

LAWSON L47S FET MICROPHONE



ON THE BENCH—PAGE 70

BY RUSS LONG

I initially blamed the UPS strike for the package switch. I knew there had to have been a switch because what was in my case was definitely in transit to Fort Knox or a Swiss bank. Alas, I was wrong. I finally found my sunglasses and discovered that I had actually received a matched pair of shiny Lawson L47S FET Microphones. The microphones closely resemble two solid gold bars and a careful listen proves them equally valuable.

My first encounter with a Lawson microphone was with the original tube design in 1989 and from that moment on I have been sold on their solid construction, reliability, flexibility and most of all, their marvelous sound. Gene Lawson's company has been making microphones since 1985. It is no newcomer to the industry. And to keep prices down, Lawson microphones are sold factory direct, eliminating the cost of the middleman.

Features

The heart of every microphone is its capsule and at the heart of the L47S is the Lawson L47 capsule. This is the same capsule used in the already renowned Lawson tube microphones. With a goal to achieve the classic, vintage sound of the legendary U47, M49, and C12 microphones, Gene Lawson spent years on research and design. The end result is the L47 capsule. The L47 is a one-inch capsule that is based on the M7 capsule (used in the U47 & M49 microphones).

The L47 has a 3-micron gold sputtered diaphragm rather than the M7's 7-micron diaphragm. The thinner diaphragm translates to greatly improved transients and extended high frequency response. To ensure quality in this very critical stage, the L47's capsules are hand-lapped in the Lawson lab. This is accomplished using precision machinery with 10,000th of an inch accuracy.

The L47 capsule is internally shockmounted in the body of the L47S thereby eliminating the need of an external shockmount.

The L47S is a FET (Field Effect Transistor) microphone and requires 48 V phantom power. Unlike most microphones, the Lawson uses a DC to DC converter to increase the phantom voltage to 65–70 V. This increases the microphone's sensitivity by 5 dB and in turn decreases the noise floor by 5 dB. The pickup pattern on the

L47S is a fixed cardioid. Its frequency response is 20 Hz–20 kHz.

There is a 10 dB pad that is activated by a switch on the bottom of the microphone. With the pad activated the L47S has a maximum SPL of 138 dB. This makes the microphone usable in almost any recording situation. There is also a switch activated high pass filter. Unlike many microphones, the Lawson's high-pass filter is very usable. Instead of the usual 12 dB per octave beginning at 60 or 75 Hz, the Lawson begins at 100 Hz but is only

a 6 dB per octave cut rather than the typical 10 dB or more per octave cut. This provides a far smoother and more gentle change in sound.

Frequency response analysis and stereo matching (no additional charge) are provided with the MLSSA measuring tool. The Melissa is a state-of-the-art and very accurate way to analyze a microphone's performance.

The L47S is delivered in a water-tight, shock proof, pelican carrying case that should provide as many years of faithful service as the microphone. The microphone includes a one-year warranty but if the registration card is returned it is increased to five years.

In use

I used the Lawson microphone in an extremely diverse number of circumstances and always had fantastic results. It was outstanding on vocals, providing a top-end transparency, yet retaining the voices' warmth.

On instrument recording I had equally remarkable results with acoustic and electric guitars, percussion, and banjo.

As a stereo pair the microphones performed equally well. They were staggering as drum overhead microphones, capturing the shimmer and power of the cymbals as well as the delicate touch of a brush on the snare drum. As drum room microphones they captured the power of the drum kit without ever sounding mushy or harsh.

Summary

The Lawson L47S microphone is a fantastic sounding microphone. It is hand made with precision and care to give the owner a lifetime of service.

It has the same sonic strengths of microphones costing several thousand dollars more and it is built like a tank (and it looks like it would cost a million bucks).

Russ Long is a Nashville-based producer/engineer, co-owner of The Whitehouse and The Carport Recording studios, and a contributor to *Pro Audio Review*.



AT-A-GLANCE

Applications: Recording studio.

Key Features: FET microphone, L47 capsule with 3-micron gold-sputtered diaphragm, internal shockmount, 10dB pad, switchable high-pass filter.

Price: \$1,295

CONTACT: LAWSON AT 615-269-5542;
OR CIRCLE
READER SERVICE 92.



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The Lawson L47S cardioid microphone uses the same case as the L-47MP microphone that I measured in the February 1997 issue of PAR. The body of the microphone, like that of the L-47MP, is machined from solid brass and plated with 24 karat gold. A swivel clamp is mounted at the bottom of the case to allow the L47S to attach to a microphone stand.

Unlike the multiple patterns available from the L-47MP, the L47S provides only a cardioid pattern and uses discrete solid state rather than vacuum tube circuitry.

The Lawson L47S requires standard 48 V DC phantom powering. I used the Audio-Technica AT-8801 external phantom power supply to provide 48 V DC to the microphone. A DC-to-DC converter inside the microphone provides 65 V to bias the 3-micron air condenser capsule.

The Lawson L47S includes a low-cut switch to compensate for the rise in low-frequency response caused by the proximity effect when the source is close to the microphone. A 10 dB attenuator switch reduces the output of the Lawson L47S when the SPL is very high and could overload a microphone input. These switches are on the bottom of the Lawson L47S on each side of the standard male XLR 3-pin output.

The Amplitude vs. Frequency response and acoustical polarity tests were performed using a custom reference loudspeaker with a response from 30 to 20,000 Hz. The frequency response graphs of the Lawson L47S are referenced to a B&K 4133 1/2" measurement-type condenser microphone by using the difference mode of the Techtron TEF 20 instrument. This essentially



removes the reference loudspeaker response from the results. The Lawson L47S was one meter from the reference loudspeaker system. The microphone was rotated about its center for the 0-, 45-, 90-, and 180-degree curves. The proximity effect curve was measured with the Lawson L47S located four inches from the reference loudspeaker.

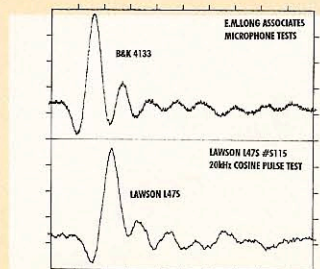
The output of the Lawson L47S for a 20 kHz acoustical cosine pulse was captured using a digital storage scope. The output waveform is close to the waveform from the B&K 4133 reference microphone and verifies that the on-axis high-frequency response of the Lawson L47S is very good. The graph also shows that the Lawson L47S has a positive polarity on pin 2 for a positive acoustical pressure at its diaphragm.

The measured output of the Lawson L47S was 18 mV for a 94 dB SPL, which agrees exactly with the specified sensitivity.

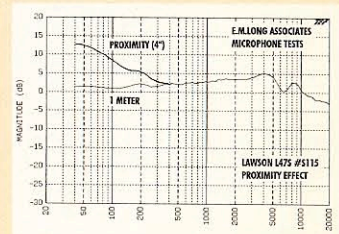
The cardioid response characteristic of the Lawson L47S even at 90 degrees is very uniform up to about 7.5 kHz. The rise in response with increasing frequency, which reaches a maximum at about 4 kHz, would appear to make the Lawson L47S a good choice for vocals.

I measured to Lawson L47S microphones that were factory matched; they were very close except for a 1 dB difference at the 4 kHz peak when the attenuator switch was set for zero attenuation. With the switches set for 10 dB of attenuation, there was a 1 dB difference over the complete frequency range.

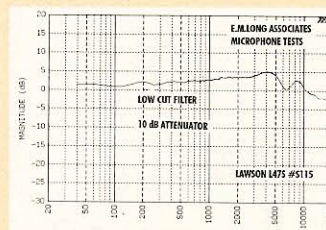
-E.M. Long



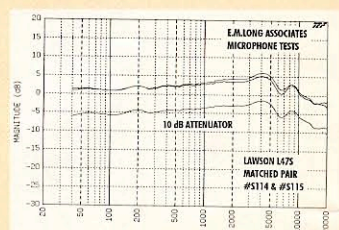
B&K 4133 Microphone Tests vs. Lawson L47S #S115 20kHz Cosine Pulse Test



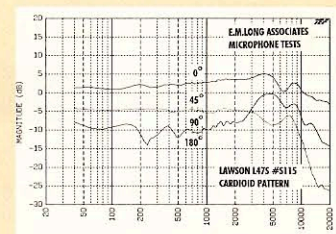
Lawson L47S Mic at 0 Degrees



Lawson L47S Mic at 0 Degrees with Low-Cut filter



Lawson L47S Mic at 0 Degrees



Lawson L47S Mic at 180 Degrees