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Different Strokes

How a condenser, ribbon, or tube mic can expand your guitar tones

Creativity and conformity are seriously unfit collaborators. And yet many home-studio owners are fabulously content to entrust their guitar tones to a single, industry-standard microphone: Shure's venerable SM57. While the SM57 is certainly not a poor or misinformed choice - a 57 placed right against an amp's grille cloth has been the recipe for a galaxy's worth of classic guitar recordings - limiting yourself to one mic of any type robs you of near-infinite tonal discoveries.

There's a great big world of mics out there, all with different timbral personalities - which is why professional recording engineers often audition several mics and mic positions before determining which combinations produces the desired sound. As most home studios aren't exactly flush with microphones, however, we did a tone trial to show you the differences between that trusty Shure SM57 and some other mics.

We pit the SM57 against three new models that represent the major mic types (condenser, tube condenser, and ribbon) and set up the champ and the contenders in four common mic-placement schemes. The results were recorded flat (no EQ) through a Mackie 32·8 mixer and routed directly to an Alesis M20 20-bit ADAT recorder.

During the tests, each mic was carefully placed in the same location as its predecessor. The same rhythm and lead riffs were tracked for each mic, and each performance was recorded at identical input levels (as measured by the ADAT's LED meters) to ensure that volume discrepancies didn't skew tonal evaluations. Finally, the sounds captured by each of the four mics were recorded onto four adjacent tracks of the ADAT. These tracks were monitored side-by-side on the console - with identical fader levels - so that timbres could be compared by simply muting and unmuting mixer channels. While not a thoroughly scientific analysis, the tests followed the criteria of how mics are auditioned in real-world studio situations.

The Contenders

Each of the mics tested have distinctive characteristics that affect what they "hear" when placed in front of a guitar amp. Here's some background on each mic.

Shure SM57 The SM57 (\$146) didn't become the mic for tracking electric guitars by accident. For one thing, it's a rugged dynamic microphone that can handle blaring Marshall stacks without caving in to distortion. In addition, the SM57's focused cardioid pattern ensures that an amp's rage is front-and-center, uncompromised by substantial signal leakage from other instruments and room acoustics. Most important, however, is a frequency boost (called a "presence peak") rising between 2.5kHz and 6kHz that's perfectly tailored to accentuate the ringing midrange of an electric guitar.

As a rule, dynamic mics are tough, robust, and - compared to studio-quality condenser mics - relatively inexpensive. While typically not full-bandwidth (the SM57 posts a frequency response of 40Hz-15kHz), dynamics possess enough range to capture the aggressive punch of most electric guitar and amp combinations.

GT Electronics AM61 The AM series was co-developed by Alesis and Groove Tubes - a respected boutique company that specializes in tube mics, preamps, and amplifiers. The partnership began last year, when Groove Tubes founder Aspen Pittman joined Alesis' new GT Electronics division.

The AM61 is a large-diaphragm, fixed-cardioid tube condenser. (A multi-pattern version, the AM62, is available for \$1,299.) The mic includes a switchable 10dB pad, a low-frequency (80Hz) roll-off, a shockmount, an external power supply, and a hard-shell case.

As analog-tape coloration is non-existent in the digital domain, tube mics are especially prized by digital recordists who want to add some fatness, sizzle, and warmth to their tracks. Once prohibitively expensive, tube condensers are now slipping under the \$1,000 mark.

Royer R-121 Another mic type that has recently become affordable is the ribbon. The diaphragm of these mics is literally a ribbon stretched across two poles of a magnet, and older ribbons were nearly as fragile as glass figurines. (A healthy blast of air often shredded the buggers.) Royer is one of the first companies to update the classic ribbon design, making its R-121 tough enough for modern guitar-miking applications. (The company still hedges its bet by offering users one free replacement ribbon; additional ribbons are \$100 each.)

Why even bother fretting about blowing your mic up? Well, ribbon mic deliver an extremely flat and natural response. Also, the two surfaces of the ribbon produce a figure-8 polar pattern that hears sounds equally from the front and back, while rejecting sounds from the sides - a bonus that allows the mic to capture an organic mix of the direct guitar tone and the sound of the amp in the room. Already, Joe Satriani and engineer Sean Beavan (Marilyn Manson, Nine Inch Nails) have fallen under the R-121's timbral spell.

The R-121 comes with a handsome wooden case and a mic clip. Options include a shockmount (\$72) and a windscreen (\$47).

Shure KSM32 The KSM32 large-diaphragm condenser is available in two versions. The SL model (as tested) is finished in a beautiful champagne color and includes a shockmount, a swivel mount, a velveteen pouch, and a James Bond-like aluminum attaché. The CG version (\$959) boasts a non-reflective charcoal-gray finish, a swivelmount, and zippered carrying bag. (My advice is to spend the extra \$70 for the full-cowabunga SL - for less than the price of most shockmounts alone, you get the groovy case and other goodies.) Both mics offer a single polar pattern (cardioid), a switchable 15dB pad, and low-frequency cut switches at 80Hz and 115Hz.

Large-diaphragm condensers typically capture an expansive frequency range and are very sensitive to subtle timbral details. As a result, lows tend to blossom nicely and highs exhibit a pristine shimmer. While these attributes often make condensers more applicable for capturing the jangle of acoustic guitars, these mics can also add dimension to miked amps.

The Mic Positions

Producing a transcendent guitar sound require more than an empathetic microphone, however. The engineer must position the mic so that its unique character marries exquisitely with the timbre of the source sound and, in some cases, the acoustics of the recording environment. Here's how each mic stacked up against the others when placed in some classic miking positions.

Close Mic

Each microphone was positioned approximately 1" from the amp grille, pointing directly at the center of the speaker cone. The guitar/amp combo was a McInturff Polaris Pro and Vox AC15. The AC15 was set for a clean, ringing tone.

SM57 vs. AM61: The AM61 tube condenser produced a woollier, bassier tone with more vroom than the SM57, but lacked the SM57's tough mids. The SM57 delivered an articulate, in-your-face jangle, but the bulk of the tone was centered in the mids - lows were nearly imperceptible.

SM57 vs. R-121: The R-121 ribbon sounded very warm and balanced (the highs and mids were clear, but not overly aggressive), making the SM57 appear clangy by comparison.

SM57 vs. KSM32: The KSM32 condenser delivered clear, well-mannered lows, mids, and highs, but the timber was not as sharply articulate or as punchy as that of the SM57.

The Hip Pick: If the goal of close-miking is to produce a dry, punchy guitar tone, then the SM57 delivered the most wonderfully obnoxious noise. The other mics were simply too elegant and well-mannered to cough up the requisite buzzsaw-in-your-brain tonality.

Distant Mic

For this test, the mics were moved back three feet from the front of the amp, but were still pointed directly at the center of the speaker cone. The guitar/amp combo was a Gibson Les Paul and a Marshall JCM800 cranked up to full rage.

SM57 vs. AM61: The SM57 maintained its tough mids, but the audible room tone was somewhat cranky, with sharp, short slapbacks that served to make the overall tone claustrophobic. Conversely, the AM61 delivered tight mids and sharp highs that opened up the sound a bit more.

SM57 vs. R-121: The R-121 matched the SM57's midrange bite and then surpassed it - adding a heaviness that was reminiscent of the compressed mids on old Who records. In addition, the R-121's high end was brighter and more open sounding than that of the SM57.

SM57 vs. KSM32: The KSM32 produced an airy and more expansive sound than the SM57.

The Hip Pick: A distant mic position strives to "place" the source sound within a natural environment, combining room acoustics and direct sound to produce a more dimensional tone. In this arena, the R-121's heavy mids, warm bottom, and expansive perspective made it the hands-down winner.

Off-Axis

After setting up a Fender Stratocaster and a blonde Fender Tremolux for maximum twang, each mic was placed six inches from the cabinet and pointed toward the speaker cone at an angle of 45 degrees.

SM57 vs. AM61: The SM57 displayed way more articulation than the AM61, which sounded rather indistinct and muddy. In fact, the AM61 produced an interesting violin-like timbre because it didn't capture much of the impact of the pick hitting the strings.

SM57 vs. R-121: The SM57 was bright and punchy, while the R-121 was rich, elegant, and lush.

SM57 vs. KSM32: A more balanced sound was achieved with the KSM32, but the mids were very polite, and exhibited none of the SM57's pleasingly sharp bite.

The Hip Pick: Off-axis positions typically produce a tight, bell-like jangle. The KSM32 offered the cleanest shimmer, but the SM57 was more aggressive. A toss-up.

Ambient

For a more orchestral perspective, the mics were moved 15 feet away from the amp and set at a height of six feet. An Ibanez acoustic-electric (sans soundhole) was plugged into a Tech 21 Trademark 60, and the sound was kept clean and bright.

SM57 vs. AM61: The SM57 focused on the guitar's midrange jangle and only offered a hint of the "room boom." The AM61 did a better job of clarifying the expanse of the room.

SM57 vs. R-121: The R-121 captured all the high-end shimmer of the amp sound reflecting off the studio walls, while also sounding more balanced than the SM57.

SM57 vs. KSM32: The KSM32 produced brighter mids than the SM57, but also displayed a low-end glut at about 250Hz.

The Hip Pick: Either the AM61 or the R-121 would be an excellent choice, as they maintained the acoustic-electric angle while also picking up the details of the room sound. The KSM32 was a bit boomy and the SM57 too abrasive for this application.

Tones Aplenty

It's important to note that there are no bad choices here - just options that may be more effective for documenting a particular sound. The main point is that the GT Electronics AM61, Royer R-121, and the Shure KSM32 offer an expanded tonal palette that a

Shure SM57 alone can't hope to deliver. And, as anyone who owns a few different guitars and amps can attest, tonal options are everything.

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