New Product Review: Heil Classic and Heritage Microphones

--Reviewed by Ray Osterwald, NØDMS

Bob Heil has released two new microphones that are a perfect match to vintage American made amateur radio equipment. From speaking with Bob on the telephone, I have learned that these mics are the products of years of research and development, and they are just as well made and thought out on the inside as they are on the outside.

I asked Bob about what led him to develop these microphones for the Ham community. Here is part of what he had to say:

"...I was very fortunate that back in 1970, Paul Klipsch, the father of the folded horn and genius speaker engineer, flew his Bonanza to our little Southern Illinois town of Marissa so he could see this 50KW sound system I had put together for the ...touring bands....He was stunned by the amount of hardware--semi trucks full. However, after spending two days with him, he taught me more than many full college courses. How fortunate was I to have this time with THE master of audio, Paul Klipsch! One of the important things that I learned was about the Fletcher-Munson curve that Bell Labs had discovered back in the early 30's. They made the discovery of the actual ability of the human ear to hear sounds. Pretty amazing how nonlinear these things on the side of our heads are! The louder the program source, the flatter you hear but at normal room levels....oh my goodness.

After equalizing this 50KW wonder, and working on speaker efficiency, Paul taught me that 50KW became 10KW, but was clearer, cleaner and louder that the 50KW. Just because I had the important frequencies equalized so the listener was able to hear much more articulate audio. This same thing can happen in our RF world. Just because you are running legal limit doesn't mean that you are the easiest to copy on the band. This comes as a great shock to many that do not understand how we hear.

...So many fellows waste power with low-end boomy audio that does not do one thing for articulation. We do not need coloration of the human voice when the signal is in the noise! So, I set out to change things, and we have done this over a 20+ year period just by applying those same principles of the Fletcher-Munson curve.

For the AM operators using vintage gear that demands high impedance microphones, I designed the great new Classic-5. This is the only dual impedance microphone on the market today. I had to develop our XT-1, a 600 to 30,000-ohm [matching] transformer because I couldn't even find a decent one of those that didn't roll off at 400 Hz on the low end! The Classic can be switched from high to low impedance. It has two elements. I hear so many of the AM signals that are so darned bassy and boomy that you can't understand them. ...Putting the power you have into the audio spectrum--that the Fletcher-Munson curve of our ear demands in order to understand the spoken word--is the key..."

The Heil Classic mic is shown in **Figure 1**. It is an exact copy of a 1930's 74B microphone housing and the matching 91B metal base. It is designed to look like a vintage ribbon mic from the period. There is a small switch on the rear that allows the operator to change from a broadcast response to a tailored communications-type response. The microphone comes with a 5-foot cable terminated into a 4-pin XLR connector. Another nice addition is a dust cover that comes as standard equipment.

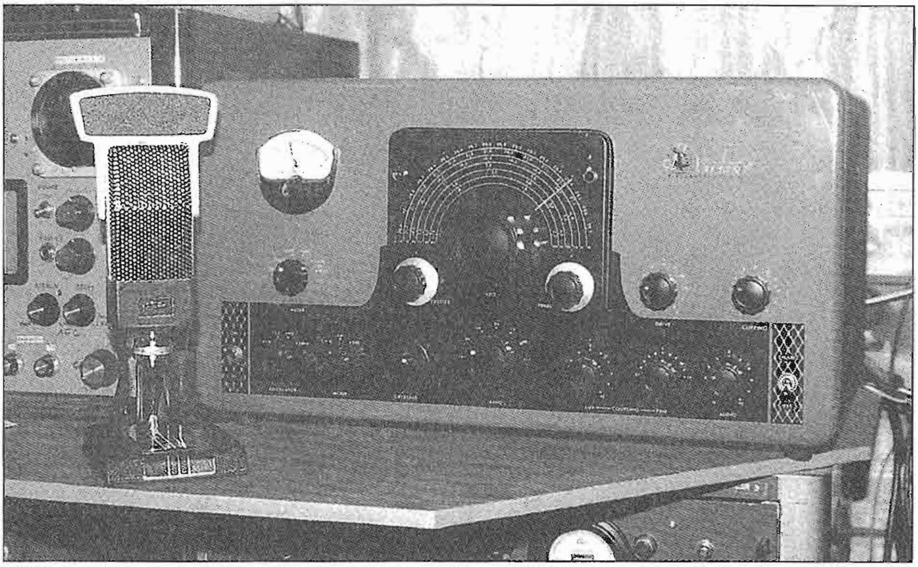

Figure 1: The Heil Classic is in use with a Johnson Valiant and a homebrew receiver at NØDMS. Although the '50s styling of the Valiant doesn't really match the classic 1930's look, I still think they look good together.

Figure 2: A modern classic meets a vintage classic--The Heil Heritage mic and a 1961 Johnson Invader 2000.

Figure 2 shows the Heil Heritage mic. It has been placed on a vintage Federal microphone stand for the photograph, but Heil has an accessory stand, the CB-1, which is cast iron with stainless steel trim and probably matches the style better. The Heritage is a high-quality reproduction of the classic Shure mics from the 1950's that we all remember. The Heritage has a balanced audio output, as do all professional microphones. Heil uses an internal shock mount made from Sorbothane, and a blast screen is standard. This mic starts as a solid steel casting that is polished, copper plated, and then triple chrome plated with polishing between each plating step. The result is an industrial art form with excellent performance.

Like many operators, I have a small collection of vintage microphones. My favorite is a Shure 55 Unidyne Dynamic with a matching base. I got it about 15 years ago as NOS from a Shure dealer. Although it is technically "new" and looks great, I can't really use it. Over the years, the mic element has become brittle, and doesn't reproduce mid-range or high frequencies like it did when the mic was new in 1949. It sounds mushy, and rattles in the higher range if I talk too close to it. I've been told that this is not uncommon with old mics.

Professional audio engineers have expensive and rather exotic equipment that is used to measure mic performance. To test a microphone, one needs to make both electrical and acoustic measurements. These test include measurements for sensitivity, directional characteristics, amplitude response, impedance rating, polarity, acoustic input level, distortion, etc. Unless you have an expensive Time-Energy-Frequency (TEF) analyzer, or an anechoic chamber, the manufacturer's specifications must be relied upon. Output level is typically measured by placing the microphone in a free field (nonreflective) enclosure, and given a standard sound pressure level from calibrated loudspeakers. The open-circuit output voltage is measured with high-impedance bridges. Polar response characteristics are measured with the TEF analyzer, or in an anechoic chamber with high-impedance log voltmeters.

I certainly don't have any of this equipment, and I don't know anyone who does! Hams make direct on-air, A-B comparisons when we get new microphones, and that's what I did with the Heil mics. Be sure to place the test mic in the exact position as your normal mic, and speak at roughly the same distance from it, and with the same voice level. This is because all radio rooms have certain acoustic characteristics, and if the new mic is placed in a different location, audio reverberations and phase shifts might give you false results.

My comparison mics were a nearly new Electro Voice RE-2, and an Electro Voice 667. During an AM QSO, I switched the mics in-line during the QSOs, and only adjusted the audio gain on my transmitter for the same percentage of modulation. In every test, all the listeners reported that the Heil Heritage was as good, or better than, the RE-2. The 667 was inferior to all of the others. A common report was that the Heil mics were easier to understand when band conditions were poor. They look great in the shack, and visitors are always drawn to comment on how good they look.

My conclusions after extensive on-air testing during all kinds of band conditions are that these microphones are a real value. They look great, work great, and are a perfect match to our vintage stations. They are reasonably priced, and the one of the best features is that they are built in the USA, and not in some offshore factory. You get good value for your money, and you are supporting a US-owned business.

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