Jimi Hendrix' use of distortion to extend the performance vocabulary of the electric guitar

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Abstract: This paper examines the use of distortion for expressive effect from the player's point of view. Milestones in the development of modern distortion circuits are reviewed, focusing on the creative use of available technology. Audio examples, artifacts from the Experience Music Project collection, and demonstrations are presented to illustrate the story. The use of distortion for artistic effect is analyzed and selections from the work of Jimi Hendrix are presented as examples of the extended expressive possibilities afforded by a highly overdriven, amplified electric guitar.

DISTORTION FROM THE MODERN ELECTRIC GUITARIST'S PERSPECTIVE

Audio engineers have spent a great deal of time and effort trying to avoid introducing distortion into sound reinforcement and amplification systems. Though there are certainly guitarists who take advantage of each development that promises a clearer, more pristine tone, they may be in the minority. The title of October 1992's Guitar Player special issue – "Distortion! Understanding it. Mastering it. Wallowing in it."

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DISTORTION MILESTONES

Distortion initially became a part of the electric guitar's sound because amplifier technology lagged behind pickup technology. Increasingly powerful pickups were routed through amplifiers that were little more powerful than home radios. The distortion that resulted from overdriving these tiny amplifiers became interesting when performers began to treat it as an opportunity rather than a nuisance.

A quick review of some distortion milestones reveals a transition from opportunistic to purposeful use of distortion in music performance. The first recording of a real "fuzztone" guitar sound came in 1951 with Willie Kizart's playing on Jackie Brenston's "Rocket 88." The speaker cone on Kizart's amplifier had ruptured when it fell from the top of the car on the way to the recording session. It's interesting to note that this now classic guitar sound is due to paper stuffed in the ruptured speaker cone, but the critical part of the story is that producer Sam Phillips liked the sound that resulted, and elected to feature it rather than hide it. Similar accidents led to similar results on other recordings through the '50s, but the next milestone occurred when someone purposely altered their amplifier to produce a premeditated effect. Paul Burlison of the Rock 'N Roll Trio has stated that he would loosen one of the
tubes on his amplifier when he wanted it to distort, and Dave Davies of the Kinks sliced the speaker cone on his amplifier with a razor blade to achieve the characteristic power chord fuzz on “You Really Got Me.” Fortunately, more convenient means of achieving distortion were on the way.

“THAT'S NOT A BUG – IT'S A FEATURE!”

The first commercially produced “fuzz box” reportedly came about as a result of another fortuitous accident. A channel in a tube-powered mixing board began distorting during a recording session at Nashville's Quonset Hut Studio in 1961. It happened to be the channel recording the guitar solo, and the resulting sound caused such a stir that artists began coming to the studio wanting to recreate the “fuzz” effect. Since the mixing board had been repaired, one of the studio engineers designed a transistorized circuit to approximate the sound of the buzzing channel. The circuit design found its way to the Gibson Corporation, which subsequently produced a distortion box called the Maestro Fuzz-Tone.

The effect was an immediate hit, and by 1965 the Maestro Fuzz-Tone was appearing on recordings from television's Green Acres theme to the Rolling Stone's classic "(I Can't Get No) Satisfaction." It was the latter song that brought the fuzzbox to the attention of a new generation of guitarists. Keith Richards of the Rolling Stones wasn't the only young British guitarist experimenting with distortion. A Royal Navy acoustical engineer named Roger Mayer began designing distortion circuits in 1963, and by the mid-'60s electric guitarists like Jeff Beck and Jimmy Page of the Yardbirds were exploring new sonic territory with Roger Mayer-designed distortion boxes. These distortion circuits, when coupled with solid body electric guitars and the massive amplification systems available by this time, were capable of producing endless sustain and feedback that could be manipulated for artistic effect. These pioneering electric guitarists were learning to harness the power of the new electronics to achieve unheard-of effects, modifying their music and playing styles to create an entirely new guitar sound. Things took one more giant leap forward when Roger Mayer met the young Jimi Hendrix.

JIMI HENDRIX AND DISTORTION AS A MUSICAL FORCE

By 1966, when Jimi Hendrix met Roger Mayer, there were a number of distortion effects on the market. Jimi was using a device called a Fuzz Face, which Mayer customized for him to smooth out the sound. He accomplished this smoothing by filtering out the extreme high frequencies and modifying the circuit so that it emphasized even-order harmonics. Mayer introduced Jimi to a new device he had built, a modified distortion circuit called the Octavia because it emphasized the first harmonic of the notes played through it. This modification created a phantom second note with twice the frequency of the fundamental. These two effects, when connected in series, gave Hendrix unprecedented sustain and more controllable feedback.

Jimi Hendrix used these effects in live performance and on recordings throughout his short career, assimilating the sounds into a personal style that extended the expressive vocabulary of the electric guitar. Hendrix' "Drivin' South" guitar solo from 1967 is an example of his exploitation of these extended expressive possibilities within the format of a traditional blues.

By 1969 Hendrix had fully assimilated two more electronic effects – the "Wah-Wah" and "UniVibe" – into his personal sound, and was creating sonic masterpieces like "Machine Gun" and his incredible interpretation of "The Star-Spangled Banner." These are more sound paintings than guitar solos, and set the standard for creative artistry on the electric guitar. Technology has advanced into the digital age since Jimi's premature death, but electric guitarists remain fascinated with vintage analog equipment, paying incredible prices for aged circuits, hoping that the germanium transistors and ceramic capacitors will somehow help them achieve those magical sounds that Hendrix conjured up. It won't happen. Part of Jimi's sound was the excitement of breaking new ground, a childlike fascination with these new sounds coupled with schooled musicianship and an incredible creative spirit. The next steps are being taken by artists who are learning to assimilate the possibilities of digital signal processing into individual expressive styles.