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# REVIEW

BY SCOTT DORSEY

## Electro-Voice RE320

A venerable legacy stands behind a new mic with a new sound

Electro-Voice has come out with a new dynamic microphone, the RE320. To appreciate this new mic and how it fits into the scheme of things, there is a 60-year history behind it that you need to know. So we'll start with some backstory....

### The genius of Variable-D

Back in the mid-1950s, Electro-Voice introduced the Model 664 microphone, a cardioid mic with a very interesting feature. The rear vents that give a cardioid mic capsule its polar pattern normally vent to the side of the body, but Alphonse Wiggins at E-V came up with the notion of having an additional set of vents along the side connected to a mechanical low-pass filter. He called this the "Variable-D" arrangement since the various entrances to the vent tube were of varying distance. (If you're curious about how the actual Variable-D system works in great detail, check out US Patent 3,115,207.)

If you're up close to the mic and speaking into the front, the vent arrangement has little effect. If you're far back from the mic, the vent arrangement increases the bass response of the mic. The system is constructed so that as you get closer in, the proximity effect of the microphone is effectively counteracted.

What you get, then, is a microphone without much proximity effect, and therefore with no "off mic" sound when you get far away from the mic. It is a miracle for sources whose distance from the mic may be changing, but this same feature is also wonderful in that leakage from other sources near the mic are well-reproduced with good clean response. You can never eliminate leakage and get perfect isolation when recording a group of performers together, but you can make sure the leakage sounds good.

In 1969, E-V introduced the RE20, which has become one of the industry-standard studio mics. It was originally intended as a radio-announcer mic, so in addition to the Variable-D mechanism, it was designed with extensive pop filtering that makes it very difficult to pop with

close-miked vocals. It also has remarkably flat response for a dynamic mic, and remarkably accurate response off-axis. The mic pattern is very tight, so leakage from noise sources in the broadcast studio was eliminated.

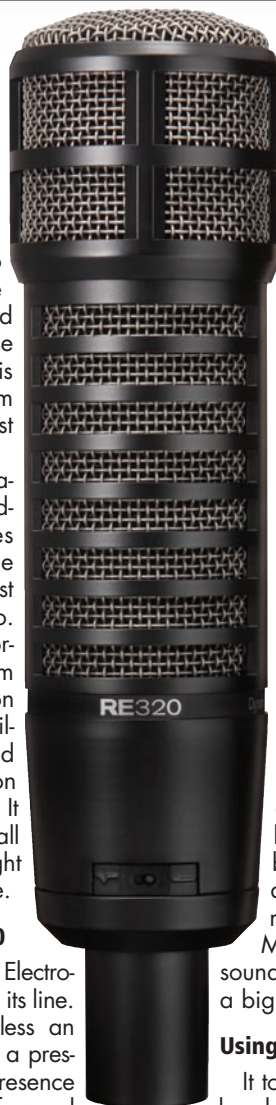
The thing is, all of these features make for great recordings on a lot of sources besides voiceovers, so the RE20 became one of the most versatile mics in the studio. The flat response and enormous amounts of headroom made it a popular choice on close-miked horns. The pop filtering and extended low-end response made it popular on kick drums. Singers loved it. It wound up on string sections all the time because of the tight pattern and reduced leakage.

### From the RE20 to the RE320

Twenty years after that, Electro-Voice added the RE27N/D to its line. The RE27N/D is more or less an RE20 with higher output and a presence peak added. The presence peak makes for a much more forward sound without equalization. The higher output is a big deal when used with inexpensive preamps. For the most part I have tended to avoid the RE27N/D myself, since it's easy to add a presence peak with the console eq if you need one, and it's hard to remove one that is already there in the mic.

Now, twenty years or so after the introduction of the RE27N/D, E-V has come out with a new microphone, the RE320. Right now, you can buy the RE20, RE27N/D, and RE320 brand new from your dealer. The RE27N/D costs about 15% more than the RE20, whereas the RE320 costs about two thirds of what the RE20 costs, placing the RE320 as the entry model in the line.

The RE320 adds one entirely new feature: a frequency response curve switch



that Electro-Voice calls the "Dual Personality" switch. On one setting ("Voice") the mic's frequency response is tailored for vocals and acoustic or electric instruments, while on the other ("Kick") its curve is tailored for the kick drum.

### How does it sound?

My first thought listening to the mic was, "Wow, that's a huge presence peak." It's as big a presence peak as a Shure SM57 has, although of course it has top end and bottom end that the SM57 doesn't have. The mic has a little more output than the RE20, maybe 3 dB more, but it seems hotter than it really is because of the presence peak.

The pattern is clean and tight, probably as good as that of the RE20. That's pretty good, seeing as how the RE20 has more even response and better directionality than just about anything out there (save maybe the Sennheiser MD441). The key-jingle test sounded pretty much like a mic with a big presence peak.

### Using the RE320

It took me a little time to wrap my head around this: because of the presence peak, this is really a different mic than the RE20 by a long shot, even though it looks similar. On many traditional RE20 uses, like fiddle and horns, the presence peak was a problem; it made things more forward and more bright and made horns less blatty sounding. I found myself trying to eq it away a lot.

On the other hand, for lead rock vocals, this is a great, great mic. The presence peak makes it cut through a dense mix, and it seems very versatile and able to deal with a wide variety of performers. Yes, I know everybody wants to use a large-diaphragm condenser for this job; try an RE320 (or an RE20 with a little eq) and you might decide not to.

On backup vocals, you can put a large number of people around the mic and

have them moving around without sounding "off-mic." It works well. Likewise, I wound up using this mic at the Washington Folk Festival for a bluegrass band that all wanted to play around one mic. It worked well, and the presence peak made things a good bit more forward-sounding in the PA.

Mike Rivers (longstanding contributor to this magazine) was working another stage at the same festival and threw it up on a kick drum for me; it worked well, but it was brighter and more clicky than the RE20. I tried it myself on a smaller jazz kick and really didn't like the "Kick" setting; it added a low-end boost that wasn't in the right place for that particular drum, so I put it back on the "Voice" setting and used a little low-end eq. I also tried it on tabla; it took a bit more equalization but worked out into a nice clean sound with little leakage.

After my tests, I came away with the impression that the "kick" setting's built-in eq curve is tailored for some sort of idealized drum that didn't match any real-world drums... at least no drum that was anything like the ones I had handy for tests. But the fact that we didn't find it immediately useful isn't a reason to avoid this mic. You can turn it off, you don't have to use it, and if you should happen to need some kind of "instant kick eq" curve, it's always there to experiment with.

I wound up working on Stuart Barkley's stage at the festival as well, and he put the RE320 on a wide range of stringed instruments from guitars to ouds and mandolins. In every case we could get a good sound without much work. In every case, though, it was very forward.

I also used the RE320 for voiceover work; the presence peak makes for a brighter and more fashionable sound than the RE20 does. While it unfortunately doesn't reduce nasal sounds like the upper midrange peakiness of the Beyer M 500 does, the RE320 still offers a sound that will cut through a vocal bed well, and works on many people.

## Measurements

Measurements all looked exactly the way you'd expect from the listening tests. The measured response was about like that on the datasheet (and yes, that huge presence peak was in evidence). The measured pattern was very good; directionality was actually a little bit better than what the datasheet said it should be.

I didn't verify the low-frequency response changes of the "kick/voice" switch since my chamber is too small for me to make accurate measurements down there. But everything else looked right on the published curves.

Interestingly, the RE320 response changes more with load impedance than that of the RE20. Certainly a lot less than the SM57; you won't need Paul J.



Stamler's resistor trick (May 2006, and also available in *Recording's* online Resource Library under "Do It Yourself") on this mic. But this characteristic does make the RE320 a lot more apt to exaggerate differences between preamplifiers than the RE20 as a result.

Also, the source impedance of the mic is different on the positive- and negative-going legs with respect to ground, probably due to something in the internal equalization electronics. So if you connect this into an unbalanced input, the response may be changed. Might be better, might be worse.

**What's inside?**

Unlike the RE20 and RE27N/D, the RE320 doesn't come with a schematic on the datasheet, and looking inside tells me it does not appear to be designed for easy field-repair work like those mics are. There is an awful lot of electronic equalization in there; 6 capacitors and 5 inductors in various resonant networks on a little board. I tend to have religious objections to internal equalization networks, but what really counts are the sonic end results, which are quite good in this case.

The microphone definitely is intended for easier and more rapid automated assembly, but that means there are some things that require pretty careful realignment if you disassemble it on the bench. It does appear to be similar to a slightly stripped-down

RE20 element but with very different magnets, and a very different voice coil as well. Likewise the acoustic labyrinth is a bit less sophisticated than the one in the RE20 and that may account for a little of the top-end roughness on the response chart.

One of the nice things about E-V in the past has been that E-V mics have had a lifetime warranty. You could get an RE20 that was 25 years old, send it in, and they'd fix it for free. In the past few years, following some management changes, they no longer do this. But it's clear that this mic is still intended for relatively easy factory repair and with long-term support in mind. That's a very important factor to my mind.

**Conclusion**

I like the mic. It's very forward sounding, due to the presence peak. This is a good thing on a lead instrument, but can be a bad thing at times, and it is always easier to add a peak with eq than it is to remove one that is already there.

The cool thing about the RE20 is that you can use it on so many other things as well. You can't use this mic on quite as many things, but it's still remarkably versatile. On kick it will do about as well as an RE20, but I don't see buying this mic just for kick.

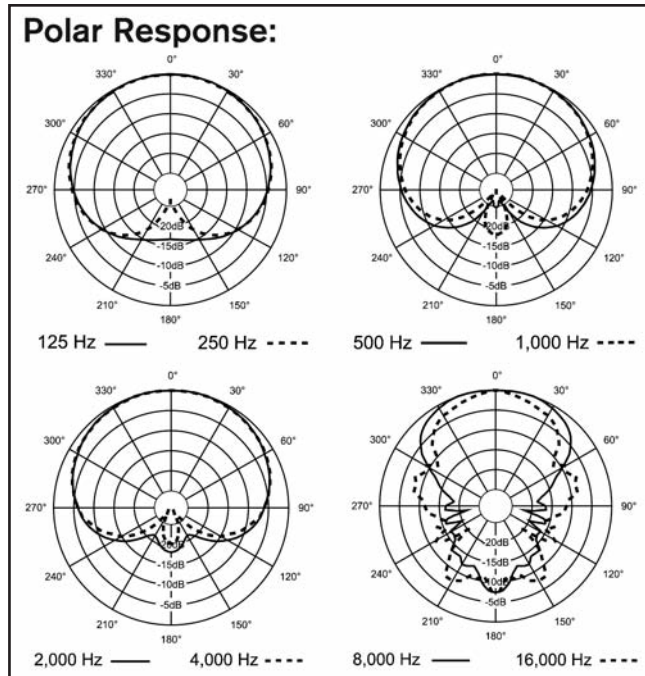
I have always said that the RE20 is a good mic on any vocalist. It's seldom the perfect mic for any vocalist, but it's never going to give you a bad vocal track on any kind of voice from bass to soprano. This mic is not like that, but I'd still rather have this mic than an RE27N/D.

If my budget allowed for it, I'd have both an RE20 and an RE320 in the closet, for the things each mic did well. This mic is about two thirds of the cost of an RE20, but it's considerably more than two-thirds as good as an RE20, and I feel the RE320 is a good lower-cost introduction to the good things an Electro-Voice dynamic mic can bring to the table.

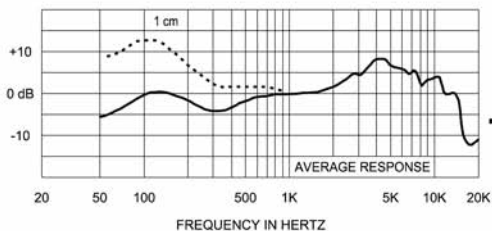
**Price:** \$500

**More from:** Electro-Voice, [www.electro-voice.com](http://www.electro-voice.com)

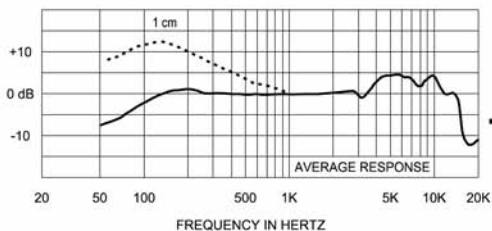
*Scott Dorsey (dorsey@recordingmag.com) is a recording engineer and avid fan of good mic design, living and working in Williamsburg, VA.*



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