

Pro Tools I First: It's here, and it's free (yes, free)—see Page 72

RECORDING

The magazine for the recording musician

MAX OUT



YOUR MIXES!

Solid Advice On:

- Tricky problems and solutions
- Taking your mix to the next level
- Working with summing mixers



16 Products On Review:

Audio-Technica • dbx • Final Mix Software
Harrison • MOTU • PMC • Roswell Pro Audio
Royer Labs • Soundcraft • Spectrasonics
Spitfire Audio • Toontrack





REVIEW

BY PAUL VNUK JR.

In 1998, the then-new Royer Labs produced a microphone that reawakened the recording world to the sonic virtues found in ribbon microphones. This, of course, was the Royer R-121, and if you do any guitar amp recording at all, you have probably heard of it or have hopefully used one. In 2015, the R-121 has become as ubiquitous as the Shure SM57 when it comes to capturing great guitar amp tone.

As legend has it, David Royer created the R-121 after hearing and becoming obsessed with the sound of Bob Speiden's 1980s ribbon mic designs (of which only about 120 were made). David tweaked and tinkered in his garage in Fullerton, CA, until he was happy with his new design, and the R-121 was born. The R-121 borrows heavily in look and design from 1955's BeoMic BM3 mic from Bang & Olufsen, down to its characteristic "ears".

David also decided to resurrect and update Bob Speiden's original designs. Nowadays, Royer Labs offers two distinct ribbon lines: David Royer's R Series, which is a bit more mid-weighted and modern, and the Speiden-inspired / Royer-designed SF Series, some of the most transparent and natural-sounding ribbon mics on the market.

R we ready for a history lesson?

Like most classic ribbon mics, the R-121 is a passive microphone with a figure-8 or bi-directional (front/back) polar pattern. Internally its transducer, called a motor, makes use of a corrugated, offset design (patented by Royer) with a 2.5-micron aluminum ribbon that is 0.1875" x 1.75" long and is suspended between two rare earth

in October of 2007. Most recently for the R series, in December 2010 I took the R-101, an entry-level mic with its own sonic signature, out for a spin. Now it's time to look at the R-122 MKII.

Unlike many updates and revisions where a company tries to make a mic "better" (and doesn't always succeed!), everything that made the R-122 sound great remains the same. Along with the pair of R-122 MKII mics I was sent, Royer also provided an original R-122 for comparison, and I can verify that the two designs are identical in sound.

So what's new in MKII?

The new model now offers two new features: a -15 dB pad and a low cut (highpass) filter, accessed by a pair of rear-mounted, recessed switches. From the front, the R-122 MKII looks identical to the original, aside from the new MKII designation etched into the body.

The R-122 MKII starts with the same offset 2.5-micron aluminum ribbon assembly mentioned above. Offset refers to the fact that the ribbon is slightly closer to the front grille of the mic than the back. Since the mic is bidirectional, you can use either side to pick up sound. Offsetting the ribbon imposes distance and gives the rear lobe a touch less proximity effect (the bass buildup as you move closer to a mic's capsule) and makes the rear side seem a touch brighter.

This offset design also gives the element more room to move. By giving it some extra space, it is able to withstand higher SPL; that's a primary reason for the microphone's success on guitar cabinets, among other things!



Royer R-122 MKII Active Ribbon Microphone

A modern classic becomes even more useful, if such a thing is possible

Neodymium magnets. In fact, the "ears" on the sides of an R Series mic are the outside edges of the large motor frame that contains the magnets. The motor assembly slides into the low-carbon steel body, giving the mic its slightly Cyberman appearance.

We reviewed the original R-121 shortly after its release, in 1999. In 2002 the line evolved to include the R-122, the groundbreaking phantom powered ribbon design that's spawned dozens of imitators on the market. Next came a tube-amplified variation, dubbed the R-122V, that we looked at

Like the original, the R-122 MKII measures 8.11" long and 2" in diameter. It is available in either a nickel or black finish, and comes in one of Royer's classic wooden boxes with a felt sleeve that you should put on the mic if you intend to leave it out after a session. This protects the mic against blasts and puffs of air—every ribbon's greatest enemy. The mic includes a standard mic mount; Royer also offers the RSM-SS1 Sling-Shock, reviewed in our December 2013 Gift Guide, for an additional \$275.

Specs and performance

The R-122 MKII has a stated frequency response of 30 Hz–15 kHz, a maximum SPL of 135 dB, a self noise of less than 18 dBA, and an output impedance of 200 ohms.

Looking at its frequency graph, there is a slight low-end rise around 60 Hz followed by a gently scooped (1 to 1.5 dB) mid section from 80 Hz to 1300 Hz. Its upper mids are gently forward around 1.5 to 2 kHz, and it is otherwise flat and smooth, rolling off around 12 kHz, 3 dB down at 16 kHz.

As I mentioned, it is sonically identical to the original R-122, which was overall similar to the original R-121. That is, if you account for possible microphone preamp impedance issues, which do alter the sound and response of all passive ribbon mics. (The R-122 was designed to isolate the ribbon from these effects.)

However, impedance issues still came into play with the phantom-powered R-122 when used with low-impedance mic preamps. These can cause the mic to distort/clip on loud close-miked sources. That's why the R-121 was often more popular than the R-122 for screaming guitar cabinets, while the R-122 was better suited to sources at lower volumes.

This is the primary issue that the new MKII model fixes with its pad switch. When engaged, it lowers the sensitivity of the mic to just below that of a R-121, thus giving the R-122 MKII a ton of clean headroom and a broader range of uses.

The other switch activates a highpass filter with a 100 Hz corner frequency and slope of 6 dB/octave. It not only removes the mic's low-end bump, but also lessens the mic's proximity effect and does away with a touch of its overt thickness and boom.

Note that when engaged, the filter in no way makes the R-122 MKII sound thin or bright, nor does it alter the mic's overall ribbon signature. It just makes the mic ever so slightly more open-sounding and more controlled in the lows.

In a recent chat with mic expert Matt McGlynn from recordinghacks.com, we discussed how it was interesting that in this one microphone, Royer has now tamed two of the biggest issues that have plagued ribbon mics over the years. The active head amp takes care of the ribbon's comparatively low output, and the switches mitigate the thick sonic signature that first-time ribbon users often perceive as muddy.

A quick side note

I would also be remiss if I did not mention the Nuvo N22 microphone from AEA (reviewed April 2014), as it may seem like these two mics are competing products designed to do the same thing—offer a ribbon sound while cutting the low end. Yes, they both do this, but each mic achieves this goal in a different way for different reasons.

The N22, in a nutshell, is purposely designed for up-close uses as a vocal and primarily acoustic instrument mic, a "singer-songwriter mic" if you will. Much of its low-end control is achieved through acoustic design and the screening around the ribbon element. As a result, it offers little to no proximity effect to speak of, unless you are right up on its grille.

The R-122 MKII achieves its bass control through its active electronics, and its sound

when switched in is nowhere near as dramatically sculpted and pronounced as the N22's. Two mics, two different designs with completely different intentions... both awesome in their execution and use.

And speaking of use...

I received a pair of R-122 MKII mics with a pair of Sling-Shocks at the beginning of an album project. For this album, the sonic goal was a collection of "jeans and T-shirt" style guitar-based rock'n'roll. Think Ryan Adams, Tom Petty, Bruce Springsteen... lots of classic Fender Amps, Strats, Teles, Les Pauls, Hammond B3 and Leslie (both real and not plug-ins!), 4-piece drum kits, and big bass cabinets!



Along with a pair of Chandler REDD.47 tube microphone preamps (reviewed January 2015), I used ribbon and dynamic mics more than anything else on these sessions. The R-122 MKII was definitely a star player all around, thanks to its increased versatility. Here are some particulars...

Electric guitar cabinet

I should be able to skip this part, since guitar cabs and Royers go together like PB&J! But two points need mentioning.

First, I think the low cut switch makes the R-122 MKII even better on guitar cabinets than any of its predecessors. This may be personal taste, but it really does

a great job of lessening some of the low-end mud that I usually EQ out anyway.

Second, the pad switch is essential when tracking guitars. It's no big deal if you are tracking your amps at moderate volume (yeah, right), but if you crank up the amp for cabinet breakup and are using a high-gain mic preamp, like most boutique preamps are today, the mic circuitry will clip... and that is *not* a pretty sound. Engage the pad and the problem is completely eliminated.

As I mentioned, this is why most engineers still favor the R-121 in said application, but then you become subject to the impedance changes of different mic preamps. The R-122 MKII now offers just as much headroom as the R-121—more, actually—but with the sonic consistency that the R-122 has long been known for.

Drums

I will start by saying the the R-122 has never been my favorite drum overhead ribbon. I usually prefer offerings by AEA, Coles, and the Royer SF Series mics; I want my drum sounds more open, laid back, and natural than the R Series tends to give me. However, with the low cut in and the pad switch engaged, I was able to do some vibey close-miked drum recording with the mics just over the toms, giving rise to a very cool sound.

Having said that, when I am not tracking guitars, the R-121 in my studio sees its biggest use as a front-of-kit and mono room mic. It does great when blended with traditional condenser mics on the overheads and the rest of the close kit mics, offering the smooth full balance of a good ribbon. The R-122 MKII excels in this area as well, since I no longer need to worry about using a high gain preamp or phantom powered mic booster to get a clean signal as I would with the R-121, and the filter helps lessen room rumble and buildup if need be.

Acoustic guitar

Because of its sound, I almost never use a R-121 on acoustic guitar. Again, my preference would be other ribbons, like the SF Series, with a more open and natural tone.

However, for this album, we wanted the acoustic guitars to exhibit a more constrained, vintage thrust. We were looking for a classic, mono, in-your-face sound, like one might find on a 1960s or 1970s Rolling Stones album. Being able to get a good clean level thanks to the active circuit, lessening the acoustic guitar's low bloom with the filter, and using liberal amounts of classic compression via an ADR Compex F760X-RS compressor (which I reviewed September 2015), we were able to achieve just that on several of the tracks. The sound was awesome, just dripping with vibe.



Royer R-122 MKII

REVIEW

Piano

The R-122 MKII worked great on baby grand piano, placed in a spaced, low strings / high strings setup, again with the filter engaged to avoid too much low harmonic buildup. We wanted a very forward pop-fullness to the piano that would both anchor and cut through a mix, rather than an overly pretty jazz or classical tone that could stand largely on its own.

I found that the Royers paired well with two small FET condenser mics to accomplish this task. (I used the Roswell Pro Audio Mini K47 mics, reviewed elsewhere in this issue.) In this side-by-side setup, much like with a R-121/SM57 setup on a guitar cab, I was able to nicely balance the smooth fullness of the ribbon on the piano strings, with just the right amount of solid forward thrust from the condensers.

Leslie cabinet

I am tracking and mixing this album LCR, i.e. all sources panned hard left, right or center. As such, when it came to tracking the organ parts through a real Leslie

cabinet, I knew that wide stereo on the rotors would probably not be the way to go for every song. I didn't want things to be too psychedelic or even seasick!

Here Royer's John Jennings clued me into the technique used at Ray Charles' studio when tracking Billy Preston on "Here We Go Again," Ray's 2004 duet with Norah Jones. The technique is simple: I just placed one R-122 MKII on the upper rotor and the other over the bass end. At my studio I got the best and fullest sound with each mic horizontal vs. vertical, with no filter or pad. It was instant, smooth classic rock organ tone.

Vocals and more

This is another area where I don't often use R series mics. On a project like this, I'd usually prefer an RCA-style big ribbon like the crooners would have used. Still, the R-122 MKII was successfully tackling so many other duties on the record, I decided to try it on vocals for one song.

On this particular song, I have used nothing other than ribbon mics, all tracked

through a Locomotive Audio 286A microphone preamp (review forthcoming). Note that this song has gobs of lap steel guitar tracked through a pair of vintage Fender amps in stereo, each tracked with one of the R-122MKII mics as well.

I again engaged the low cut to thin out some of the proximity effect, placed the mic about an extended hand length behind a nylon pop filter... and was surprised yet again! The vocal sat nicely and comfortably in the mix with a fantastically smooth, forward, even weight.

I have not gotten there yet, but I look forward to trying out the R-122 MKII on percussion, shakers, group backing vocals, and more, as tracking wraps up.

Conclusions

The best compliment I can give to the R-122 MKII is that this is hands down the most versatile microphone that Royer Labs has produced to date! From here on out I expect it to be Royer's most popular model.

This is now the true workhorse of the Royer line. I fully expect engineers to be extolling its virtues 20 years from now and beyond, just as we currently do with the R-121. Royer has really knocked this one out of the park. ➤

Price: \$1850

More from: Royer Labs, www.royerlabs.com

More fun with Royers—introducing the Ross Hogarth drum mic technique

As I was driving through Nashville a few months ago, I received the invitation to stop by Royer's Nashville office (the company's main headquarters is in LA), and what was supposed to be an hour-long breakfast stop turned into a 3-hour tour of Royer South, ending up with Royer's John Jennings loading up my car with even more mics to try just for fun. (I love my job. Have I mentioned that I love my job? I love my job.) During a breakfast chat full of technique

comparisons and war stories, John asked if I'd ever tried the Ross Hogarth drum mic technique. While I have met and talked with Ross a few times at trade shows, I never knew he had his own mic technique!

As it turns out, the Royer site has a great video of it (royerlabs.com/library/lukas-rossi-and-kenny-aronoff/). As described there, it involves the use of very specific microphone models, but I'll bet it would be possible to adapt the idea to other mics. Where many of us often use a single mono room or front-of-kit mic, here there are essentially three microphone elements capturing an LCR style setup all at once.

Ross's setup starts with a mono Royer like an R-121 or R-122, placed in front of the kit at the distance of your choice, facing straight on. Then a second Royer mic, a stereo SF Series design like the passive SF-12 or active SF-24, is placed upside down, directly above the mono mic. This set up gives you three (six, counting rear reflections) planes of capture, and all of them will be perfectly in phase.

On its own, it's a very natural, open "you are there" sound. Often stereo mics can seem too wide, and we must collapse the panning a tad to rein them in. Here, however, the mono mic fills in the center nicely, and being an R series mic it adds a gentle forwardness to the sound. By altering the balance of stereo to mono mics, almost as



you would in a Mid/Side recording, you can vary the stereo depth and perception.

I used this setup on much of the album described in the review. I then took it a step further (as described in the video) and used the SF-24 and an R-122 MKII as the room mics, plus an SF-12 as a perfectly in-phase stereo drum overhead mic. I then added kick, tom, snare, and even close-up spaced cymbal miking with a pair of AEA N8 mics (did I mention I'm in a big ribbon phase right now?).

I should also note that the stereo SF-24 mic made multiple appearances in the tracking sessions, for example as a room mic on the Leslie cabinet, and a just-inside-the-lid mic on the grand piano recording. I'd like to thank John for the extra mics to play with, and both John and Ross for this cool miking technique. —PV ➤

