Marshall Electronics, Inc. MXL2001-P and *MXL2003* Condensor Microphones

Marshall Electronics mics are priced to fit in almost any project studio

BY EDDIE CILETTI

You wouldn't think large diaphragm condenser mics could get any more affordable, but Marshall Electronics — importers of Mogami cable — have dared to step into an already crowded bullpen with a pair of deals you can't pass up. They're offering two microphone models: the MXL2001-P ($199.95) and the MXL2003 ($399.95 with shockmount). Each mic features a 6-micron and a 3-micron (one-inch diameter) diaphragm, respectively. This difference alone would be responsible for two sonic signatures. (Thinner diaphragms deliver a flatter, more extended frequency response. Thicker diaphragms slow things down a bit, and deliver a slightly more obvious upper-midrange presence.) The 2001 has an output transformer, while the 2003 is transformer-less.

So now you're asking, "For this little money, what's wrong with these mics?" A quick comparison with a very early Neumann U 87 and a Soundelux U95 revealed surprisingly comparable sonics on vocals — listening on Sony 7606 headphones. Cranking the gain on a Great River MP-4 (4-channel preamp with Jensen input transformers), each Marshall mic had a higher noise floor than the two "reference mics." That's only fair, right? (For a quick comparison of Marshall and other mics, check out table 1, as well as the sidebar.)

The 2001 is priced to compete with dynamic mics you'd use on drums — where noise isn't a problem — *and* you could always consider the noise as "dither" for whatever digital multitrack you use. (Yes, my cup is half full….) The MXL2003 is 2 dB quieter. Its thinner diaphragm and transformer-less electronics extend the frequency response 3 kHz beyond that of the MXL2001.

THE BASEMENT TAPES

For the first test, I placed a pair of MXL 2003's as overheads on a very basic drum kit. (The track called for brushes and no toms. The mics were four feet above the snare; no snare mic was used.) For comparison, I placed a pair of AKG SE 300B's (with cardioid capsules) in parallel with the Marshall mics. (I own the AKGs and know what they sound like on drums.) The MXL 2003's fed a Great River transformerless preamp, while the AKGs went through the band's Behringer board.

The MXL 2003, with its 1-inch diaphragm, had a more pronounced bottom end than the AKG capsules, which are about half the diameter. This "bump" was confirmed on the frequency response chart — nearly 4 dB up, centered between 20 Hz and 50 Hz. I placed one 2001 on the beater side of the 14-inch kick drum and another 2001 on a Takamine acoustic guitar. (The other instrumentation included an electric guitar and electric bass.)

BASS ROLL-OFF

Working in small quarters — and with an electric guitar that was a bit heavier than I'd like — getting the acoustic guitar to cut through was a bit of a challenge. I was forced to place the MXL2001-P very close to the guitar and asked the player to use a thicker pick to get his axe to challenge the electric guitar. This worked surprisingly well, though I then regretted having committed the MXL2003's as overheads. That's because the MXL2003 features a

COMPARING MICROPHONES FOR SENSITIVITY AND NOISE

I slipped online and collected the published specs of popular and, mostly, expensive microphones just to see what's possible. For a reality check, I've included specs for the AKG SE 300B mic body, which is 1 dB quieter than the MXL2003 and 3 dB quieter than the MXL2001-P. (Part of AKG's more affordable "Blue" line, I use the SE 300B with cardioid and omni capsules.) The other mics that are more expensive are significantly quieter. Soundelux has the courage and confidence to also publish their unweighted noise specs.

The following microphone specifications are as defined on the Neumann Web site.

Sensitivity (@ 1 kHz)
The sensitivity indicates the RMS voltage a microphone generates when exposed to 1 Pa = 94 dB sound pressure under free-field conditions. The value refers to a frequency of 1 kHz and a load impedance of 1 kohm. The values are slightly higher with no-load operation. For studio condenser microphones, the free-field sensitivity usually ranges from 8 mV/Pa to 40 mV/Pa.

Equivalent (loudness level due to inherent) Noise
Apart from the audio signal, the output signal of each microphone always contains a low-noise signal. To indicate the extent of this noise voltage, it is given as a fictitious sound pressure level. With an ideal noise-free microphone, a sound pressure level of this value would result in an output voltage equivalent to the inherent noise voltage.

The inherent noise is measured and weighted according to CCIR 468-3, also DIN/IEC 651 (A-weighted) in order to correlate the result with the sensation of the human ear. For studio condenser microphones, the equivalent noise level usually ranges from 20 to 30 dB (CCIR), or 10 to 20 dB (A).

bass roll-off switch (6-dB/octave starting at 150 Hz), good for reducing the proximity effect that occurs when close-miking an instrument or vocalist. There is also a 10-dB pad.

WEEKEND WORRIERS

I was not available to engineer on the weekend, so the band recorded a more challenging (and more "electric") set of tracks, using both pairs of Marshall mics all over the drums (MXL2003 on kick and floortom; MXL 2001's on overheads) as well as vocals. Using the console preamps, the individual tracks were routed to an ADAT LX-20 recording in 20-bit mode.

The band was surprised; not only that things turned out well — engineering *and* playing is hard work — but that the results were good, impressive even. (Translation: They wanna buy the mics!) Using no EQ (as per my suggestion), the MXL2003's captured very usable tracks. There is a slight rise in high-frequency response beginning at 2 kHz and extending to 20 kHz, above which the output rises even more before things start to roll off (above 23 kHz). This is notably smoother and more extended than most dynamic mics.

JUST BEAT IT

Chinese production makes Marshall mics affordable. Construction is kinda "Russian"; that is, the weight from the heavy metal case will surprise you, and the grille should withstand imprecise attack from most "animal" drummers.

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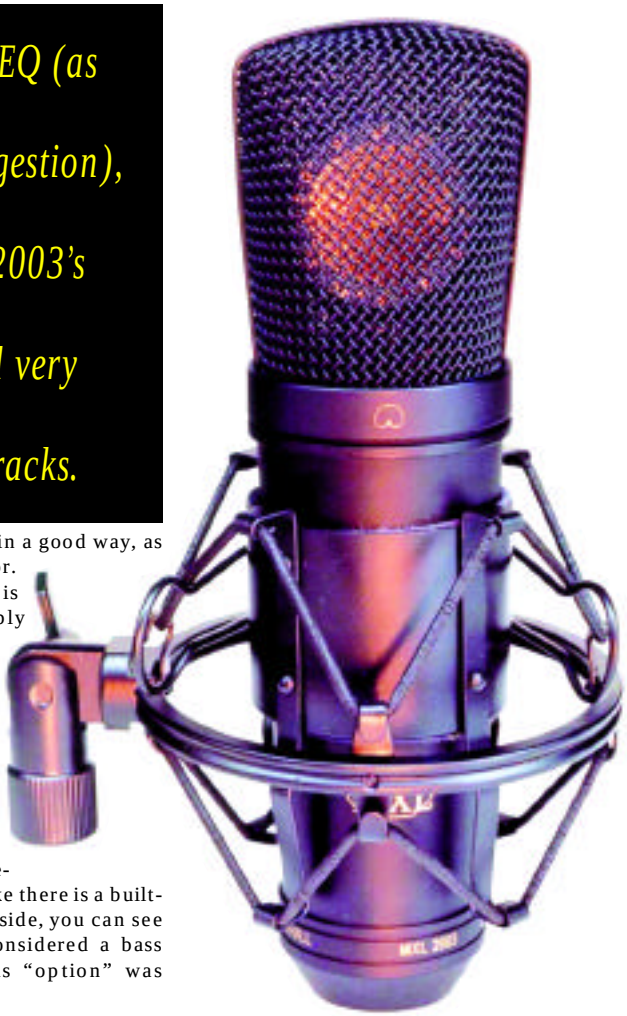
This is mostly meant in a good way, as in "the overkill" factor. The finish of the mics is great, and assembly seems solid, although threading for the mic stand adapter seems a little rough. Perhaps a little lube might smooth that out.

On the frequency response chart, the MXL2001-P shows a 6-dB/octave roll-off below 100 Hz, looking like there is a built-in, high-pass filter. Inside, you can see that the designers considered a bass roll-off switch. (This "option" was



COMPARISON TABLE

Make	Model	Sensitivity	Equivalent Noise	Weighted	Unweighted
Marshall	MXL2001-P	15mV/Pa	20 dB	A (IEC 268-4)	—
Marshall	MXL2003	16mV/Pa	18 dB	A (IEC 268-4)	—
Neumann	M149 tube	30/44/50 mV/Pa Omni/cardioid/fig-8	16/13/11 dB Omni/cardioid/fig-8	IEC 651 A-weighted	—
Neumann	U87ai	20/28/22 mV/Pa Omni/cardioid/fig-8	15/12/14 dB Omni/cardioid/fig-8	IEC 651 A-weighted	—
AKG	C414 B-ULS	12.5 mV/Pa –38 dBV all patterns	14 dB	A-weighted	—
AKG	C414 B-TL II	12.5 mV/Pa –38 dBV all patterns	14 dB	A-weighted	—
AKG	SE 300B	10 mV/Pa –40 dBV	17 dB w/ Blue Line capsules	A-weighted	—
Soundelux	U95S	27mV/Pa	16dB—>26dB->	A-weighted	Unweighted

TABLE 1: Microphone comparison chart. For the Noise spec, lower numbers are better.

phased out on later PC production runs.) The MXL2001-P is sold with a plain vanilla, stand adapter. The MXL2003 comes with a shockmount, the MXL-56, sold as an accessory for $49.95, which fits both mics. Note also that the Marshall "cardioid" pattern is not as tight as those designed to minimize feedback (PA mics are more hypercardioid). The "relaxed" cardioid pickup pattern yields more pleasing off-axis response.

WHY ARGUE?

Both the MXL2001-P and the MXL2003 performed better than expected. How closely do you scrutinize a product that is priced to be so "right on the money?" In headphones, I got off on the sound, and that's what a vocal mic *is* about. If you can't afford a Neumann, AKG, Soundelux, Lawson, Gefell, etc., both Marshall mics have "that big vocal mic sound." In addition, for those who can afford the big names, the MXL2001-P and MXL2003 could easily replace many of the dynamic utility mics you've been using.

The higher noise is an acceptable trade-off considering the amazing price, especially when compared to the aforementioned manufacturers, whose products cost at least five to ten times more. Marshall's MXL-series mics *are* for everybody!

Eddie Ciletti's life story and audio archive are available online at www.tangible-technology.com.

EQ LAB REPORT

MANUFACTURER: Marshall Electronics, Inc., P.O. Box 2027, Culver City, CA 90230. Tel: 800-800-6608/310-390-6608. Web: www.mars-cam.com.

APPLICATION: Large diameter (1-inch) condenser microphones for instruments and voice.

SUMMARY: Affordable condenser mics with cardioid pickup pattern. The MXL2001-P offers a standard mic stand adapter, while the MXL-2003 features a bass roll-off, 10-dB pad, and shockmount. Models include the MXL2001-P (6-micron, with output transformer) and the MXL2003 (3-micron, transformerless).

WEAKNESS: The mics are somewhat noisier than their way-more-expensive competitors, but who can argue with the price?

PRICE: $199.95, MXL2001-P; $399.95, MXL2003; $49.95, MXL56 shockmount.

EQ FREE LIT. #: 107