carpenter, Praxis (with Brain and Buckethead), Ladysmith Black Mambazo and Tony Furtado, Matt Rollings, Phil Aaberg, Liz Story, Rodney Franklin, Billy Childs, Carla Bley, Dirk Powell and Kevin Kern are among the keyboardists she has recorded.

I used to be a keyboard player in a past life and still have about a dozen instruments around. There's been a renaissance in the last few years of the older, classic instruments like the Fender Rhodes and Hammond B-3 organ. I still haven't found a synthesizer that can duplicate their sound, let alone the feel and touch. Many synths can come close, or at least close enough to save

Leslie spinning at an odd speed—or not at all—and without a person who really uses those elements of the B-3, you'd never know there was a problem. But even a busted B-3 sounds better than any synth, as long as it makes a sound.

For miking a B-3, I like to use three tracks whenever possible. A stereo pair on the spinning horns of the Leslie and one mic on the bottom. I've used three Neumann 87s a lot of times, or two AKG C-12s as the pair and a Sennheiser 421 on the bottom. For Matt Rollings [on Jenna Mammina's record] I used two 414s and an RE20. I placed the mics about six to eight inches from the horns on opposite sides to make the most of the Leslie spin. Matt is a master with the Leslie toggle switch and the volume pedal, which certainly makes my job easier.

The B-3 can be tricky if the headphones aren't just right, because the player will make adjustments with the volume pedal, like it or not. It's one of the more difficult instruments to get just right in the 'phones. It will affect level to tape, how the other players are hearing and change the sound of the miking. It can ruin a whole session when it's not right. Even more difficult is when the B-3 player is using the bass pedals and functioning as the bass player. It takes real mastery of the instru-

**Few people know that touch
can really affect the sound of the B-3.
If you pull out all the stops and slowly push
a key up and down, you can hear it go up
the overtone series.
—Cookie Marenco**

your back when schlepping it around is an issue. In fact, my Rhodes was packed up and hidden in storage for ten years until Myron Dove [bassist, Santana, Robben Ford] came in one day, found all the pieces and put it together. I was shocked at how good it sounded.

There are two things that make my job of recording easier on keyboard. One is a great player who understands the nuances of these instruments, like the B-3, and the second is having an instrument in good shape. No easy feat. The B-3 can have problems like the percussion switch not working or the

ment to not make a murky mess of the performance. Compression to the 'phones can help.

On RARE occasions, I've been talked into doing a B-3 overdub, and this headphone issue had plagued me so much that I've taken to setting a pair of Genelecs up on the instrument and not using 'phones. Fortunately, with the Leslie, you can set it up to avoid bleed, but a lot of times, I'll record regardless of the bleed. No 'phones just makes for a better performance if your recording allows it.

A special aspect that few people know is that touch can really affect the



kHz on an API EQ.

There is no "art" to recording sampling keyboards, but some sound better than others. I always liked the sound of the Synclavier. It had a richer, more lush sound. A sample is only as good as the sampler.

I was working with Laurie Anderson when she first got hers around 1983. Working on "Kokoku" [from the album *Mister Heartbreak*], we were waiting one day for Phoebe Snow to come sing backing vocals. We were listening to her record to get in the mood. She called at the last minute to say she had a cold and wanted to postpone. We took the beautiful a capella vocal stack from "Two Fisted Love"—recorded by Glen Berger, to give credit where credit is due—into the Synclavier and tuned it down considerably, until the key was right. Phoebe was thrilled that she didn't have to travel with a cold, and she got credit and was paid as if she sang.

When it comes to recording a B-3, I like to use a kick drum mic for the low end, like an RE20, D-112 or 421, especially if I'm lucky enough to work with a great rhythm organ player like Jim Cox. Those mics can give low stabs a good punch. I'll usually use one or two large-diaphragm condensers on the high end, like 414s.

One warning, though: Don't give in to the temptation to mike the open back of the Leslie cabinet. The wind from the rotors can pop the mic capsules. Place the mics at the vents on either side—or just one vent works fine, too. If you are fresh out of expensive microphones, no problem. The drawbars on the organ are so expressive and so precise you should be able to compensate and achieve any sound with the player's help.

CHRISTOPHER GREENLEAF

Christopher Greenleaf has engineered many recordings featuring harpsichord, pipe organ, piano, classical ensemble, as well as orchestra. Some of Greenleaf's most recent work can be heard on the Titanic label release Bach, The English Suites for Harpsichord, featuring harpsichordist Peter Watchorn. Besides engineering, Greenleaf has been published in High Fidelity, Stereo Review, Audio and a number of other audiophile consumer magazines.

Bach once said that "the room is the most important Stop on the organ." Pipe organ in a bad room is kind of beside the point. The 16- and

32-foot deep bass don't come together unless the room is pretty nice. What you can get out of a pipe organ in a good room, with a really good pair of mics, sort of defies belief, in the extent to which two speakers can produce what we have now come to market as "surround sound." A properly made recording like this will accept surround sound processing.

The Chapel at Holy Cross College in Worcester, Mass., is my favorite. The organ in that room embodies all of the unbelievable sounds that these instruments were capable of.

For pipe organ, I would typically use two close omnis two-and-a-half meters apart and maybe ten meters from the organ. If you are aware of the length of certain frequencies in the air, certain things start to become apparent. For example, if I set my omnis up for about two-and-a-half meters apart, that happens to correspond with a wavelength in the air that is just beyond or avoids certain frequencies in pedal bass. So if you have widely spaced omnis—even for a modest organ—something that will produce bass will produce the rather out-of-phase bass that, to the ears, spells "weight." And this is without processing or EQ. To the ear, this says, "This is power. This is weighty or authoritative bass."

There are other problems that arise with spaced omnis that all the single-point omni people are very right to shriek and yell about. So I occasionally

When a harpsichord or piano is extremely close-miked, the instrument hasn't had a chance to interact with the air, with the lid, and develop its true power.
—Christopher Greenleaf

sound of the B-3. If you pull out all the stops and slowly push a key up and down, you can hear it go up the overtone series. A master musician will have the control to hit a key halfway or less to get a certain effect.

Another thing about B-3 is that there's a volume pot on the Leslie, by the tubes, that can adjust the volume output. That's the "grit" dial. It's like turning a 50-watt Marshall up to 10 for a natural distortion. I don't try to hide room noise of the Leslie spinning. You can disguise it a bit by making sure the volume is loud enough coming out of the Leslie. It can be REALLY noisy depending on the player, but with all the problems, there's nothing like that sound. You can amuse your friends and annoy your neighbors with that thing. I've done both.

LEANNE UNGAR

Leanne Ungar is an LA.-based independent engineer and producer whose credits include Laurie Anderson, Carlene Carter, Leonard Cohen, Holly Cole, Janis Ian, Ray Charles, Temptations, Willie Nelson, Billy Joel, Elton John, Luther Vandross, Natalie Cole, Peter Gabriel and the Paul Winter Consort.

When I started working in the studio in New York City in 1973, the Fender Rhodes was at the height of its popularity. It's still my favorite keyboard. It was standard equipment in every studio, along with a grand piano and a B-3.

When keyboardist and producer John Lissauer [Leonard Cohen's *New Skin for the Old Ceremony*] would come in to record, he would call S.I.R. and rent a certain Rhodes by the serial number. He liked the distortion and harmonics of the low end on that particular keyboard—something not easily replaced by a sampler!

If I were using Rhodes on a basic track, I would take it direct and fit the speakers with a dummy plug. But when possible, I prefer miking the amp. It's a more aggressive sound. To bring out the attack and clean up the midrange, I generally cut at 400 Hz and boost 1.5

use a single-point mic in the middle with the stereo and simply blend the two.

There are three pairs of mics I like to use, depending on the situation. They are either the Earthworks QTC-1, the Neumann KM130 or the Schoeps MK2, which is about the least-colored mic that you can get, after the Earthworks QTC-1.

I recently recorded Elaine Funaro, who is a wonderful harpsichordist, and I used the Earthworks QTC-1 mics and API preamps and a Troisi A/D converter. The resulting recording sounded amazing.

I think the QTC-1 is one of the major achievements in miking. It is so unbelievably neutral that I don't hear a lot of the effects I normally think of as "audio." I merely hear good or bad miking, and that is what I want to hear. Because they are so transparent, they help you achieve some things that you wouldn't be able to hear your way through to asking for with some other mics. Anything recorded with a microphone like that has a different dynamic signature, and that means it has more "life" and "air."

I was recording two harpsichords built a year apart after the same plan by the same maker. I ended up using different mics at different distances from the instruments and each other to achieve a comparable sound. For one harpsichord, I used a KM130 farther away and farther apart, and for one I used the KM131 closer and closer together. It was a close enough sound that going from track 7 to track 8 with different instruments was not apparent. That was achieved by listening, not by a rule or formula.

When a harpsichord or piano is extremely close-miked, the instrument hasn't had a chance to interact with the air, with the lid, and develop its true power. All you have is this white-hot attack, which may be very sexy, jazzy and exciting, but you don't get the bass or the subtlety of the instrument, and you rarely get beauty.

With harpsichord, or any long-keyed instrument, almost all of the interesting sound comes off the interaction of the lid and the soundboard. So if you are miking too closely, you might as well take the lid off. But if you're trying to be very true to the way they sound, then the lid is part of the sound—and I'm saying this in the "Classical" sense. ■

Rick Clark is a freelance producer and writer based in Nashville.

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