



Heaviness in Metal Music Production, Volume II

Learn from the Masters

Jan-Peter Herbst and Mark Mynett

A **Focal Press** Book



HEAVINESS IN METAL MUSIC PRODUCTION, VOLUME II

Heaviness in Metal Music Production, Volume II: Learn from the Masters details how the fundamental musical quality of metal, ‘heaviness’, is created during record production, offering unprecedented learning opportunities provided by eight world-leading producers mixing the same multi-track of the song ‘In Solitude’ and sharing insights into their creative visions and technical realizations.

The book contains unabridged interviews with the producers about their conceptual understandings of heaviness and approaches to engineering ‘In Solitude’, enriched by nearly 300 illustrations of their sound engineering techniques. Beginning with a summary of the researchers’ main findings on how heaviness is defined, the study then moves on to a comparative analysis of the producers’ mixes, providing structured guidelines for critical listening. These interviews and mix documentations are complemented by contextual information about heaviness in metal music production, covering non-musical, associative factors that influence what is possibly the most valued feature of metal music—heaviness.

Heaviness in Metal Music Production will appeal to students of metal music, music technology and production, ethnomusicology, cultural studies, media, and communication. It will also serve as a practical primer for professional musicians, recording engineers, and producers to improve their own production values or to allow for experimentation with new approaches.

This two-volume set offers a well-rounded insight into the production of heaviness in theory and practice.

Jan-Peter Herbst is Professor of Music at the University of Huddersfield, UK. His background as a rock guitarist has led him to specialize in the study of electric guitar playing and metal music production. Herbst has edited *The Cambridge Companion to Metal Music* (2023).

Mark Mynett is Senior Lecturer in Music Technology and Production at the University of Huddersfield, UK. Following an extensive career as a professional musician, he is now a live music engineer and record producer with his own studio, Mynetaur Productions. Mynett has authored *Metal Music Manual* (2017).



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DATA AVAILABILITY

All data of the research project can be accessed via this link: <https://huddersfield.box.com/s/8gren2ma4kesvf5vwip2axzz1v8sawur>

Find out more about the research project at www.himmp.net.

All videos related to the production analysis discussed in this book, as well as interviews with professional musicians, managers, journalists, and concert promoters about heaviness, are available on our YouTube channel, <https://www.youtube.com/@HiMMP-Research>.

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Note

- 1 Porsdam Mann, Sebastian et al. (2024). 'Guidelines for Ethical Use and Acknowledgement of Large Language Models in Academic Writing'. *Nature Machine Intelligence*, 6: 1272–1274. <https://doi.org/10.1038/s42256-024-00922-7>; Rentier, Eline S. (2024). 'To Use or Not to Use: Exploring the Ethical Implications of Using Generative AI in Academic Writing'. *AI and Ethics*. <https://doi.org/10.1007/s43681-024-00649-6>; Ugwu, Ndubuisi et al. (2024). 'Clarifying Ethical Dilemmas of Using Artificial Intelligence in Research Writing: A Rapid Review'. *Higher Learning Research Communications*, 14(2): 29–47. <https://doi.org/10.18870/hlrc.v142.1549>

1

INTRODUCTION

1.1 Heaviness in Metal Music Production

Over half a century ago, metal music emerged as a genre defined by one fundamental element: heaviness. Since then, metal has undergone considerable development, evolving from the doomy beginnings of Black Sabbath to the melodic, fast-paced heavy metal of Iron Maiden, the aggressive, punk-inspired thrash metal of Metallica and Slayer, the brutal death metal of Cannibal Corpse, the abrasive black metal of Darkthrone, the industrial metal of Fear Factory, and the contemporary deathcore of Lorna Shore. These innovations in writing, playing, and recording did not seek to replace older metal styles but rather to develop them further. Nonetheless, the pursuit of heaviness has remained unbroken throughout metal's history: the heavier, the better. Much of metal's musical and cultural development can be attributed to this relentless quest for ever-heavier forms of expression.

As central as heaviness is to metal music—indeed, it is the namesake of heavy metal—the term *heavy* remains elusive. While most metal fans could probably articulate their understanding of heaviness to some extent, their descriptions would vary in detail and emphasis. This understanding forms an integral part of musical socialization and identity, connecting metalheads with their favourite bands, albums, and songs, as well as with live experiences, fan interactions (both in person and online), journalism, and numerous other facets of metal culture. Shared knowledge within the broader metal community, or within specific sub-scenes, depending on location or subgenre, allows for a degree of agreement on what constitutes the core of metal and what qualifies as heavy (see Herbst and Mynett 2022). Imagine, for instance, a world without distorted guitar sounds; metal as we know it would likely

not exist. However, this is where consensus often ends, as fans bring their own views and experiences to the concept of heaviness.

This book is part of the research project *Heaviness in Metal Music Production* (HiMMP).¹ The project aimed to explore the perceptual quality of heaviness in metal music, particularly as it manifests in its recorded and produced form. To facilitate this exploration, we composed and recorded ‘In Solitude’ (HiMMP 2023), a five-minute song that incorporates elements from various metal subgenres. The resulting multi-track recordings were then provided to eight leading metal engineers and producers:

- Jens Bogren (b. 1979, Sweden): Opeth, Arch Enemy, At the Gates, Soilwork, Dimmu Borgir, Amon Amarth
- Mike Exeter (b. 1967, UK): Black Sabbath, Tony Iommi, Heaven & Hell, Judas Priest, Cradle of Filth
- Adam ‘Nolly’ Getgood (b. 1984, UK): Periphery, Animals as Leaders, Architects, SikTh, Haken, Cynic, Bleed from Within
- Josh Middleton (b. 1985, UK): Architects, Sylosis, Heriot, Nakkeknaekker
- Fredrik Nordström (b. 1967, Sweden): At the Gates, Arch Enemy, Dark Tranquillity, Dimmu Borgir, In Flames, Opeth
- Buster Odeholm (b. 1992, Sweden): Humanity’s Last Breath, Vildhjarta, Born of Osiris, Sworn In, Oceano, Hacktivist
- Dave Otero (b. 1981, USA): Archspire, Khemmis, Allegaeon, Aborted, Primitive Man, Visigoth
- Andrew Scheps (b. 1969, USA): Metallica, Black Sabbath, Apocalyptica, Green Day, Red Hot Chili Peppers, Bon Jovi

Each of these professionals employed a distinctive engineering approach to mixing ‘In Solitude’, which they allowed us to document on video. They not only shared their mixing processes but also provided their personal interpretations of heaviness. Never before have eight metal producers of this calibre mixed the same track while revealing their techniques in such depth.

The results of this novel experiment are presented in the two-volume book series *Heaviness in Metal Music Production*. The first volume, *How and Why It Works* (Herbst and Mynett 2025), situates heaviness within broader academic discourses and explores the challenges and unique approaches to engineering heaviness in metal. The second volume—this book, *Learn from the Masters*—contains interviews with the producers and detailed documentation of their mixes. Primarily intended as a learning resource, it offers readers the opportunity to study first-hand from these leading professionals.² Each chapter begins with an introduction to a producer, followed by unabridged interviews outlining their understanding of heaviness and highlighting the central engineering decisions they made when mixing ‘In Solitude’.

Naturally, the producers differ in their conceptions of heaviness and their methods for creating it. These anticipated differences, which enhance the value of this creative experiment, were carefully considered during the project's planning stages. Having worked as producers or engineers with bands ranging from Black Sabbath, Judas Priest, and Metallica to Opeth, Arch Enemy, Dimmu Borgir, Archspire, Periphery, and Humanity's Last Breath, the participants reflect a broad spectrum of mainstream and lesser-known metal, spanning the genre's origins to its most contemporary manifestations.

There is less diversity in other respects: all the producers are male, Caucasian, and from historically dominant metal cultures—the USA, the UK, and Scandinavia. When reflecting on heaviness and its engineering through the producers' interviews and mixes, it is essential to recognize that they represent a particular discourse and practice, primarily that of mainstream metal originating in the Global North. Consequently, the book's title, *Learn from the Masters*, should be understood as an invitation to learn from representatives of Western mainstream metal while acknowledging that metal music production is a global phenomenon. Many other producers, spanning diverse genders, ethnicities, ages, and regions, equally merit recognition and would be valuable subjects for future study.

1.2 The Learning Resources

As outlined, the following chapters (Chapters 2–9) feature two unabridged interviews with each producer: one addressing their conceptual understanding of heaviness and the other discussing their mix of 'In Solitude'. Original screenshots accompany these discussions to illustrate each producer's engineering decisions. Videos of the interviews are also available online, enabling listeners to hear the specific effects of the processing techniques being discussed.³ Additionally, a range of learning resources is accessible via these online platforms, with a complete list provided in the appendix of this book. The primary resources include:

- The producers' mixes of 'In Solitude' (both at original volume and loudness-matched for more accurate comparison), as well as the drum, bass, guitar, and vocal stems from each mix.
- The researchers' reference mix, including the corresponding Pro Tools project.
- The complete multi-track recording of 'In Solitude', encompassing drum samples, guitar DI tracks, and MIDI files for the orchestration (strings, brass, synthesizers, and piano), as originally provided to the producers.

The final chapter (Chapter 10) guides listeners through the various mixes and offers practical advice on how to compare them, enhance the listening

experience, and identify key characteristics worth paying attention to. With this guidance, listeners will be equipped to recognize the significant differences among the mixes and deepen their understanding of metal production techniques.

1.3 Synopsis of the Producers' Understanding of Heaviness

Before proceeding with the interviews, it seems useful to provide a broader context by summarizing the producers' opinions and understandings of heaviness. These insights are organized into two categories: (1) the producers' conceptual understandings of heaviness and (2) the roles of performance, composition, arrangement, and production.

Conceptual Understandings of Heaviness

A central aim of this project was to deepen our conceptual understanding of perceptual heaviness. All producers agreed with the premise that the pursuit of greater heaviness has shaped the trajectory of the metal genre. However, they noted that the term *heaviness* is sometimes used colloquially as a general positive descriptor for a 'good sound'. This ambiguity may stem from the changing perception of heaviness over time. On one hand, metal fans and artists often become accustomed to sounds once deemed heavy, which can diminish their impact over time. Heaviness tends to have the strongest effect when it surprises the listener, breaks conventional rules, combines musical elements in novel ways, or when performances exceed current artistic standards. On the other hand, the producers highlighted the diverse expressions of heaviness across metal subgenres, from the brutal intensity of death metal to the lo-fi abrasiveness of black metal and the classic power of heavy metal. Each subgenre, with its associated performance styles, embodies heaviness differently. For instance, some achieve it through the relentless energy of a blast beat, while others rely on aggressive, emotionally charged vocals or the sheer density of guitar distortion at slower tempos. Additionally, the producers emphasized emotional heaviness, often conveyed through lyrics but most effective when reinforced by arrangement and production. Overall, setting aside the subjectivity of heaviness perception, most producers agreed on a rough formula for what they considered heavy: metal is at its heaviest when it is slow, low, and dense.

The Role of Performance and Expression for Heaviness

The producers unanimously emphasized that high-quality performance is the foundation of any heavy production. Strong performances are essential for maximizing impact and punch, while weak or sloppy execution becomes

more evident in a clear, transparent production, negatively affecting the listening experience. Producers such as Exeter and Bogren highlighted that good performances are a prerequisite for achieving natural-sounding productions. They noted that excessive corrective measures can diminish expression and undermine emotional resonance. Similarly, overly perfect performances achieved through technological manipulation were thought to reduce the perceived size of a production (Exeter, Middleton, Nordström, Bogren), ultimately detracting from its heaviness.

However, a generational divide was observed in attitudes towards performance and its role in heaviness. Newer-generation producers (Odeholm, Middleton, Getgood, Otero) favoured extremely tight ensemble synchronization, which they argued enhances clarity, presence, and impactful sonic weight, all essential for heaviness. Achieving a pronounced low end, they explained, often depends on sample-accurate phase alignment between instruments (Odeholm), something that is nearly impossible to accomplish in purely natural performances without technical intervention. These contrasting perspectives revealed two distinct camps with differing priorities. The younger producers tended to prioritize sound quality, focusing on technical precision and its contribution to heaviness. In contrast, older producers placed greater emphasis on musical expression, viewing production as a tool to support or amplify the inherent heaviness of the performance itself.

Composition and Arrangement

Just as high-quality performance is essential in heavy metal production, so too are songwriting and arrangement. Some producers (Bogren, Exeter, Nordström) even considered production the least important factor and argued that a heavy song, if performed expressively, could retain its heaviness regardless of how it is produced. However, most producers recognized a strong interrelation between songwriting and production, emphasizing that both must align to maximize impact. This alignment often involves ensuring that songwriting and arrangement are informed by production needs and, if necessary, adjusted during the production process.

The producers identified musical progression and contrast as foundational pillars of heaviness. They highlighted how metal, unlike many other genres, often relies on extended song structures that create dynamic peaks and troughs, enabling ‘sonic storytelling’, an emotional journey akin to that of epic films like *The Lord of the Rings*. The producer’s role is to support this narrative development by employing automation, adding layers, or making other production decisions that accentuate contrasts between light and heavy moments, thereby amplifying the impact of the heavy sections. Variations in tempo and rhythmic feel were also noted as significant, particularly those that alternate between the sonic weight of slower riffs and the high-intensity

energy of faster sections. While slowness and sonic weight were generally associated with heaviness, the producers agreed that these qualities are most effective when contrasted with faster, more energetic sections. Several producers (Scheps, Exeter, Bogren) cited the slow breakdown in ‘In Solitude’ as the heaviest section of the song, as it contrasts with the faster riffs preceding and following it and grants more space for sonic weight. Others (Otero), however, highlighted the blast beat as the song’s heaviest moment, describing it as the track’s climax.

The producers did not consider compositional elements, such as musical harmony, to be overly important to heaviness. As might be expected, major chords and progressions are less likely to evoke a heavy sound compared to minor or power chords and dark or dissonant intervals. Instead, they focused on arranging instruments and vocals to avoid masking, ensuring that each element occupies a distinct space within the frequency spectrum and stereo field. Resolving potential issues at the source and enhancing musical expression, often by simplifying layers and reducing overdubs, made arrangement highly relevant to the mixing process.

Production Parameters

Focusing on two central themes—distortion and sonic weight—the producers discussed several production-related characteristics that are central to achieving heaviness. Distortion, a defining characteristic of metal and a key contributor to heaviness, is central to guitars, bass, drums, and vocals. It creates a dense mid-range and produces a wall of sound. Distortion is typically introduced at the source, augmented with additional distortion processors during mixing, or achieved through emulations of analogue devices that produce saturation. The degree of distortion can range from subtle saturation to extreme clipping, with the latter increasing perceived loudness without relying on compression. According to the producers, distortion enhances the aggression of the music and creates an in-your-face proximity. Additionally, emulating analogue devices that introduce non-linearities can lead to tonal variations between the left and right stereo channels, expanding the production’s perceived size, and adding complexity to the overall sound.

The second key parameter, sonic weight, elicits a physical response from listeners and is fundamental to creating a sense of heaviness. Among the instruments, the guitar, particularly during palm-muted sections, and the kick drum were highlighted for their contributions to sonic weight. The bass guitar, while primarily functioning as a supporting instrument by doubling guitar lines and extending the frequency range downward, is similarly important in enhancing sonic weight and overall heaviness. Some producers conceptualized the guitar and bass as a unified entity or a ‘meta-instrument’. They agreed that lower tunings for both instruments amplify sonic weight

and, consequently, heaviness. Several producers (Getgood, Otero, Odeholm, Nordström, and Exeter) noted the increasing integration of electronic instruments and industrial audio samples (e.g. sub-drops) in contemporary metal productions. These elements extend sonic weight beyond the capabilities of metal's traditional core instruments. One key purpose of this incorporation is to compete with the sonic impact and weight of electronic (dance) music, particularly in achieving a comparable richness and density in low frequencies, including the sub-bass range.

Metaphorical associations often underpinned the producers' discussions of distortion and sonic weight. Drawing on imagery of heavy machinery and massive objects, some producers (Getgood, Nordström, Middleton) used examples such as cannons, tanks, and robots like the Terminator to articulate the concept of heaviness. These objects, characterized by their size, overwhelming power, and mechanical precision, were described as embodying the notion of an 'unstoppable force' (Getgood). Their attributes of synchronization and precision were particularly emphasized, with producers drawing parallels to the sound of contemporary extreme metal bands like Meshuggah, frequently cited as epitomes of heaviness. Heaviness in this context involves more than just synchronized performance, which may include technological enhancements; it also relies on the sonic impact generated when all instruments are tightly coordinated, especially in the low-frequency range. To achieve maximum impact and sonic weight in the low end, producers working in contemporary extreme metal (Odeholm, Otero, Getgood, Middleton) often employed precise editing and, in some cases, frequency-dependent phase alignment (Odeholm).

Although vocals were hardly discussed in the interviews, most producers agreed that they contribute little to the sense of heaviness as defined here. However, they acknowledged that vocals are important for the expressive function of the music. It is worth noting that 'In Solitude' does not prominently feature extreme vocal techniques such as growling, screaming, or shouting. Had such styles been present, the producers might have considered vocals more integral to the sense of heaviness.

Regarding technological advancements, the producers were divided. Some (Exeter, Bogren, Nordström, Scheps) did not view technology as a driver of musical progress, seeing its primary role as improving the presentation of a recorded song rather than shaping its composition. This perspective implies that musical development is driven by artistic taste, with technology advancing in response. While most producers supported this view to varying degrees, a minority, led by Buster Odeholm, considered innovations in digital music production a source of inspiration for songwriting and production in extreme and progressive metal. According to Odeholm, these advancements enable artists and producers to push the boundaries of heaviness. He embraced 'overproduction' in his work, striving to maximize the sonic impact

and detail of every instrument and sound source. This meticulous approach has become his signature style, attracting contemporary bands to hire him as their producer or mixing engineer. However, most producers did not favour overproduction, preferring instead to enhance a recorded song in ways that preserve the natural, human qualities of performances.

Notes

- 1 www.himmp.net
- 2 For a comprehensive introduction to the craft of engineering metal music, we recommend reading co-author Mark Mynett's (2017) *Metal Music Manual: Producing, Engineering, and Mastering Contemporary Heavy Music*. Abingdon: Routledge.
- 3 Online access via www.himmp.net or <https://huddersfield.box.com/s/8gren2ma4kesvf5vwip2axzz1v8sawur>

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Discography

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2

JENS BOGREN

2.1 Introduction

Jens Bogren (b. 1979) is a Swedish record producer, mixing and mastering engineer, and entrepreneur specializing in metal music production. In 2001, he founded Fascination Street Studios, which offers full production, recording, mixing, and mastering services. With over 700 professional credits to his name, Bogren has worked with many of the most popular performers in the metal scene, including Opeth, Arch Enemy, At the Gates, Soilwork, Dimmu Borgir, and Amon Amarth. While much of his current work focuses on mixing and mastering, he has produced several acclaimed albums, such as Opeth's *Ghost Reveries* (2005) and *Watershed* (2008), Amon Amarth's *Twilight of the Thunder God* (2008), Amorphis's *Under the Red Cloud* (2015), *Queen of Time* (2018), and *Halo* (2022), Dimmu Borgir's *Eonian* (2018), Powerwolf's *The Sacrament of Sin* (2018), At the Gates' *The Nightmare of Being* (2021), and Kreator's *Phantom Antichrist* (2012) and *Gods of Violence* (2017). His consistent track record has made him a highly regarded figure in the metal music community, particularly among engineers and producers.

Bogren's expertise is frequently sought after in the educational sphere. He has delivered five episodes of 'Nail the Mix' for Unstoppable Recording Machine (URM), the leading online community for metal music engineers and producers, marking the third highest number of episodes by a single producer due to popular demand. In 2023, Bogren and URM co-produced an extensive, over-35-hour video masterclass titled *How It's Done*, which offers a comprehensive guide to metal music production, from recording to mastering. Since 2019, he has also operated his software company, Bogren Digital, which provides metal-specific tools, including amplifier simulation

plugins for guitar and bass, guitar cabinet impulse responses, Kemper Profiling Amplifier Packs, and drum sample libraries.

Bogren's philosophy in metal production centres on crafting a distinct sound for each band that aligns with its musical identity.¹ While striving to maintain the authenticity of the music through minimal editing, he emphasizes expression and emotion, ensuring that each song conveys its intended artistic impact. Although his overarching goal is to convey the artist's style, Bogren has developed an original sound, which he describes as the cumulative result of unique actions rather than any singular technique.

Primarily working in the box with Avid Pro Tools, Bogren incorporates select analogue hardware during tracking and for key processing, particularly on bass and vocals. His approach is empirical and scientific, relying on trial and error to test and refine recording and processing techniques that best suit the specific context of each instrument or vocal. To achieve a believable sound aesthetic, Bogren prefers acoustic drums whenever possible and avoids dampening the snare. For overheads, he favours wide setups such as AB or ORTF configurations, but adapts his recording methods to suit each artist. To preserve spatial qualities, he avoids time-aligning the overheads or room microphones to the snare, instead using room tracks to enhance size and cohesion, adjusting their relative volume as needed for each production.

Bogren's drum production preferences favour clipping over compression, although he employs both serial and parallel compression when appropriate. He automates EQ on kick drum channels for extreme metal and fast performances, reducing low end during fast kick sections to maintain clarity. For the snare, he often automates EQ and volume or creates new channels for specific phrasing, allowing for clear differentiation between intricate ghost notes and blast beats.

Bogren's productions are notable for their distinctive bass tone, primarily crafted at the source through careful bass set-up. He frequently combines clean and overdriven bass amplifiers, adding frequency-bracketed distortion and direct injection (DI) signals for sub-bass and string sound to create a multi-component bass tone. Bogren aims for the bass to have an even tone, some bark in the mids, and an expensive string sound, which can be achieved by high-pass filtering a DI track at a high frequency. To achieve this even sound, he uses both serial and parallel compression, employing a mix of hardware and software. However, he is cautious not to overcompress, as it can weaken the low end. To ensure the bass integrates well with the kick drum, Bogren employs multiband compression (with or without sidechain input) and limiters. For down-tuned basses, he uses distortion to enhance harmonic overtones, shifting tonal energy away from fundamental frequencies towards the higher mids. Harmonic distortion also helps

control low-end and low-mid frequencies while accentuating higher mids, enabling bass and vocals to stand out in dense mixes dominated by the wide frequency range of guitars.

For guitars, Bogren places a strong emphasis on capturing the right sound at the source. In productions requiring quad-tracked guitars, he typically uses a different speaker cabinet for the second pair of tracks to enhance low-end depth and phase coherence. Guitar processing is generally minimal and focused on EQ. When managing the low end, Bogren avoids using high-pass filters based solely on the guitar's tuning, instead considering the overall context of the mix. He often cuts frequencies around 100 Hz and conducts phase correlation checks as part of his workflow. While he avoids broadband compression and limiting on guitars, he occasionally applies multiband compression or tape saturation to achieve subtle compression effects when necessary.

Bogren's approach to vocals highlights their role as the primary vehicle for a song's emotional expression. His vocal processing varies depending on the production, but he prioritizes detailed automation, often adjusting every phrase, word, or even syllable to ensure that emotional nuance is fully conveyed.

Heaviness

Bogren's interview offered surprising insights into his conceptual understanding of heaviness in metal music. He argued that heaviness is less about sound and production and more about musical expression, which can be enhanced through sound. This emphasis on expression, rather than purely sonic characteristics, makes heaviness difficult to define in strictly musical terms. While Bogren acknowledged that heaviness is often associated with slowness and weight, he stressed that it does not necessarily need to conform to these qualities. He suggested that heaviness can manifest in various forms and even appear in other genres, including classical music, if the combination of songwriting and performance creates the appropriate impression.

Bogren also highlighted the historical role of the record producer as a creative director rather than merely a mixing engineer. He believes that the foundation of a heavy production lies in helping bands arrange and select their best and heaviest material. Bogren emphasized the importance of guiding artists during the recording process to minimize reliance on post-production. He views production primarily as a means of enhancing musical quality, clarity, and performance, particularly in metal, a genre that often sounds raw and unpolished in its unmixed form. In his experience, the most impactful and popular releases are those that combine high-quality songs and performances, with the producer's role balancing sound quality, songwriting, and performance in equal measure.

In Solitude

In mixing 'In Solitude', Bogren adhered closely to his conceptual understanding of heaviness, aiming to ensure that all instruments and vocals are clear and well defined. He prioritized expressive and organic performances over purely sonic considerations. Much of the mix involved shaping tones through extensive testing and comparison, including selecting complimentary samples for the kick and snare, blending the provided bass tracks, and re-amping half of the rhythm guitars.

Bogren primarily relied on the recorded acoustic drums to preserve their original sonic identity and dynamics. Drum samples were used to enhance the performance, contributing approximately 50% to the overall drum sound, alongside parallel drum compression. For the kick drum, complementary samples were selected to provide consistency, a 'wet-sounding' slap, coin-on-the-beater attack characteristics, and an expanded frequency range. The snare sound was intended to remain natural, although Bogren acknowledged the challenge of maintaining consistent tone and volume across contrasting sections. Samples were blended with the recorded snare to add air, ring, weight, attack, consistency, and ambience. These samples were volume-automated to emphasize their presence in response to the performance's specific dynamics. Additionally, reverb and ambient samples for both the kick and snare were automated to adjust spatial characteristics based on the performance speed. Beyond (parallel) compression, distortion was essential for enhancing the intelligibility and definition of the drum elements by introducing harmonic overtones and controlling low-mid frequencies.

Bogren enhanced the guitars at the source to minimize the need for heavy adjustments during the mix. He re-amped two of the four guitar performances to reshape their sound from scratch, while retaining some original tones to ensure variation between his productions. Since the original guitars had a scooped frequency spectrum, the re-amped tones were more mid-focused, creating a complementary balance. All guitars were panned fully wide to maximize stereo width and dimension. Their clarity was enhanced by attenuating the low mids and boosting the higher mids. To address bloom in palm-muted sections and minimize temporary frequency imbalances without introducing new issues, Bogren applied multiband compression to two guitars only. Additional processing included side-chaining the guitars to the vocals to ensure the voice remained prominent, as well as extensive automation to maintain balance and dynamics throughout the mix.

Bogren's approach to bass processing centred on selecting the best source tones. For 'In Solitude', this involved three overdriven sounds from amplifiers and pedals, each contributing distinct tonal qualities: the basic tone, distortion for character, and a pronounced low end. He automated the volume balance of these tracks across different sections to emphasize specific tonal

qualities based on the arrangement and density of the mix. The bass processing was relatively straightforward, primarily utilizing (multiband) compression in the lows and highs to maintain a consistent tone and allow treble boosts without harshness. Compression, distortion, and limiting ensured even volume and note stability, while EQ was employed for frequency management and tonal shaping. To manage excessive low end and maintain clarity, Bogren used sidechain signals from the kick and toms to ‘duck’ the bass. Additionally, a parallel chorus effect was applied to widen the stereo image of the bass signal in the middle and higher frequencies.

For vocals, Bogren reduced the dynamic range and introduced distortion by routing the signal through three analogue compressors, supplemented with digital compression. He explained that distortion is more effective than EQ for helping vocals cut through dense mixes and blend with guitars, enhancing cohesion, presence, clarity, and intelligibility. EQ was still used to brighten the vocals, refocus their tonal energy, and create a more polished sound. Multiband compression and de-essing ensured tonal consistency, while limiters shaped the sound by subtly altering the waveform. Effects processing included delays, which Bogren preferred over reverb for better integration into the mix, along with chorus to add width and size. To maintain consistent levels and ensure the vocals remained prominent, heavy automation was applied to adjust every phrase, keeping the vocal track floating on the surface at all times.

Bogren did not handle the final mastering of the mix, stating that his processing on the stereo buss was intended solely to give clients the impression of a finished product. For this preliminary treatment, he applied compression, boosted the high frequencies, used tone-matching EQ, and added a limiter to achieve the desired loudness. The actual mastering was carried out separately.

2.2 Conceptual Interview on Heaviness

HiMMP

Starting off on the subject of heaviness: it’s a really challenging question, but how would you define heaviness as part of metal music?

Jens Bogren

I think that is a really interesting question because to me, heaviness can be so many things. Sometimes, I hear people refer to heaviness as if it can be something; it’s more brutal, maybe. But technically, if you start to think about the term, is that really heaviness? And personally, I think heaviness doesn’t necessarily have to be about sound at all. I guess you can emphasize heaviness with the help of sound. For example, people come to me because they usually want their instruments to come through better, or be more defined. I don’t think that necessarily makes it more heavy. But that’s all about the

perception. If you ask people, when it comes to heavy music, what is heavy, some would refer to old albums, Black Sabbath, Slayer, or whatever. While a different generation or different people would say that Dimmu Borgir is super heavy. I think that's a lot about perception.

And if you ask me, personally, when I think about heavy, it's more of a musical expression. I guess it's some sort of heft and slowness to it, maybe. But not necessarily. I also find it really interesting how heavy is usually described as something positive. For almost everyone, at least, usually, when you see a band talking about the new album, it's always heavier than the previous one. The only exception actually is a band called DragonForce that I've seen make exactly that comment: 'Everyone is always saying that it's heavier, but no, our new album is less heavy, and it's happier'. Like that would be a thing. But most of the time, if you're into heavy metal music, heavier is always better. At least in terms of when you want to describe something, then that's actually the case, I guess. That's down to the listener.

HiMMP

We were talking about heaviness in other genres. Do you feel that other genres have got that quality as well?

Jens Bogren

Yeah, of course. If you think about it, heaviness comes down to musical expression. You find that in classical music, for example. If you draw a direct comparison, you could see the metal band as having references in the orchestra in terms of double bass, cello, and violins. You could play the strings in a distorted way—the low brass, for example—that's as close to distorted guitars as you could come, basically. And you could definitely do heavy metal songs very nicely just using an orchestra, and you will feel just as heavy, maybe even heavier, because an orchestra, by design, over the centuries, has been created to sound as good as possible right on its own. And believe me, if you put a pair of microphones in a rehearsal room with a metal band, it doesn't really sound that refined.

But I think you can find heaviness in just about anything. I've listened to heavy country music—16 horsepower, for example. Maybe that's not your standard Dolly Parton kind of country music, but still, you could find like using only folk instruments; as long as the musical expression is there, it can be really heavy. Hip-hop is another great example where you won't find any type of distortion or anything that usually wouldn't be associated with heaviness. And it can be really freaking heavy.

HiMMP

From that perspective of distortion and heaviness in metal music, do you think that a band could have clean guitars, no distortion, and still be considered part of the metal genre?

Jens Bogren

That's a good question. Since we really like to box things and place them in different categories, you might have an issue if you don't have any distorted things, but I'll go ahead, and there are some examples—none that I could pull. But if you have some element, let's say that you're driving distorted bass and just using clean guitars and some vocal expression that is inspired by the metal scene. I'm pretty sure that you could find a good acceptance in the metal community for that. But then it's down to whatever people will brand you with, right? It would be an interesting experiment, though, to go out and market yourself as a metal band without, like, and the whole idea being that you try to avoid anything that is metal but still market yourself as metal and see if you get away with it. That would be the empirical study on that matter.

HiMMP

That's our next research project—fantastic. From a metal music mix perspective, what are the foundational components that deliver heaviness to the listener in recorded form?

Jens Bogren

I personally think that the production has way less to do with the perception of heaviness than people might give it credit for. My perspective is that you could get a heavy song, a heavily written song, and you could shape it in a hundred different ways. And it could still be as heavy. Or, going this way could be perceived more heavy by some people, and going this way could be perceived more heavy by others. For example, when you produce metal, you can go really specific and do a lot of editing; we refer to it as 'Pro Tools metal'. When you quantize everything, and everything is to the point, everything is exactly in tune, in time. And some would say, 'Yeah, now it sounds really heavy' or 'Now everything comes together and is tight; that's a part of the heaviness.' And in one way, I guess they're right; there are many bands that succeeded that way. I could argue that they would probably have succeeded in many other ways as well, for example, if they had chosen a more natural production path, with maybe even some sort of dogma of not quantizing everything or not adding support samples. In a way, maybe that would be perceived as even heavier.

What I'm trying to say here is that when it comes to the development of sound in this genre, I don't think that production has so much importance. I think, for example, when people refer to some of the really heavy early stuff, for example, Entombed, and people got crazy about wanting to sound like Entombed, but that's the compositions. This is one of the first bands that came around that had tuned the guitars to B, and it sounded super heavy, and people had not really heard that before. And then everyone wanted to have

that guitar sound, but that guitar sound could have been anything, created just by accident. It happened a certain way, more or less.

And that's another interesting thing: people come to me because they have heard something I did. That was purely a result of me working with that band and those compositions, but that doesn't necessarily apply to what this band is doing. And it probably shouldn't because if they want to sound like this band, I would say that that's probably not a smart thing. You probably want to search for your own sound instead and try to be an inspiration for other bands rather than just sounding like something else.

HiMMP

From this perspective of it being about the composition and about the performance, and you're touching on the subject of the authenticity of 'Pro Tools metal', as you refer to it, and that being that heaviness is less about the sound. What are your reflections on low-fidelity metal productions, the sort of Scandinavian metal that was not produced to what most people would think is clear or particularly heavy, perhaps having more to do with the atmosphere? What are your reflections on how listeners might perceive heaviness within a lo-fi compared to a high-fidelity production?

Jens Bogren

Now, if we should talk about some early '90s productions like Norwegian black metal or Swedish death metal, I guess you cannot really refer to them as pristine sounding. But I think that was the only way to get those albums together. For example, if someone would send one of these albums to me for a remix, you would start noticing things that don't really make sense playing-wise. And if you start to make all of that be clear, it will probably sound less heavy in a way because then you feel like because 'that was sloppy'. And perhaps 'that's weird'. In a way, when you just mould things in the story, it creates weird new overtones by distorting everything and then putting as much effects and delay on the vocal as possible. So, you actually get multiple performances in one, or that adds to a certain emotion, right? I'm not sure if this is heaviness; it's brutal. Is it heavy? Yeah, maybe it's heavy. If people perceive it as heavy, then I guess it's heavy.

HiMMP

And picking up on that theme of the Norwegian and Swedish death metal scene and Norwegian black metal and the low fidelity. We've now transitioned from the earlier performances of Black Sabbath towards much faster performances. What are your thoughts on the way that the space that's available within these performances informs the production?

Jens Bogren

I think that technology has probably affected the actual sound more than the musical style. But then, musical styles have developed as technology has developed in a way that people realize that ‘Oh, we can do this super fast, super complex stuff because now it’s actually possible to do that.’ And that has built on each other. I know bands that never would be able to play the songs. They have to spend half a year learning the songs after the studio session. And so, technology has definitely had an impact on actual songwriting that way. But that’s just by accident, I suppose.

I believe that if technology had not moved into computers and you were still recording onto tape, for example, you would probably still try to make really fast and complex albums. But I guess we would never have reached this level of, how should I put it, like pristine and detailed productions that we have today. But I don’t necessarily think that’s a good thing. Maybe it would have been more interesting to listen to a lot of the modern albums in a format where you actually had to record them in a linear fashion. But I think all of this, for me at least, also tells me, again, how little the production actually means compared to how important the song is—the expression, the performance. Even the lyrics, even though, in metal, maybe the lyrics, arguably are a little bit less important than in many other genres. But luckily, people don’t realize this because they still want to come to me, for example, and think that it’s really important with productions.

HiMMP

Picking up on that theme of it being less about the sound than a lot of people think that it’s about the composition and about the performance, moving towards the way you capture the sounds and deliver them in recorded form. What do you feel are the main challenges to producing and mixing metal music that are different from other genres?

Jens Bogren

Could I just fill in one more thing there? So, when I say that the production is probably much less important than most people think, I should also say that there is a discrepancy here between the end listener, the non-musician, and the musicians because metal is also a community of a lot of musicians that are record buyers and consumers of other bands. And those people tend to think that it’s more important when the production is quality, right? For example, I know people who could listen to an album solely because of the snare sound. Or if there’s a really good bass player, for example, that has the sound that could really bring forth that band. But that’s more important for the musicians; when it comes to the broader mass, I know that it’s not so important to those people. But I will say this: without having the scientific

data, I would assume that there are more musicians in the metal scene than any other genre, maybe except jazz and classical music.

HiMMP

Yeah, that's interesting. You have a community of metal musicians, and the way that they will listen to music is very different. It's always that thing of whether a 14-year-old metal fan in Portugal will tell the difference. But what do you feel are the challenges of metal music production—are they far greater than those of other genres?

Jens Bogren

I think there are no other genres on the planet that I know of that sound as bad in its raw form as metal music. If you put these two mics in a space, the orchestra would be the best example of something that just sounds good. It's orchestrated, selected, and conducted to sound good on its own. If you have a singer-songwriter, it's a little bit the same thing. It sounds good. And the more stuff you add, the pop band can still sound pretty good on a stage, or at least an unplugged version of it. It's the same with maybe a country band or something. But as soon as you start to electrify things, and you start to distort things, and then you start to play a little faster than you might be able to and go into a rehearsal space of a metal band, it sounds absolutely terrible. Because they have not been trained to make their performance sound as the end result, they're only interested in playing their riffs. The drummer is only interested in nailing the things, not necessarily thinking about how loud should I play on that cymbal? How do I need to play on this tom? How do I need to tune this tom? How do I need to make it sound?

It's like, the whole metal scene, especially today, is something else than what you have in the rehearsal room. And that's also a little bit unique in an extreme way, unique for metal bands. At least most of them. Some are a little bit more dogmatic or when you're down to wanting everything to be organic. I guess most metal bands have an idea of a sound that is very different from how they are actually sounding. And that's based off albums they've heard and some sort of image in their head. There are exceptions; some bands are very dogmatic in terms of the organic sense. And they want it to sound like, 'Yeah, this should sound like when we play live or something'. And I guess that's fine. But usually, people think about their sounds, especially when it comes to the drums. But it's very different to what you have. They basically come with their drums, and then it's up to the producer to completely destroy that into something different.

So that's a big challenge. And that's also why I think, in the metal scenes, you choose your producer based off the sound you want, which is a weird concept to me because the producer, historically, is so much more than a sound man. Usually, in my perspective, you would choose the engineer, the

mixer, and then the producer based off completely different things. But since bands, most of the time, don't even know what a producer does in music, they think it's about the sound, which it very well can be. But usually, there's so much more to it. So that's interesting; people usually come to me for the sound, but they don't always realize that I have this other pattern of things that I would actually help them to do. And that also affects the sound, the way the vocals are arranged, the way various things are done right. But for the actual sound, I guess the mixing is usually the most important thing. And hopefully, the recording and engineering part has been done in a way that we can get from this poorly sounding rehearsal band into something they want.

HiMMP

So, we've chatted about heaviness in the metal music genre and heaviness in other music genres. But when it comes to recording, and specifically mixing metal music, what do you feel are the challenges specific to the metal music genre that aren't there with these other genres?

Jens Bogren

The big challenge, the biggest technical challenge, is space. And that is dictated by rhythm guitars. That's one of these things that you don't have in any other genre. And that's pretty interesting because I've been doing this for almost 30 years now. And I started out working with all kinds of different genres. So, I have some sort of ability, I guess, with whatever song, whatever style it would be. And it's so easy every time you get something in that doesn't have distorted guitars. It could also be, for example, if I'm doing like an orchestral version of an album, it's just all this space, the sound field, everything is open, and you can actually dial things in, and everything works. While the typical metal song, you could work on the drums, you have a nicely recorded drum kit in a room, and you listen to the room mics, 'Oh, that's nice.' And then you listen to the snare, 'Pretty good, let's add some treble.' And this is so nice. And then you add the distorted guitars that are, by design, filling up the whole frequency space because they are completely compressed from the tubes distorting, and everything is gone. It's like those drums that sounded so natural, so vivid, and gloomy, just sound like popcorn in there; it's like completely gone.

So that's when you have to start making the compromises if you wish, or you have to work and try to defeat those guitars in a way. And at the same time, the guitarist is such an important element in at least 95% of metal in terms of the riffs and everything. At the same time, all the details in the drums are equally important. So, you have to start to make these compromises, start to maybe compress harder than you would actually think you want, especially when you solo-listen to things, and basically start to create more even, more focused harmonics, to be able to help cut through those guitars. And

you have to start compromising everywhere; I would say a metal mix is one big compromise in order to make it work.

The most important thing that goes with all mixing, but especially here, is that if you start to isolate things too much, it's not going to work; you would have to always have those guitars in there. Or you will be lost in terms of, yeah, you can work five hours on creating a drum sound, add the guitarist, and everything is gone. That's like my standard thing. When I start mixing, I always start with the guitars, at least to some extent, even though maybe I build a mix from the percussive side. If I don't have the guitars in there already, I'm going to be lost. If I would sum it up, the big challenge is the lack of space. That's the big challenge when mixing metal.

HiMMP

And continuing from that theme, that challenge that you've got—if you had a band or the band's record label that came to you, and they asked you to make a production heavier. Of course, it would depend on the project in question, but what would your initial thoughts be about making it heavier?

Jens Bogren

The first thing would be to make sure that I understand what they mean by heavy. Because most of the time, if that kind of question would come from a label, I think that they just wanted the music to sound better, probably. The first thing I would do is to go back to the previous stuff and listen, why is this not heavy? And why is heaviness the goal? Like, is there something here? Maybe it's just about overall production quality rather than anything else, and they don't really know how to describe it. So, they use the word heavy because heavy is always good, remember?

But I will say that I would probably not do anything really different. Maybe it's also about selecting the songs. When I work with some bands, Amorphis being a good example, they always come with a big batch of songs. And they are multiple songwriters, so they give me the trust of actually selecting the songs for the album, which is a big responsibility that I gladly take on. And if I feel that, 'Okay, so these are the best songs out of maybe the 30 that I got, we have 12 songs here that we maybe should work on', then I would say that if the band want to go heavier, it's here it happens, let's select the heaviest songs then. I don't think anyone would really refer to actual sound or whatever because the sound will happen based off what fits the songs. So that's the important thing.

HiMMP

That makes sense. Reflecting on albums that you've produced, such as *Queen of Time* (Amorphis 2018), but also albums that have been influential to you, what are the albums that you look back on, and you're very proud of, from

how they represent the songs, the performances, this idea of heaviness, and albums that have been influential to you throughout your 30-year history in producing metal music?

Jens Bogren

It's a good question. When it comes to albums that have influenced me in terms of, well, anything, I suppose, will sound heavy because heavy is always good, right? I think that, for me, it's been a little bit different than maybe most other metal producers that I know because most other metal producers are a result of—we're a product of the genre itself in a way. Usually, by being active in some metal band, then they started to become interested in the production scene. I did not come from the metal genre at all. Well, maybe a little bit, but I was more into other genres, more like post-punk and stuff like that. And a lot of the '70s prog stuff as well was something that I listened to a lot when I was practising guitar and stuff back in the old days. And so my inspiration has usually not been from the classical albums. I didn't even know these when I started out.

The first time I worked with growl, I didn't like it. It was like, 'What is this?', but I had a pretty decent knowledge in terms of overall engineering in a way that maybe many metal producers . . . They come from a slightly different perspective and learn the craft more specific to metal, while I had done jazz and pop and classical stuff and had a different approach a little bit from most other metal producers. And that was, in a way, hard for me. But when I started to work with metal bands, I started to enjoy it. And apparently, I was pretty good at it because more came, and suddenly, I had only metal bands at my doorstep. So, I had to get into the genre a little bit more, and people were referring to these Entombed albums and stuff. I've had no idea; I never listened to them. Not that I was, 'Ah, this sounds shit'. I guess from the get-go, I've had a little bit more of a unique approach because I haven't been biased or influenced by all the same albums as everyone else.

So my ideal of sound was different. And maybe more hi-fi than most other metal listeners or metal producers. Also, one thing that I have really noticed is that the production is not so important compared to the compositions, the songs, and the performances. My own scientific results here are purely based on albums that I've done. The albums that I've done that reached the most people and had the best songs and the best performances are the ones that have become the most popular and the ones that helped me the most in getting new clients. And that just happened to be those because they became the most popular. I have done other albums that I personally think sound better but that few people knew about, and thus, they did not become influential. And I guess, in a way, on some of those albums, I've become a little bit lucky because I was working with some good bands.

Opeth, for example, has been like my most important band in terms of getting really big with two of the albums that I did for them, the *Ghost Reveries* (2005) and *Watershed* (2008) albums. They signed with Roadrunner and started to sell loads of albums. And they would have done that, no matter who produced them or no matter how it would sound. In a way, sure, we spent a lot of time doing our absolute best on those albums; we wanted to show the Americans that we could do something really great. And speaking of which, on those albums, I was more or less completely unknown in the metal scene at that point. And the American label wanted some known mixer to do it, but the band insisted that I should do it. And I got lucky in that way to actually be able to do something that was also unique because it did not sound like other metal albums that were big at the time. And that was really important for me to get that platform to be able to show what I could do for a broader audience. If I hadn't done Opeth, I would probably still be doing local bands or something.

HiMMP

Fascinating. Just more on the conceptual side of things, we chatted about the challenges of metal music production, the space that the guitars take up. What do you feel are the trade-offs and limitations with your processing approach when mixing a metal album? In other words, with increased drum cohesion, there's the potential for reduced clarity. And with thicker, denser guitar tones, they mask the other instruments. What are you trying to do? And what are the trade-offs, if you know what I mean, that if you make the guitars thinner, it allows the bass to come through, and if you make the bass more in the lows, it sounds this, but it then compromises something else. What are those trade-offs that you're navigating when you're mixing an album?

Jens Bogren

I think the biggest challenge from a mixing and arrangement perspective is if I get an album in for mixing that I haven't been able to produce myself. Because if you produce yourself, you can think about these things a little bit, like how it's going to work down the line. Let's not put this viola in this range because it's going to be a problem. Let's find something else instead. And that way, you have arranged the song in a way that will work in the mix. But if you get an arrangement that is made, maybe produced by the band or something, then you just have to do the best you can out of it, right?

And I would say that for most metal, and how it also mostly differs from more like rock, because rock also has distorted guitars, but usually they won't have as fast and intense drumming. Usually, they have a drum piece and a playing that sounds good on its own. While in metal, you usually would have fast passages where the snare doesn't sound good. And the kick drums are

so fast. You either take the whole low end if you want a full, rich kick, or you make them really thin, so there's some more space for the guitars. And maybe there's this important palm muting riff going at the same time that is more important than the kick drums, and then you would have to constantly compromise and find ways and also automate through the mix. Like in this section, I need the kicks to be thinner because I really need that bass line to come through. On this section, it's slow; it's like halftime; the space, okay, but the kick sounds like a joke when they come from the previous part; then I need to rework the kick drums into being longer, having more space, and at the same time, make that transition sound natural, so it doesn't sound like it's a new drummer coming in.

So those are challenges. Every time I get something more rocky in, with more standard drumming and a little less distortion of the guitarist, it's so easy. You can work with compression in a way that they engage rhythmically with the drums while in metal, like playing like this and double kicks like if I put parallel compression on, it just dims. And you will have to find different ways, like, okay, so I would need to leave out the kick drums from my drum buss, and then it doesn't respond to the kick anymore, sounds a little too boring. Maybe I would have to create some key pointers so that I could get that motion into the drums. Again, it's all these compromises that are the big thing here. Just like there's so much of it in metal mixing into making it sound natural, but it's actually like one big result of a lot of effort into finding the ideal mix for each section in a way that I haven't really found in other genres.

HiMMP

Fantastic. And we've talked about the importance of the space of these harmonically distorted electric guitars. I'm sure it differs from project to project, but do you have any broad principles with saturation and distortion and tape emulation that you will often use in the mix with other instruments? For example, overdrive distortion on vocals or bass or other saturation principles that may make them more cohesive with the guitars or have that additional frequency content?

Jens Bogren

I would say that in order to create different spaces for each element in the mix, I do use a lot of distortion on other things, again, to be able to enhance overtones and harmonics and to be able to 'fight' those guitars a little bit. And I do that by trying to also vary things. I never use the same distortion. For example, if I help the drums with some distortion, maybe with tape emulators, I try to avoid using the same things on vocals. Or I might have some harmonic content generator based on my key buss or key keys and effects. That's usually something different than what I use for my lead guitars, for example, for that very reason to make it easier to mix them together. And

that goes with everything; it is the same with guitars. If I have four rhythm guitars, for example, I always try to have three and four in some different cabinets or different amps, usually on the cabinet side at least, or a completely different set-up because they will blend much better together.

That's the same with the solos and lead guitars; it's never the same set-up as the rhythm guitars because it just won't mix together. Which is weird; you might think that they would mix very nicely together if it's the same sound. But for some reason, psychoacoustically, that doesn't work. But as soon as you change the cab, change the microphone, or do something that is fundamentally different, then it mixes itself.

So, when I produce an album, and I record all these things, that's how I think as well, if I have something that's going on there, let's say it's a lead guitar, and then that lead guitar is played with an octave, I try to change something for the octave performance. I don't just have one set-up for everything because that's going to create issues for me in the mix. That's the same if I produce vocals. I usually record backing vocals with a different microphone than the lead vocals. Again, it's like it mixes itself; it's so easy to get it in. While if you have the same microphone in the same chain, it's harder to get the harmony vocals in there together with the lead vocals.

In a perfect world, if I can do everything from the production side, sound-wise, I have the idea from the very start to the end of how things are going to blend together and what kind of methods and tricks I can do along the way to make them fit in together. These are things that people usually don't think about too much, I guess.

HiMMP

And along the way, those tricks that you use to make things work together. Does your approach with parallel compression and/or room mics change a lot from project to project? Or do you have a preferred route that you tend to find works in your mixing?

Jens Bogren

I really wish that it was possible to have a template that I could use every time. But it's so complex; maybe that would be a little easier if I were always recording myself. Then, I guess I would fall into this trap of doing things the same way. But since I also work with so much different stuff, the whole world has changed, and people's ability to record on their own and album budgets are usually much smaller these days because people don't sell as many albums. That way, I get all kinds of things in, so one product could need a completely different approach than the next one.

But that said, of course, there are always some ideas that I have, or at least starting points, that I think, 'Yeah, I'm probably going to work like

this'. But it all comes down to the material. Like on this album, the drums have the potential of sounding organic because they're really well recorded and played, so I'm going to absolutely go for that. That's my baseline, as organic as the material can handle, which is no absolute truth, but my opinion. And then I might get feedback, like, we want it to sound a little bit more organic. Okay, then we'll also sound less clear, probably a little bit more rough on the edges, but that's probably fine. And then I will try that. If they then say, 'Well, actually, we want it to be a little clearer', it's like, okay, but you also told me about the organic thing, and here's the thing. And then you will have to find some middle ground; maybe you go back, or whatever. Or it could be the opposite. Like, I think that the drums were super well recorded; I have created this wonderful organic mix. And the band would say, 'Actually, we want it to sound more powerful'. They're Germans usually, and then I would say, 'That's okay. It's a shame, but I can do that'. And that way, I have to adapt.

And that's another thing: I might have my ideas about things, and people come to me, and they usually like what I do because they know what to expect, sort of. But bands are so different, and taste is so different, like we talked about before, how heaviness can proceed in such different ways. The same goes for the taste and style. I could work with one band that just calls for 'one more reverb on the snare', the lead guitarist needs to sing, more delay, more delay, like, ah, this is getting really mushed up; like, from a technical perspective, it starts to sound like shit. But you have to go that way because, in the end, it's their album; I'm never going to listen to it again.

And then you come in with the next band. And then you maybe have that mindset a little bit like, yeah, delay on the guitarist, I suppose. And then it's like, 'Oh, no, I can't hear my notes; it needs to be a really dry solo'. It's like, okay, all right, let's get into that mindset. And then you do the next band, and they want super detailed kick drums. And then the next band is like, yeah, we want to be more of a rock thing. It's this constant thing of adapting, which I think is fun because I try not to have too strict ideas and preferences myself because, in the end, it's the artist's music. It's not my music. I'm just there to help and support and try to make the best out of it. If you get too full of yourself, and as a producer or as a mixer, and want to place everyone into your grid or your slot, then I think history might judge you.

HiMMP

I very much agree with that perspective of adapting and adopting different approaches for each band. And this idea of drummers wanting different qualities. Do you tend to change with every band as to whether you use drum samples taken from the kit used for tracking or your own drum

samples that you've created? And in each instance, do you tend to go with drier samples or more ambient samples, or again, is it just dependent on the project?

Jens Bogren

It is completely depending on the project, but I guess over time, I have created a pretty big sample library from my own productions and other things. I always go the extra mile and do the hard work when I start to mix the first song to actually try things out because that's another very important thing. When it comes to mixing, I don't know if that's extra important when it comes to this dense mixing; it probably is. I always try to scientifically approach the mixing. Knowing that I have selected what works the best, not just try something that works, go for that. But actually, also, this works. Let's try something else. See, and then compare: well, actually, this sounded better, or no, the first one was better. Or I could do several things, especially when it comes to really important parts of the mix like the snare drum or the vocal sound.

I can usually create a sound pretty quickly, forget about it, get rid of it, and redo it from the top with a slightly different method; maybe, or just by doing it again, it will become different. And then I can compare, okay, this became better. So, the other way, move forward. The same with guitars, for example. Because the brain adapts, the brain is your biggest enemy when you mix; it's like constantly adapting to what it hears. And you may think that your guitar sound is great. And then you come back the next day, and it's like, oh, actually, and I think by trying to work pretty fast and create a sound and then just forget about it a little bit, create a new sound, try that new amp, little different mic placement.

I could spend a full day in the studio with the guitar players who produce an album to find the guitar sound. But it's not like a linear way of getting there; we spend the whole day, and it's like, 'No, it's great.' Because then it might not be as good the other day because your head adapts. But instead, I usually try to work pretty fast and create multiple guitar sounds that I can then compare. And then we can make a little bit of a rough mix of the drums maybe and see this here, this guitar sound has everything that we like in terms of heaviness and like pleasing frequency response, aggression, all these objectives that you want a good metal sound to have. That it's supposed to enhance the delivery of the emotions that the music should bring. Because, in the end, that's what we are doing: we're not selling a sound; we're not selling a production; we're selling emotions. And that's what it's about. And I think that it's also important to remember when you produce and create sounds that the best sound is not always the best sound, if you know what I mean.

HiMMP

Fantastic. Thank you so much, Jens.

2.3 Mix of 'In Solitude'

HiMMP

What do you feel are the central challenges of translating this song to the listener?

Jens Bogren

I guess there were some technical challenges because this is a joint project, a collaboration with files flying from all kinds of people. I think that's maybe one of the challenges because some of this stuff here has been recorded by the artists themselves. And when you don't have that professional engineer, you will face some issues in terms of stuff being mixed into channels already, pre-processed, bad edits, and stuff like that. I had to do quite a lot of stuff, like, to begin with, in terms of clean-up and things.

And the next thing was to try to create the basic sound, which is always a challenge. It usually takes me like two days just to get the first song off an album, if you have like, this defining sound of an album, which is usually the case. Usually, it takes me about two days to iron out everything and feel happy. And then that sound also develops throughout the mix. I would say that every time I mix an album, it gets a little better sounding than if I just mix one song. Because you take that first song and use some of those elements as a starting point for the next one, then develop, and then you move into the third song and develop further. And then you might end the album mix by actually going back to the first songs that you mixed and trying to enhance things or stuff that you picked up and learned along the way.

So, beyond that fact, this is a song that, probably because of this whole theme of heaviness in music, has some different sections, right? There are some blast beats, with really fast kicks and everything. And then it's a little bit of a challenge to marry that with this slow part of the song that is halftime and really heavy and to make that sound coherent and good. And vocal-wise, usually, if there are heavy songs that just have the grunts, then it's a little easier to mix, to be honest, because then you don't have the pitch factor, and the words are a little easier to get across. I don't know; maybe it's the distortion factor of the vocals because, basically, when you sing with grunts, you distort your voice. And you naturally have more harmonics, so it's easier to mix them in a way, while a clean vocal has less information in the frequency range, and that makes it actually harder to get in somehow. And this is a lot of clean vocals and a lot of harmonies, and these harmonies by Ralf were recorded without maybe a complete logic in terms of the arrangement. So,

I had to spend some time breaking it up, recreating tracks to make them make sense, like this is low harmony one, this is lower harmony two, this is low harmony one overdub, etc. There has been some arrangement work to make it work. So these are some of the challenges here.

Guitars

HiMMP

When we were chatting earlier, you spoke about this overall context with the distorted electric guitars, which is a really important factor. Would that be a good place to start by having a look at your processing with this mix? Have a look at your guitar processing and why you were doing that, and just listen to what the differences are with your approach. Can I firstly ask, did you use double-track or quad-track guitars?

Jens Bogren

Well, the arrangement for this one is four guitars. And since they are at times playing pretty different things, I would either have to do . . . Let's say that the guitars are tracked in pairs. Guitars one and two are in unison with each other. And guitars three and four are in unison. I would either have to do guitar one and two full left and right, and then guitar three and four as support left and right. Or I could choose one and three or one and four so that I could get both performances on the sides. But I chose to use all four here since they are not playing the same thing, and if it was delivered that way, then I usually would do that.

When it comes to actually producing or tracking, this is a decision usually based around other elements. If there are mostly guitars in the arrangement in terms of . . . Let's say that there's a rhythm guitar-driven song; then I think usually four guitarists could even out the differences or quirks in performances and make a heavier sound. And there's also a sound factor there. The fact that you have the ability to craft a slightly different sound that complements the main guitar pair can be beneficial for the overall sound when having four guitars. That said, if I do an album that is very technical, let's say some thrash stuff where there's intricate picking and riffing, then I think it could sound just not as focused if you have four guitars. In those cases, I might choose just to have the two if they're good enough.

But here, it's a little bit sloppy played here and there. I think the four guitars help even out the performance and make it big instead of sloppy, if you know what I mean. 'Sloppy' is a rough word here; everything is very well played. But I think it was beneficial to have all four guitars. There are also many sections where the guitarists are driving; there are no lead guitars. If there's an album with a lot of lead guitars, then that would be a decision that I make; at least where there are lead guitars like octaves or some melody

or something, then I might leave out guitars three and four and just use one and two. If there are heavy parts that are focused around the rhythm guitars, I might use four guitarists only in those sections. It all comes down to the situation.

HiMMP

And have you gone entirely panned hard left and right with the four guitars, or is it slightly turned in?

Jens Bogren

I try not to be too subtle when it comes to panning. Because if you start to overthink the panning too much, you will end up with a mix that feels a little narrower. Usually, it is better to use the speakers for things or the centre. That said, I usually have some sort of rule, and then I break it all the time, depending on how it needs to be. Because that could also feel unbalanced if you have a single element somewhere unless it's balanced with another single element on the other side, then it works fine. And this has also changed a little bit.

I would say that when most people listened on speakers, I was a little bit more inclined to put stuff a little bit beyond the stereo field. You see wideners and stuff to psychoacoustically put things beyond and make them sound bigger. But when you listen on headphones, I think that sounds really weird. Especially if there would be one guitar on its own or one side and then you put it beyond, it sounds super weird to me in my head, listening on earbuds or headphones. Thinking about headphones, I would perhaps at least not go beyond full stereo. I might do it on the full mix and frequency-depending make the highs a little bit wider than the lows just to get a little bit more spatial sensation also on headphones, but focus-wise and on sections where there is one single guitar, I always try to think about the headphone factor and not go fully panned.

HiMMP

And have you processed the guitars on the individual channels or just the buss?

Jens Bogren

We can look at it. What was delivered to me for this mix was a bunch of different options. I got the DIs, the clean signal directly from the guitar, which is a standard these days that you also deliver that because then you could re-amp, put that signal into an amp on the mixing side of things, and actually recreate the sound, which is a very handy thing. And I always do that, more or less, because these guitars are going to be there all the time and dictating the frequency response.

If I get a sound delivered that I'm not fully happy with, I will just never stop mixing those guitars. I usually prefer crafting my own guitar sound specific to the album. And when I'm happy with that, I leave it; I don't process it much more; maybe there would be some time differences. And there could be differences between the sections, of course, and I might also add delay to the rhythm guitarist in parts, which I have done on a few parts in this song. That's one of these things that I usually do. Or if I get four guitars like I did here, I try to re-amp guitars one and two and use whatever I got. Even if I think it sounds bad, I could still use guitars three and four in addition. That way, I would also not end up creating too similar sounds for every album that I do. So that way, every album that I mix gets some unique trademark that was brought in. And this can, of course, be sensitive. Sometimes, the guitar players have a very specific idea of a guitar sound. And if I re-amp that, I might make decisions that I'm not supposed to make. But I would say, statistically speaking, this is completely fine.

HiMMP

In this mix, were all four guitars re-amped?

Jens Bogren

No, I did keep guitars three and four. And the first ones were the original tracks over here. I actually decided to re-amp with the 5150 and the stealth version of the EVH 5150 version three to get really technical. I used the same kind of amps that I got, just that it's through my own cabinet, my own mic chain, and my own frequency space or preference or whatever. And then I paired them together. Listening to isolated rhythm guitars is usually not so fun because they are a result of being crafted into the mix. We could listen to something . . . And then there are some third harmonies here where I could . . . I'm not completely done with this mix at this point; I'm probably going to have to boost them up a little bit. That's one of those points where I could choose to go left and right instead of supporting with guitar three and four as it is now; it depends a little bit on how important that third harmony is.

HiMMP

So, as we were talking about earlier, this difference in the tone filling in three and four.

Jens Bogren

Yeah, exactly. And even though I think that three and four may sound a little boxy and small, I think that it definitely gives character to them. And I think altogether it sounds better than just listening to one and two. And if we look at the processing side of things here, it's really not so much. I have these four guitars here; they're sending to a sum master output buss. I have this hybrid

system here where I mix inside the computer and then go analogue into some stuff and then back in. But the guitars are processed only with these plugins. And, of course, while re-amping, I also have some other stuff in there as well. It's like a combination of four microphones. Like some EQ, some transformer iron, and then back into the system.

If we look at this, this is the 5150 EQ, this is the EQ for the Stealth (Figure 2.1). And this is a pretty typical way of EQ and stuff that goes into a

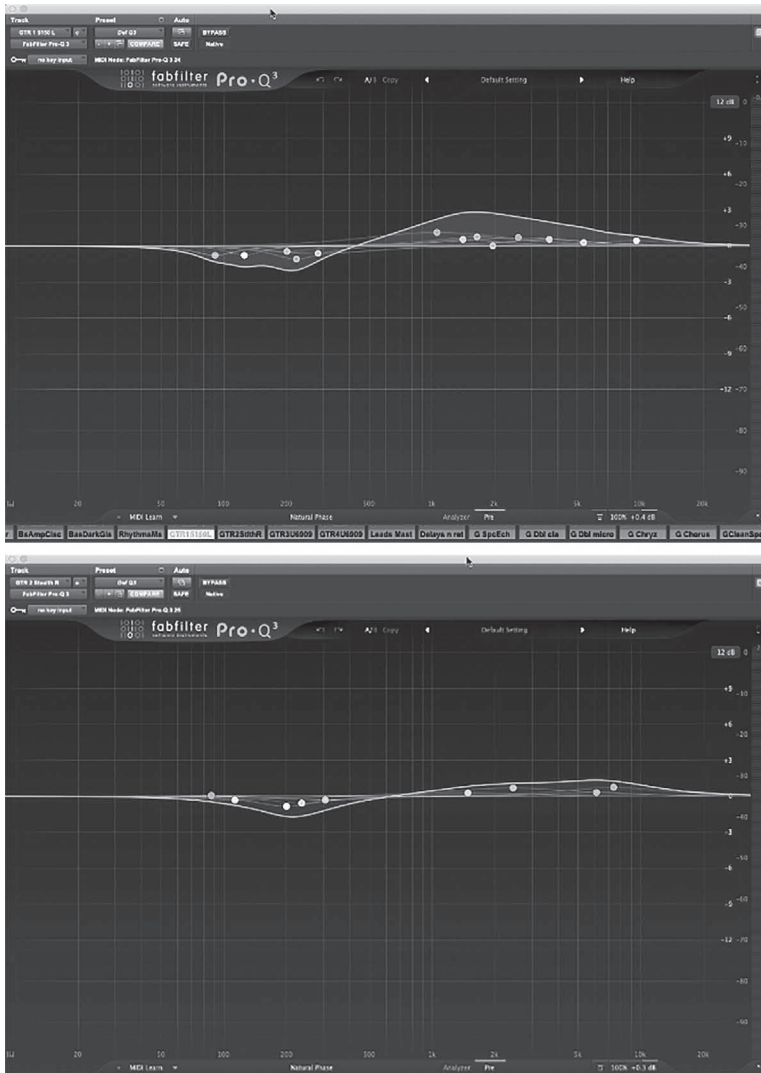


FIGURE 2.1 Different EQs on guitars 1 and 2. Both have a dip in the low mids and a boost in the high mids to improve clarity.

metal mix, where you basically have to get rid of some of the fundamental frequencies like the root notes or the first couple of harmonics. They usually build up quite a lot. And the same thing will happen unless you are a perfectly arranged orchestra. These things will tend to build up, and then they're playing on the same note with those elements in the band and the mix. And then you have to find ways of not making those frequencies become too much in the sum of everything. Getting rid of some low mids and emphasizing some highest or high mids is a pretty standard thing. It is also something that I probably would use on the overall mix as well, not having to do that on every channel if that makes sense.

HiMMP

Is that dynamic EQ?

Jens Bogren

No, this is just a static EQ that I'm putting on both. I use dynamic EQ, and I use multiband stuff as well. But that would be specific to solving a task rather than a standard thing. Because otherwise, it could create more problems than it actually solves. But sure, let's see. I should say that there is also additional EQ here, defeating a little bit of what I just did. It's the sum of everything with all three of them; I have actually boosted a little bit of low mids back into it at some point. Sometimes you craft something, and then you feel like, in the end, when everything comes further than that, maybe the whole guitar package needs to be a little bit instead of going in on every channel that is the guitar package, you can just do it on the sum of everything. If I would remove all of that in a way that sounds better to my ears, but then you put on the EQ, that is a result of getting them into the mix. Not a huge difference, but it is a little thinner and a little more focused. And like I said, if I would just be jamming, I would probably prefer just the raw sound there, but then you get into the mix.

If you listen to the guitar three and four, in this case, I have done some EQ there as well. Here, I also have a low cut that I felt that I needed to do, and there, I'm using another method that's pretty common and almost standard these days. I don't think it should be standard. Most people use this as a standard thing without actually evaluating it. But this is the thing where we find the fundamental frequencies, and we compress that frequency-dependent (Figure 2.2); you can see that when these guitars are playing the palm mutes, this frequency-dependent compression tames those palm mutes a little bit. And that's something I felt that I wanted to do. But I chose to do it only on guitars three and four to get the clarity of those palm mutes. They are also important because if you have too much low end on your guitar sound—then you probably need to do that. If you have a very dynamic guitar sound, maybe a Mesa Rectifier or something, or a Diezel VH4, that is very

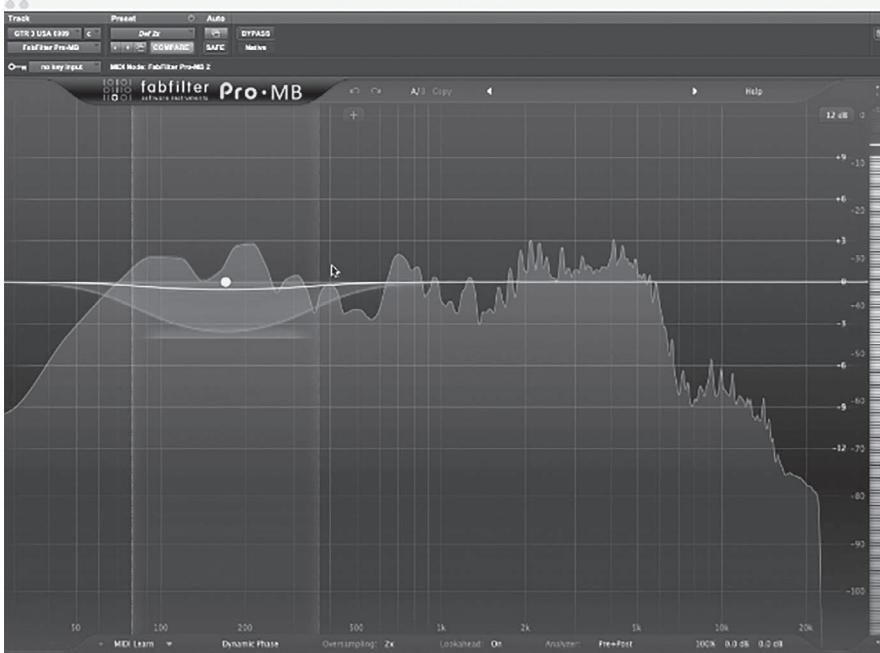


FIGURE 2.2 Multiband compression in the low end to even out the volume differences between palm-muted and open-pick attack on guitars.

dynamic in the low end—then you probably need to do this more than now. I’m using a 5150, which is a more compressed guitar sound in a way, so I feel that I don’t really need to tame them. It also depends on what microphones you use and all that.

But because sometimes you just need that—you need to feel those palm mutes—that’s like . . . it’s another thing, by the way. If there’s one element . . . if you asked me, ‘Jens, tell me one element that is heaviness in metal,’ then I would say palm mutes. Because that way you press the hand against the strings and then hit the strings, it creates this low sound, and you use it rhythmically. You use it percussively. And you use it to bring forth this low-end boost; it creates a lot of issues while mixing. But that’s what the riffing is all about. I know that for rock guitar, you usually say that the left hand is the most important, especially in how you mute the strings. But in metal, it is definitely the palm mutes and the right hand that’s always there. Sometimes, you need to tame it; sometimes, you need to do the opposite. On some occasions, when I got a guitar sound in and I thought it felt flat, I would flip this and just do it like this instead. And it would actually emphasize every time the palm mute comes. It all comes down to the situation.

HiMMP

And the other processing on guitars three and four?

Jens Bogren

On this one, I have a little bit more stuff on. I actually have a pretty severe EQ that I've matched to other guitar sounds I did in the past (Figure 2.3). And that was more to get them into a frequency spectrum that I felt that I was happy with. Or that complemented the others, I should say. And then there is also this little prototype thing, a machine learning speaker dynamics processor that is creating some extra harmonics and making them a little bit more vivid.

HiMMP

Speaker dynamics processing, that's interesting.

Jens Bogren

Yeah, this sounded a little bit flat. And then there's some additional EQ here (Figure 2.4). It can be layers of stuff. I try to have this rule—that I fail all the time—that I try not to stack too much stuff. And when I come a little further in the mix, I sometimes go like this, like in the mix: can I bypass this? What happens if I do this? And then I could clean up some processing stages and actually make the mix a little bit more alive and interesting that way. Sometimes, that is also the case for drums. It felt like I needed to do something at

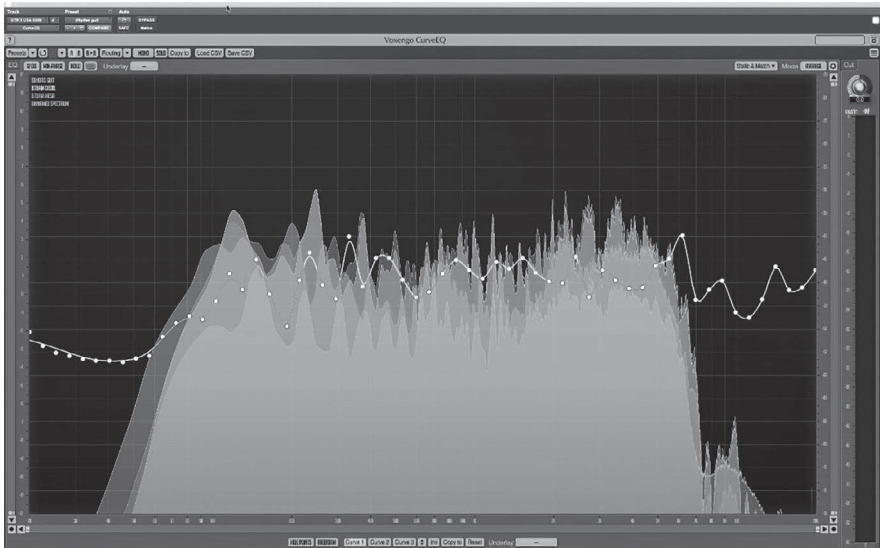


FIGURE 2.3 Analysis of the frequency spectrum of guitars for tone-matching.



FIGURE 2.4 Speaker dynamic processing for guitar cabinets and multi-effects processor.

some point on the drum buss, but then, as the mix advanced and I got a little further in the crafting of the overall frequency spectrum . . . maybe that tape thing that I had on the drums—how does it sound, actually? Does it make the snare pop if I remove it? Or could it be the opposite? There are no rules in this game.

HiMMP

Could we just listen to the guitars with the speaker dynamic processing taken off? Is it on the guitar sum as well?

Jens Bogren

No, it's not. That's another thing. Here, I'm using parallel compression with a little bit of a stereo thing. This is very slick, just mixed in tiny into the guitar buss. This would be crazy otherwise. It's just a thing that I chose to do for a little bit of vividness, and it is very specific. And with the speaker dynamic processing, it's going to be too subtle to hear for people, I think. It's really on a subtle level. If you cannot hear a difference between IR and the real amp,

then you're not going to catch it. But I might be using it quite a lot on that one, though. We can do like this; I can tell you approximately how this is.

And again, I've never listened to these in solo. Everything I do here is a result of what needs to happen inside the mix. Solo-listen to this; I don't even know what I did. Here, you can hear this pretty scooped, really beefy thing. And I needed those guitars to complement the main ones, not by scooped low-end kind of things, like a pretty filter sound. I needed them to come forth in the mids and give the tonal character more. So thinner sounding, but the place that they could have without going in and messing with the main guitars. And usually, I would have the bass in as well when I listen to, to make sure that there is a space for the bass.

HiMMP

And what is the last processor on your guitar sum?

Jens Bogren

That's a different topic. This is very specific to the way I mix. But this has been used in various forms since the '80s, at least. And it comes down to the fact that the vocals are always the most important thing. If I go over to the vocal tracks over here, I am actually sending the lead vocal tracks onto an auxiliary buss, or send, what I call the 'key buss'. And then I use that key buss to trigger some compression, or ducking, on various elements of the mix (Figure 2.5). So, every time the vocal's active, the rhythm guitars would dip down just a tiny bit. You shouldn't be able to hear it; it would just be like psychoacoustically masking things and helping the vocal come forth. And then, when the vocals are gone, it doesn't sound like the mix is dropping, but the rest is coming back a little bit. On a very subtle level, I don't want it to sound like it's moving or anything. I do tonnes of automation as well to do whatever I need. But instead of having to do that, like around-the-vocal kind of automation that I feel is needed, then I'm using that method, and that has been used for ages.

A classic thing for hit singles in the '80s was to use some compressor on the whole mix. And then you triggered that or keyed that from the vocal track only; sorry, the whole mix minus the lead vocals, and then you sum that together afterwards. On many of these '80s hit singles, you would route all the instruments to one buss and put a compressor on which you side-chained from the vocals. That way, all the instruments ducked a little bit away as soon as the vocals were active, and then you mixed it in with the vocals post that compressor. I do that method, but instead of using it for everything, I usually don't want it to affect my drums, for example. And I want it to affect keyboards and lead guitars more than rhythm guitars because rhythms are such an important thing as well. And usually not the bass, so that way, I can place these duckers and side-chain them from the vocals



FIGURE 2.5 Compressor side-chained to vocals to ‘duck’ guitars whenever the vocals are present.

wherever I need them. And I even use that key buss also for my delays. I have delay returns here for the vocals. And then, I put a compressor that I key from the vocals itself. So, as soon as the vocals are active, it would dim down the effects a little bit, and then the tails become a little louder. It’s like subtle things that I wouldn’t recommend to anyone, like getting into and thinking is too important because that’s not where the mix is happening. But it is maybe that last half of a per cent.

Bass

HiMMP

But certainly, where the mix is happening is the bass sound. And again, with this mix, you’ve delivered a bass sound that not only works really well within the context of the guitars and obviously the drums, but it’s got note definition and clarity while still having a really tight sound. And I’d love you to just have a listen to the bass with the guitars one more time and then take us through your thoughts and processing approach with the bass.

Jens Bogren

Well, my main processing approach is that I never listen to the bass in solo. Doing this is a different concept than I'm used to. And it might be weird, like, I might realize now that the bass sounds like shit, but that's how it is. Alright, so this is all together. I guess what I do is either re-amp the bass or use what I've received. I guess what I usually try to do here is not to listen in solo like this. Of course, for the first evaluation step, what kind of tracks do I have here? If it wasn't me that recorded them myself?

Then I would try things, and in the vein of science that I try to keep to, I usually create multiple bass sounds, and then I use whatever seems to fit, but it is paramount that I already have some sort of guitar sound. I never craft the bass sound second to the drums and then try to get a guitar sound. It is the same way as I record. Actually, I usually record drums first and then rhythm guitars, and then I craft a bass sound and also adapt the playing of the bass to the rhythm guitars and also the tuning. In the same way, when I mix, I try to nail the drums and rhythm guitar sounds, sort of where I use some temporary bass sound, just to get an idea of exactly how much low end I can have in my rhythm guitars. There is constant back and forth with these things.

And with the bass, I suppose my personal preference comes in here as well. I prefer if it's not a completely flatlined, super-distorted bass sound, but sometimes that's what the production or the band ask for. And we'll try to process frequency-dependent, so the highs are more distorted than the lows. So that way, I can still have some dynamics and note clarity in the low end. However, if it gets too clean in the low end, the note clarity may suffer. When you interviewed me in the past, I showed you the technique of using the DI for the low end and then using the amp for the rest. I still do that from time to time, but not on this particular product, though. I thought the tracks that I got sounded really good on the bass department.

What I have done is base it around this amp classic. I guess that's an SVT Ampeg. And that sounded really good. I have used some of this Darkglass plugin. And for distortion, I think that pedal is very popular. I think it may work better as an addition than the main sound because it can create some weirdness in terms of the tonal information; some notes get a little lost. And that's something that I really listen for. When I tried this in the mix, I listened for character: what's the distortion level? How can we work with the distortion to get it through? Has it even been decided that there is hearable distortion? Sometimes, a gnarly bass that you can hear is the foundation of the heaviness. Sometimes, it should take a little less focus. It also depends on how busy the drums are. Is there a lot of kick stuff all the time?

I might then try to get the bass a little bit more focused in the mids or high mids (Figure 2.6). If there's a lot of space in the low end, I want my bass to fill that space. All of that happens without me thinking about it; it's just

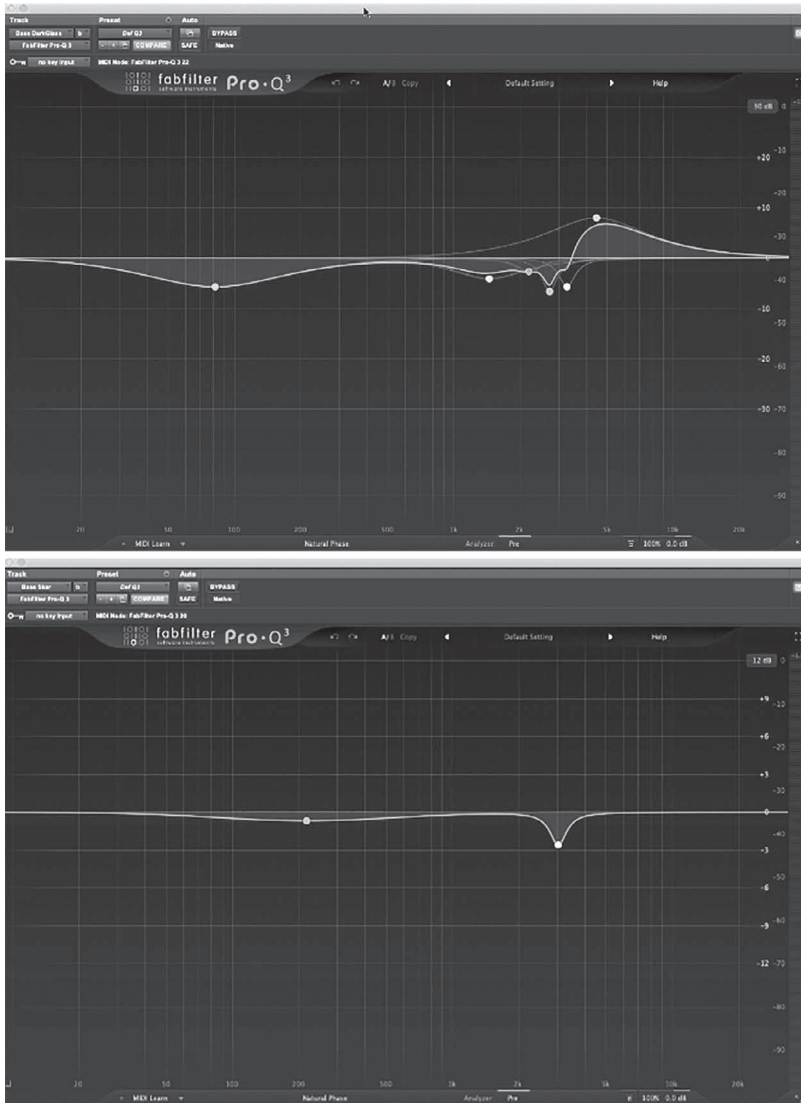


FIGURE 2.6 Bass EQs for greater clarity by reducing low mids and adding high mids. A notch around 3 kHz to attenuate abrasive qualities.

adapting to the situation. For some songs, I might even have three different bass sounds in the same song, depending on these things. For some reason, people always create the most complex albums and come to me for mixing them. It could be a lot of those things, like even fretless or finger playing around the section, and then you have the heavy stuff played with a pick, but when I listened to the bass, as I said, character is one thing.



FIGURE 2.7 Bass amplifier simulator STD Classic BassKnob by Bogren Digital on ‘dirt’ mode for a distorted bass tone.

And the other very important thing is when I select the gear to use, or the amp to use, or the mic to use, or the channels to use; in this case, several of those delivered all sound good. I try to listen for note stability: can I hear all the notes? Okay, now the bass line is getting lost; is that just a frequency thing? Maybe it is, and then I can fix it with EQ. Sometimes, it runs deeper than that somehow, like the harmonic content; it’s just not great, and it will create issues in how audible the notes get. And in those cases, I don’t spend time on it; I just re-amp it with something else. Or I use some software. I actually have software that is based on my set-up, and that has made life a little easier. Especially when it comes to maybe mocking up a bass sound for creating the guitar sounds, then I have something that is very close to something that I usually would like in there.

HiMMP

That’s the One Knob.

Jens Bogren

Yeah, it’s the BassKnob [STD Classic, by Bogren Digital] (Figure 2.7).

HiMMP

And you use the Trondheim Audio SkarBass One as well?

Jens Bogren

I use very little. Actually, I went back and forth, and this is what I’ve settled on. Mostly the Ampeg, and then I have the Darkglass, which just adds a

little bit of gnarl here. And the Skar, whatever that is, sounded really good. But this one is seeing some addition. Then there was one here that I could have crafted the bass sound around as well, but I chose not to. In the end, it was just a different phase relationship that didn't do any good to the tonal stability of the bass, so I got rid of it. And then I do have my own. Let's see; I have a version here that is not bounced. If I have plugins running, I usually try to print them, so nothing happens with them. But there is one here that I'm adding in for stability. It is this BassKnob, the STD Classic. And I should also say that there is some compromising processing going on in the bass as well.

Usually, I find my channels, and I put them on. And then I would usually have some sort of this, again, old '80s trick with ducking a compressor for the kick drums, which is hard when you have double kick drums. But I usually try to find a balance there. And sometimes, I would automate that send, so as soon as there are double kicks, it wouldn't really affect, or if I have a different bass sound crafted for those sections. Here, I have a ducker that goes individually on all tracks to avoid any latency that could happen in the processing stage. And then I sum up the bass. And there, I am using some multiband compression (Figure 2.8) around the fundamental frequencies and also around the treble of the bass. I usually see it like I'm able to push the

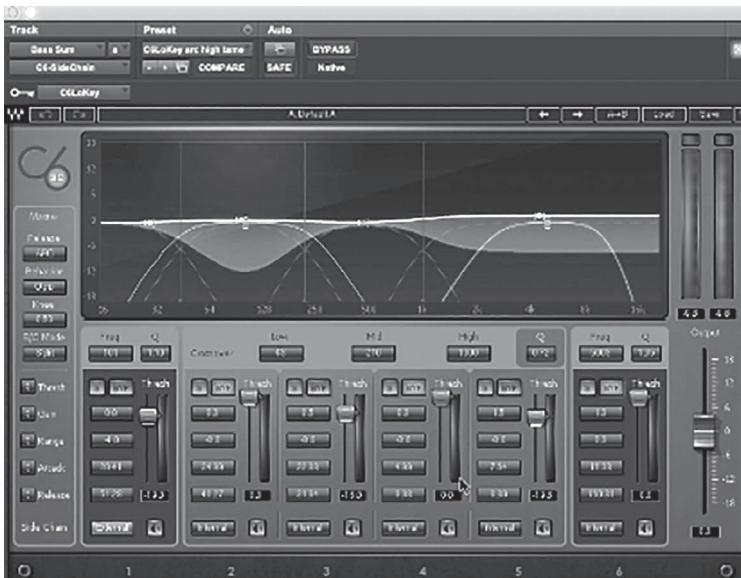


FIGURE 2.8 Multiband compression on the low and high end of the bass, allowing more drastic boosts in these frequency areas with a lower risk of boomy bass or abrasive treble on certain notes.

treble of the bass if I also tame it down a little bit at the same time. It depends on the sound, of course, and how it works.

But that's usually how it seems to work fine for me. And with this little special plugin, I'm also able to actually duck the bass not only from the kick that I'm doing, like broadband level. Usually, I can also do that frequency-dependent if I want to. But I'm actually doing some low-end compression based off the toms. So, when the toms are active, they have a lot of low end. This comes down to a mastering issue. Because if you master for CD, you usually want to get pretty loud with it. And then you would have points where you have distortion on the master. Usually tom fills, especially tom fills inside solos, are the most energy-rich sections of an album. I try to think about that when I mix, so I don't create issues for the mastering stage unless I have to. Every time the toms come and fill the space with low end, there is a band here that pushes down the low end of the bass. And that space fills up, like masks with the toms; you don't really think about it either. That's one of these special things that I would say is pretty special for metal that I tend to use.

HiMMP

And are you using broadband compression on the bass?

Jens Bogren

A little bit. It does sound like there is already some compression going on here. There is certainly some compression in my own STD bass. And then I am using a little parallel thing here again, similar to what I used with the guitars, but maybe a little bit more on the bass. There is this Waves plugin [CLA Bass] (Figure 2.9) that has a very interesting sound and an interesting distortion that



FIGURE 2.9 Multi-effects processor on bass for compression and width in parallel mode.

I like to use in parallel with some chorus effect, and I usually use this compressor as well. And then I mix it in, so it's like some parallel broadband compressor on the bass. But that depends; this sounds so good, so I didn't feel the need to do it because if I had used something else, then I might have put more broadband compression on, but I never do anything by default. Everything is always a matter of 'How does it sound? What do I need to do?'

HiMMP

Is there any EQ on the master buss of the bass?

Jens Bogren

Yeah, just a tiny bit of EQ (Figure 2.10). I guess those sounds are crafted already. And then I do finish off with a little bit of a limiter just for those resonance blooms that can happen in the bass because you play with the pick. And if you look at the waveform, you know how the notes go like this. One important thing for that not to be a problem is to find the best source of bass sound; then, most things will solve themselves. And then I do some of that low-frequency-dependent compression.

And for that little last few per cents, I shave off with a limiter [Waves L3 Ultramaximizer] at the end. So, if I need to quickly lower or raise the bass in the mix, I usually do that with my out ceiling on this limiter here.

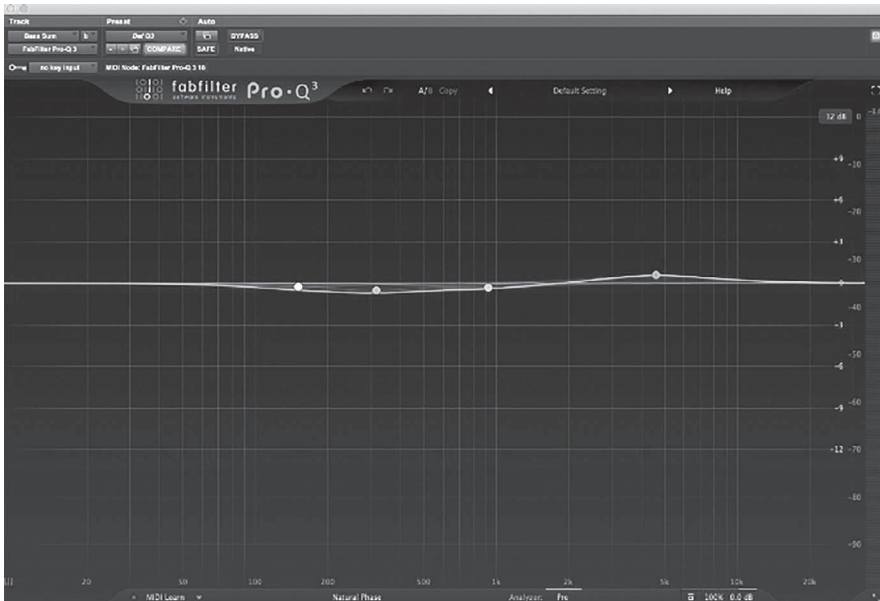


FIGURE 2.10 Final frequency tweaks on the bass sum to reduce mud in the low mids and add presence in the high mids.

HiMMP

And can you just break the bass sound down into the individual channels and then rebuild it together?

Jens Bogren

Sure, it's almost only this one. Then there is the Darkglass, it's almost nothing. I think I'm automating that one, though. In this middle section, I'm using a little bit more of it, but it's very subtle, to be honest. I might have been a little bit back and forth in the mix with this one. And the Skar, same thing there. It just adds to the lowest octave a little bit in a nice way. Again, I think I started off with that one a little louder as well. And then, as it progressed, I realized that the best thing was to have it like that.

And then I have the STD for this one. If I had used the STD on its own, I would not have used much EQ at all. But here, since I wanted to use it as an addition to this one, I had to get rid of some of the low end (Figure 2.11). You can see that I've been really into putting down the different tonal points that I thought were not complimenting the other one. All in all, it gets a little bit more like engaging bass with all these on, but it's mostly that one. And it's not every day that I take a bass track that I get in for mixing and use it like this. So that was really cool.



FIGURE 2.11 EQ on the bass in several areas to craft a space for it in the mix.

Drums

HiMMP

Could you listen to the bass with the drums? Right, and the way that you built the kick drum, did you use the sample from the kit used for tracking, or did you use your own sample?

Jens Bogren

My philosophy is that I always spend a lot of time trying to work with the real, organic material as much as possible. It depends a little bit on the style; of course, that goes with the kick as well. I think the dynamics of the kick are that you naturally play a little heavier on the downbeats. These things feel so important that they are something that I want to try to treasure. But I haven't sampled with the real. I usually try to work with the real stuff as much as possible. And for anything that I want to add samples to, then it usually means that I need something else from the sound. So, then, it doesn't make full sense to sample from the session, right? It has happened, and it depends, of course. Maybe it's just a situation where it really needs to stay that sound or the organic, real sound and you just need a little bit more consistency or fix some bleed issue. In that case, I would do it. But most of the time, I would add something else.

In this case, we have the natural kicks that I've gained out a little bit to be able to use them more, but I'm using them pretty loudly, as you can see. And then I have a smorgasbord of samples, which was bigger to begin with. Like I said, in my scientific approach, I usually put a lot of stuff in. If you're going to use scientific approaches, you just need to be really good at killing your darlings, though, because otherwise, you will end up with lots of stuff. These are actually more sample layers, like the amount of them is more than I usually would use; I usually try to limit myself to a maximum of two. But here, for some reason, there was some other stuff that I needed. I've added one kick here for consistency, multi-sampled. It's supposed to sound as good as possible. This is also actually a performance of two different kick drums. So that doesn't take away too much from the original performance there. It's just the one kick. And then I have something else, which is more like a wet, dry-sounding thing for support. And this is a little bit more of an obnoxious-sounding sample, kind of where you put a coin on the beater. And this is also one of these larger-than-life kinds of things that I just blend in there.

The sum of those samples sounds like this, but it still sounds pretty natural; that's usually what I try. And if we listen only to the original, then you can hear that I have almost a 50/50 blend here: natural kick and the sample. And that has just happened to be like that. Sometimes, I would do 80% samples; sometimes, I will do 80% natural. It's all depending on how I can get it. But I always try to use as much of the original as possible. But I know a lot

of metal producers that would just go 100% sample on the kick. Personally, I don't like it. I try to use as much of the original as possible because, again, heaviness is in the expression; I don't want to destroy the expression. And if I do these sample things, then I try as much as I can to adapt to the original performance, so it becomes an extension of the performance rather than flattening it out.

HiMMP

We've obviously got these slower halftime grooves going right into blast beats. With the snare performance, was it a similar approach with the natural acoustic recorded microphones as with the kick drums, the principal focus around there?

Jens Bogren

Yeah. I try to spend as much time as I can and use all my skills to try to make the snare sound come through as naturally as possible. And for someone who is not into this thing, that might sound like a weird concept. Why would you not use the real snare drum? But a snare drum recording for metal, when you shift between sections like this and sections like this, it's physically really hard to play the snare with these various beats, like the blast beats, the on-beats, and the more like two-four kind of beats, consistent enough and good sounding enough, because a lot of the drum sound is in how you actually perform and how you strike the drum.

So, you get all these issues, say, in terms of consistency, sound-wise, and level problems that you, to some extent, can manage. You can compress it; you can use EQ to make it sound a little bit more like you want it. You can put some reverb on to make it sound bigger. And then you can automate all the hits up. Everything sounds sort of equal in terms of volume. But then you will get all these bleed issues, especially when you play the hi-hat; you can hear that here. I have created a version here of the snare that is already filtered out the way that I want it (Figure 2.12). If we listen to the original performance, it sounds like this. Like here, for example, it's more hi-hat than it is the snare drum. It sounds like you have a mic above the kit, right? But it's a mic that is as close as possible to the snare. And this is just the physics of it; this is how it gets. And if you try to get rid of that hi-hat in the snare microphone, you will have side effects. I usually try to use methods to get rid of it without side effects taking over.

We can listen to the one that I'm actually using in the mix. You can hear that there's no way of getting around that; every time you hit, you will hear those things. You can gate the snare a little bit, and you can use different types of methods to do that. I have two types of gating methods that I usually use for that. And then you can do other things. You can add bottom microphones, and to not just sound in the mix like pop, pop, pop, I usually

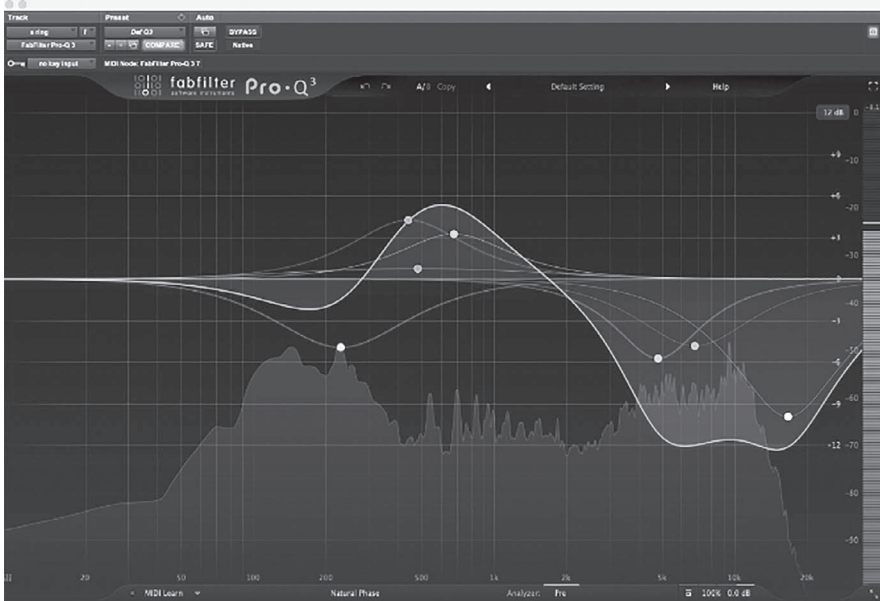


FIGURE 2.12 Reshaping the tonal balance on the snare to enhance the mid frequencies and to attenuate snare bleed.

try to work with some sort of extension as well. But then, if you do that with compression or some transient designer, you will run into a lot of these bleed issues. What I usually do these days is I parallel-process the snare, and then I bring forth only the sustain like this, and then I filter out the highs a lot, and then I mix that into my snare. That way, I can have this ring of the snare and the sustain without the hi-hat taking over. And when I have reached the point where this is how good I can get the snare into the mix, then I would start to add some support to it.

And that's usually another smorgasbord that might sound weird on its own because it's there for different reasons, but I try to have something that sounds pretty natural and ringy and airy, and that can sound good on fills. It sounds funny when you don't hear the context, like an ideally recorded snare drum. That's the kind of thing that I like. Some others like different snares. I like it when it sounds ringy, a little beefy, snappy, and nice. This is one of my own samples that I add in. And then I could have other things; I have one here that is more just for the ring. Actually, not in this mix. Here, I probably use a little bit more for the beef; I have also distorted the crack. It just adds like a beefy crack and a little ring. And then there is another one here, which is just for that modern metal consistency kind of thing. And then there is an obnoxious one that I sometimes use. That is just to compensate for what

I feel I lose when I get it into the mix and add all these rhythm guitars and whatnot to bring back a little bit of that sensation.

And these things could go up and down depending on the parts. And again, these have been put there because I tried it in the mix, which is like, well, not really that one, that one, yeah, maybe. Then I find some balance, and then I go in and get as I go along. If I start to be annoyed by, ‘Ah, I can hear that sample,’ that’s not so cool, then I will bring it down or take it away or automate wherever I need to get rid of it. And then I usually have some sort of little crack sample. These are my spikes; it’s like one of these DDrum microphones that are recorded that I usually try to have in as well, just to add a little bit of spike. I would say that if I had to use only two things in addition to my real snare, then I would say this is the most important one. And the next important one is a pure ambient sample with the spike and the ambience added to the real snare. I could work with that. The others are more for tonal shaping and if I want it to be bigger, but since this song is a little bit epic with the strings and stuff, I suppose some of these samples are more to support that kind of emotion.

HiMMP

And the track that was the ring, was it a duplicate of the snare top? Was that a transient designer that you used to get the ring out of it?

Jens Bogren

Yeah, exactly. In this case, it was the Transient Shaper from Softube (Figure 2.13), but it could also be the SPL transient designer or something else.

HiMMP

Sure. And then, your approach with sends to reverb from the various snare sources.



FIGURE 2.13 Transient designer on the snare for more sustain.

Jens Bogren

That's just the standard, old mixing console kind of thing. I have my auxiliaries, and I send them to reverbs. And I do it on stuff where it makes sense, usually the real thing, and then maybe I have one, two, or three samples that I also think can keep a consistency in the reverb that I use. And then, if you look here where I have my reverbs for the drum mix, I have four of them for everything. And then there's nonlinear reverb for toms, nonlinear reverb for snare, and then more of a normal plate or room reverb for toms and one for the snare. That's all I use.

The nonlinear one is like a gated reverb. But it's not gated because it would need a certain signal level to trigger. The nonlinearity is like a short reverb, like this kind of a nice reverb that extends the shells, while the reverb is more the whole of the plate. And that could also depend a lot on how it is. This is one of these things that, before I'm fully ready with this mix, the overall reverb levels might have seen some revisions as well, depending on how I feel at the very end. It's also one of these things I sometimes try, like I mix quite long without any reverbs and then I add reverbs for the final thing. Then I might come back the next day thinking a little too much reverb, actually, and then I go back.

HiMMP

And you've never gone down the Andy Wallace route of only sending to your verbs from the samples?

Jens Bogren

No. And well, I shouldn't say never because I have done that as well. But the way I work with my snare, I don't have a bleed issue that bothers me because that would be the main reason why not to do that because you're going to get this like aesthetical error when you hear the hi-hat goes in the reverb. If I felt that's an issue, then I would adapt and do it, but it's not a thing that I do; I usually work like that. Sometimes, I do more of the Chris Lord-Alge thing where I actually send to reverbs from the overheads instead of from the room mics, so it depends.

HiMMP

On the subject of Chris Lord-Alge, do you ever go for brightening up your reverb returns?

Jens Bogren

Yeah, those things can definitely have both. Here, you can see I have some EQ going on these returns; I even have a distortion here from the Decapitator (Figure 2.14). I just mixed in a little bit on the snare reverb, again to create even more harmonics in the highs to avoid getting too much bloomy low-mids.



FIGURE 2.14 Parallel saturation on the snare to create more harmonic overtones for greater clarity.

HiMMP

And the reverb times on the AMS, that's pretty short, right?

Jens Bogren

Let's check. 1.6 to 3.0 [seconds]. I mean, that perception can be different depending on a thing, right? And that's another of those things where I'm using other [Lexicon] 480 reverbs, for example, on the vocals in this mix. But then I use another emulation of the 480 here on the snare. I don't like to use the same type. Even if it's emulating the same thing, they will sound different (Figure 2.15), just so I don't end up with too much of the same frequency and phase content, trying to fight for the same space.

HiMMP

And do you also feed the reverbs with your kick, as well as your cymbals in this mix or rooms?

Jens Bogren

In this mix, I don't for the kick. I have two kick samples that do have some extra room in them, like this one. We can get that where you can get the sense of space. And then there is one that is solely room. But, for example, on that slow middle part, that could be a space where I would actually put some reverb on the kick as well. So that happens, but not by default. And there are also real room mics in the mix that usually sound way smaller than people think.

HiMMP

And parallel compression?



FIGURE 2.15 Two reverb units for drums/snare.

Jens Bogren

Absolutely. I usually take my whole kit, and I send it to one track here where I can control the whole kit. I might also have a little bit of compression on that, a tiny bit. Not always. And then I have what I call the 'add' here, additional compression. That's how I grew up hearing the name, which is the same as parallel compression. And then I could feed them equally here and just compress one of them, but because this is metal, and because the kicks are a real issue when it comes to energy, I have a separate buss that I feed to this drum parallel. And you can see that here on my snare tracks, for example, they go to the drum buss, which is the main buss, and then I have a send that says drum add, and those go to unity gain there. And you can see here the snare is feeding at unity gain. And the snare and toms would usually be what I feed at unity gain.

And then to defeat a little bit what the compression is doing, so it doesn't change my balances too much, I would go a little bit easier on overheads, for

example, it's like minus seven dB here, room, maybe even more, minus ten, almost minus nine. And when it comes to kicks, depending on how much fast kicks there are, I would feed them a little less, like a normal kick, minus six dB; the sub, there's a sub microphone on the real kick, minus thirteen. I would have an idea of how much I want to go into the compression. But I try to have that parallel compression going from the very start because it will affect a lot of how I perceive compression, also frequency and balances. So, I try to at least have some sort of mock-up parallel compression going from the get-go. And then I might do my scientific thing where I do a whole bunch of them and try what actually seemed to work better for this particular project.

HiMMP

Could we just listen to the drums without the parallel compression and then add it in?

Jens Bogren

Sure, it might also affect the overall room sensations; it could get weird, but let's listen to it. Yeah, that is quite significant. I guess I have some sort of rule to try to keep my parallel compression perceived as 50% of the sound. Sometimes, it could be a little bit more or sometimes a little less.

HiMMP

And do your reverbs go to the parallel compression?

Jens Bogren

Yeah, that has been a little bit on and off for me. But lately, or in the last few years, I usually do that. I send the reverbs to the same buss and to the parallel as well. And that's maybe mostly; then you can see I have them down almost 10 dB in parallel. That's mostly because I want them to follow, in case I do automation passes on these two things, so I don't want the reverb to stay if I take the volume down.

Vocals

HiMMP

Sure. Is it okay if we move on to your approach to the vocals mix?

Jens Bogren

Okay, so the vocals here consist of lead vocals and an overdub that is singing most of the time. The waveform's a little bit quiet here; one represents the original stuff that I got here for the mix. The other one, the lead tracks here, I have processed through a hardware chain that I have. Vocals is one of

the last beacons of analogue hope that I'm clinging on to. It's still very hard for me to mix vocals without some, well, in my opinion, important pieces of gear that I don't think they really got right yet in the software, and that's like 1176 and especially the LA2A [compressors], which I think react completely different than the harmonic content generated.

I have this old '60s LA2A that I like to use for most of my vocals. It's a chain, actually, that I've been using for this product to three compressors in the series that I run the vocals through, and then they are very much easier to mix. You can also see here we have a verse starting out with a pretty sparse vocal arrangement. It's a typical point where I would put a delay on, but I haven't done that yet. And lead vocal and the overdub, some delay that I'm using to create this little bit of haunting sensation of the vocals. It's a German singer, right?

HiMMP

Primal Fear, and a side project called Baron Carta.

Jens Bogren

And here's pretty straightforward. And then, when it goes into the chorus here, it's much more layered. I have a bunch of background vocals. And here, we can also hear that he's changing his vocal style. He sings cleaner, is not singing as distorted anymore, and that calls for different processing. So that's why I put that on a separate track. You can also see here that you're getting nausea from looking at my automation (Figure 2.16), down to the level of syllables, whatever needs to happen for the vocal. I usually refer to it as you want to keep the cork floating on the surface at all times. And the same with the breakdown; the soft part here has a different processing. Alice in Chains kind of part.

HiMMP

EQ-wise, what were the principal challenges, and what were you doing EQ-wise to get Ralf to sit in those big quad-tracked guitars?

Jens Bogren

I wish there was a universal answer to this, but I think that I tend to use compression and distortion and distortion by compressing as much as possible,

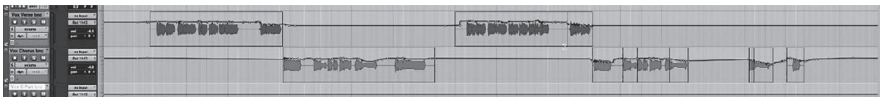


FIGURE 2.16 Detailed automation on the vocals to guarantee even volumes and to improve intelligibility.

and then I use EQ to fix the rest. A big part of the frequency response and the EQ curve comes from compression. You can basically see it as if you compress it with fast release times and make it distort. If you use pretty extreme compression like the Distressor, for example, I have this British mod thing switch that makes it distort these things, just creates more treble, and gets rid of low mids, and suddenly you have a mixable vocal track. Because if I start by trying to EQ and EQ and EQ, I will never end, and I get this spiky vocal track that is really hard to get in there.

I usually try to retain more low end in my vocals and use that as a driver into or as a catalyst. The compressor will react in a very different way if it can have all that low end in the vocals or low mids, and it creates more harmonic content. Then, I get something that is easier to mix in. Usually, that's what I start to do. I don't even touch the EQ; I try to work with compressors. If I feel early on that, okay, now it's too dull, it's too dark, the compressor is not doing what I want it to do, then I might process with an EQ before the compression chain just for the compressors to rack the way I want them to and then I'm usually 90% there. After that, I do the final EQ things. And once you have that, like harmonic content in the vocals created by whatever distortion you use, which is usually the case, as soon as there are distorted guitars, you usually need some distortion on the vocals as well, even though you can tell that these vocals are distorted when you listen to them, but they are pretty gnarly. And that way, the frequency spectrum of the vocals gets more even. And it's easier to use EQ, and you can raise the treble without it starting to sound too peaky.

HiMMP

Did you brighten Ralf up quite a lot in this one, or was it relatively subtle?

Jens Bogren

Quite a lot. You can see here this is the full chain. I haven't activated those first ones because that's where my hardware insert happens. These two things here are put before my hardware chain, which is nothing; this is just a game, actually 10 dB, that I wanted to push. They were pretty softly recorded vocals. I have this Sound Toys Devil Lock, a beautiful compressor, just for a little bit of evening out and a little extra distortion (Figure 2.17).

And then I go into this hardware compressor, which is the 1176, into the LA2A, and then to the Distressor. I think that's the chain I have currently, and then it comes back. And then I have one more compressor (Figure 2.18). It's just something to mildly even out on the post-side of the tube compression that I have there.

And then there is an EQ (Figure 2.19); you can see that I actually bring up a little bit of low end.



FIGURE 2.17 Distortion for wave-shaping on the vocals for tone and compression.



FIGURE 2.18 One of many vocal compressors for presence and even volume.

I have some resonances that I deal with here, trying to focus up, and there are some issues here in this sibilance that I couldn't deal with the de-essers, so I had to do some surgery. And then I boost the very high end just to get a little bit more pop sound out of it. There's a multiband compressor [Waves C4] that I use to organically tame wherever he's singing. And that works a little bit like

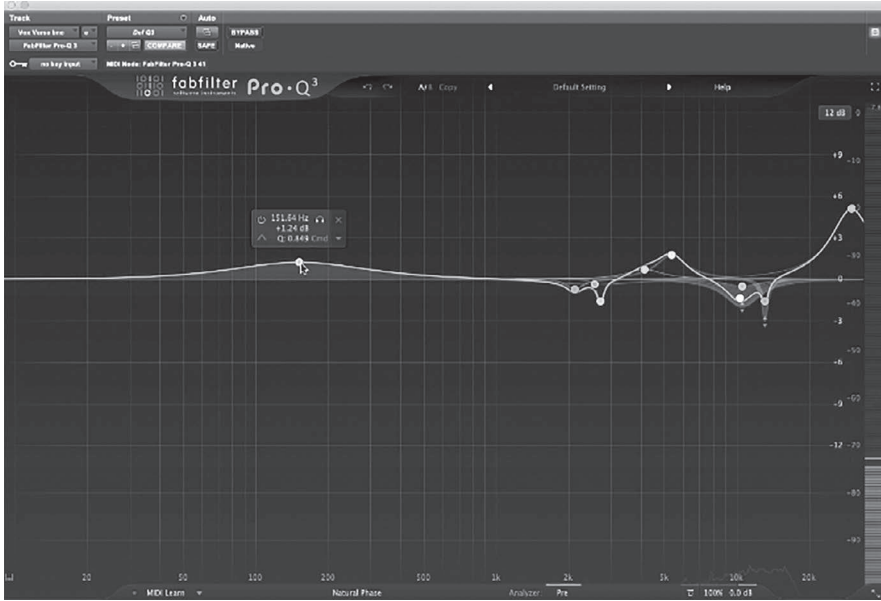


FIGURE 2.19 Detailed EQ on the vocals removing unpleasant characteristics as well as adding low-end body and high-end air.

an auto-mixer. If I didn't have that one, this nausea automation would have been even more severe.

And then I have some distortion here. Decapitator (Figure 2.20) is an old but brilliant plugin that I'm using; it's not so much, either. And then I use a brickwall limiter [Waves L1] on the vocals a little bit as well for sound, maybe more than for level. And then there is a tiny de-esser that goes in here as well.

HiMMP

Excellent. And what's your approach with spatial processing to Ralf's vocals? Is it a number of reverbs similar to the drums and delay as well, I presume?

Jens Bogren

Yeah, I usually get better results with delays than reverbs. It's just personal preference. I usually think that if you put a lot of reverb on it, you just de-place it, even if you can use pre-delay and stuff on the reverb as well. But they're for different things. For vibe and spatial quality, I usually prefer to use delays, and then I try to have some mono delay; that is the first one. Then I add stereo delay as well and make sure that I have timings that don't clash at any point so that it is a little bit more tail. Sometimes they would



FIGURE 2.20 Distortion (top) and de-esser (bottom) for adding intelligibility through added harmonic overtones and control of sibilance.

shift, so I would go a little bit longer and tailier on the centre instead. And then a little faster response on the sides. But that's a fairly typical thing that I use or should try to use some like here. I'm using Dimension-D emulation (Figure 2.21), which is the most careful chorus effect in the world, I think. It's very subtle. It's super popular among R&B and stuff where you want the lead vocals to sound like they're from everywhere. And that's the thing that I tend to go for, depending on how layered it is as well.



FIGURE 2.21 Chorus effect on vocals for width.

HiMMP

Can we just hear the vocals with some of those delay lines you're referring to?

Jens Bogren

It has a lot of artefacts here from him tuning. That's how it goes these days, especially when you sing with that distorted voice; it's really hard for trackers to pitch. If I had recorded those vocals myself, I would have worked harder on getting the notes where they should be in the first place because it's really hard to tune these things. Anyway. So, I basically put this Dimension-D thing on a level where I don't notice it myself, but I can hear the difference. And then there's a mono delay going that sits in the middle; it sounds like a lot now. But when you hear it in the mix, you don't really notice it at all; it's just creating something.

And then the stereo one. I could either do a padding delay, but I usually tend to do two different timings—one a little faster, one a little slower—and then compensate with the feedback so they end at the same time. And that, together with a mono delay, becomes so many small delays that you don't think about them too much, especially not in the mix. But if I do want a delay that I think about, not like these that just create space, then I would usually copy vocal lines or make a bounce of my whole vocal mix. And then I have that and can copy up two tracks that I have here that I call the spotters. Then, I have different note values. If I want a quarter note, then I would copy it to that one. If I want a half-note, then I would copy it to that one. And these could become like six, seven, or eight different tracks, depending on what I need. And I usually prefer that instead of creating an automated send to actually have them like that.

HiMMP

So, these are set up as delay lines, and you just copy the value that you want.

Mastering

HiMMP

Lastly, on to your master buss processing chain.

Jens Bogren

This could differ a little bit as well, depending on how it is. But I should say that, first, I go to my summing mixer, and then I have this SSL compressor that has a pretty standard rock setting, ratio 4:1, attack 10 ms, automatic release that's just barely moving the needle.

HiMMP

Not even three or four dB?

Jens Bogren

I've never done three, four dBs. Well, maybe technically, if you measure it, but needle-wise, it's just a very tiny bit. It depends. If it would be a rock thing, then that could be more like a mix into it. But here, when there are double kicks and stuff, it doesn't sound good if you go too much. I prefer working with the mix in other ways.

And then I do have an EQ as well here, which is just a little bit, like one dB lift in the top shelving, one dB left in the very bottom, that is sometimes defeated on my next EQ here (Figure 2.22).

But that's a fairly standard thing that I do as well. And then I have some EQs here just lifting a little bit of the top end. I have an MS [mid/side] EQ as well where I lift a little bit of low mid, a little bit of highs on the side only just to, you know, listening to Adele; how do those albums sound super wide in the low mids. I've started to do that a little bit. And then this is a gimmick plugin that I just tried, which is like the stabilizer (Figure 2.23). It's probably a little bit like the Gullfoss that you talked about.

And it is working pretty well. It's dynamic, so it does a little bit of the same stuff that I usually do during mastering with a linear phase multiband compressor. So that was something that I've been trying pretty recently. It's very subtle; it's super easy to destroy your mix with that kind of thing. I don't recommend it to anyone. But that's how it goes. That's another EQ here a little bit for the surgical aspect if I do find some resonances that we usually correct with this one (Figure 2.24).

And this is something that I just put on for this mix. I have some sound library stuff that I like and stuff that I've done myself and created an average of (Figure 2.25). And that average frequency spectrum is this big one here. And this is the current mix; you can see it follows pretty well, right?

There's some resonance here, and it depends on the riff and everything. And the more songs you put in, the more even this will become. But this one here, the brighter slime colour, is our mix. This is for me to check. And then

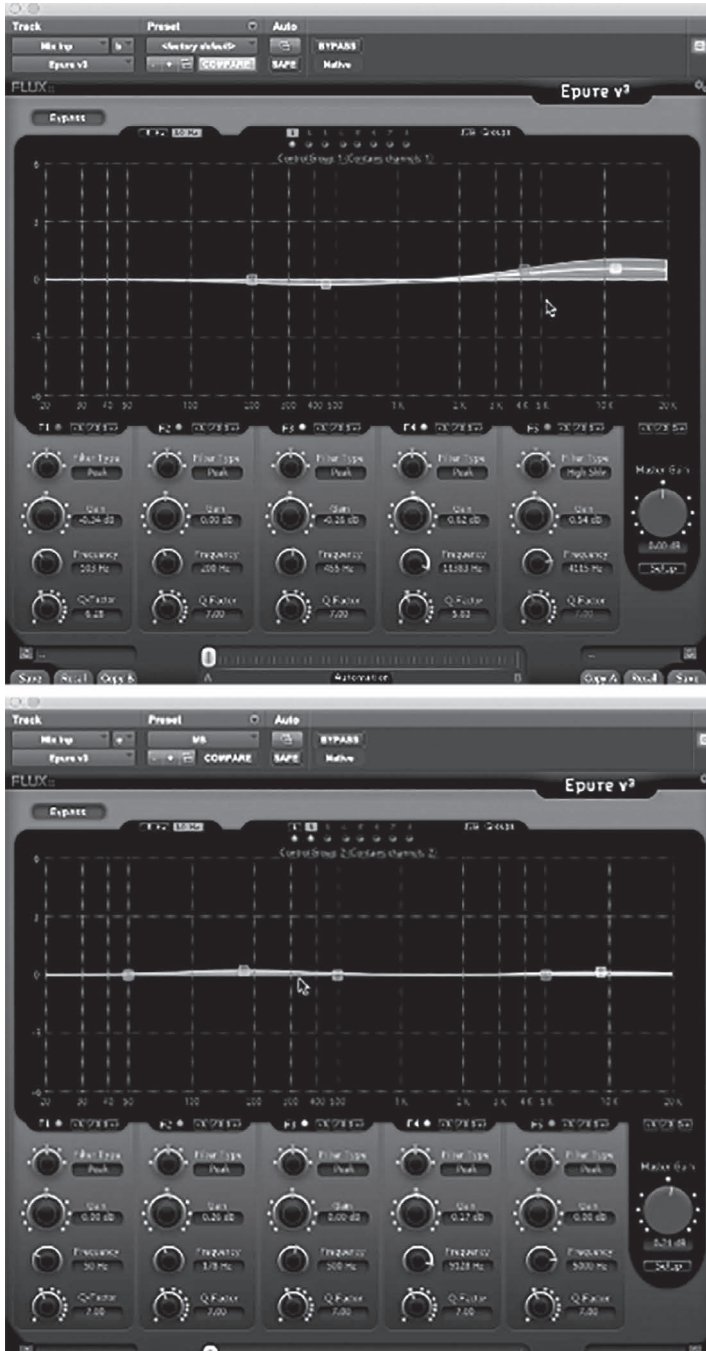


FIGURE 2.22 Two small boosts in the lows and highs for general tone shaping.



FIGURE 2.23 Dynamic processor balancing the tonal spectrum on the master buss.

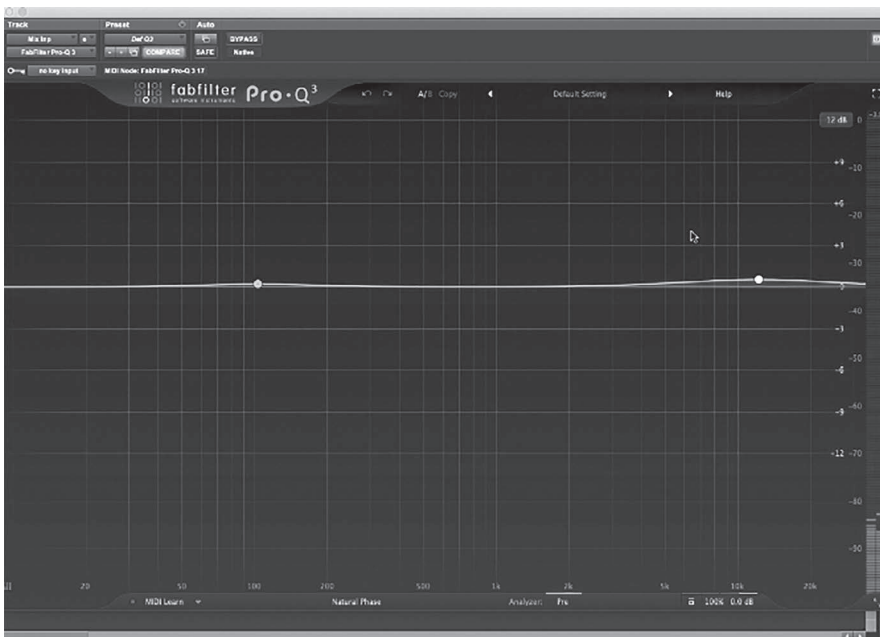


FIGURE 2.24 Minimal EQ for more general tone shaping.

I can do, like, super subtle; we're talking like 0.1, 0.2 dB, maybe, just an overall thing. This is something that I sometimes just bypass before I print it down for me to get a little bit better grip on what could potentially happen in the mastering and how that would potentially affect the mix. Then, I would

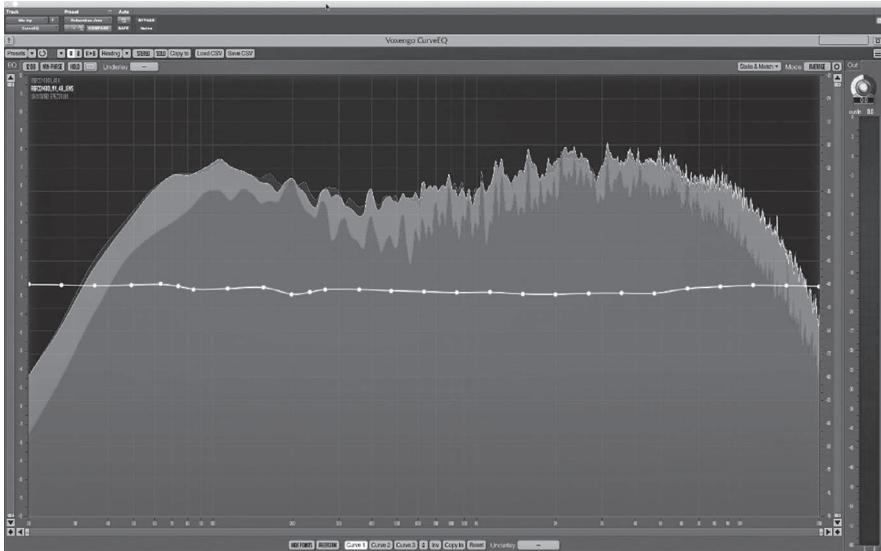


FIGURE 2.25 Tone-matching at master level.



FIGURE 2.26 Master limiter to sculpt the snare sound.

rather want to know about it while being in this phase. And a little bit of limiter that I'm using to sort of crack the snare (Figure 2.26).

This is also nothing that I actually print with. This is just for me to listen to emulate the mastering stage, so I don't come into a situation where I'm surprised by something that's happening there. And then I have another limiter (Figure 2.27), which is here solely for putting some extra dB up there for the clients, so they don't start thinking why their mixes are low [in volume]. But this is still two dBs away from the final mastered CD loudness, but maybe approximately where it could be in a digital release.



FIGURE 2.27 Final master limiter.

HiMMP

When we chatted last time, you were favouring clipping an AD converter for your loudness. Is that still the case?

Jens Bogren

Absolutely. That's how I master, but I always treat the mastering separately. This is not what you saw here. It's not my mastering. There's some emulation of mastering; some of it I will get rid of for the print. And then, I will go into the mindset of mastering, or I will send it to Tony [Lindgren] here to do that for me. And for reaching mastering level, then we absolutely do the AD clipping. I still think that's the best way to retain your snare in your mix while mastering.

HiMMP

Jens Bogren, it has been an absolute honour and an absolute pleasure. Thank you so much.

Note

1 In addition to our interviews, Bogren shares details about his philosophy and approach in a *GearSpace* interview: <https://gearspace.com/board/interviews/1414494-interview-jens-bogren.html> (accessed 5 March 2024).

Discography

Amon Amarth (2008): *Twilight of the Thunder God*. Metal Blade.
 Amorphis (2015): *Under the Red Cloud*. Nuclear Blast.
 Amorphis (2018): *Queen of Time*. Nuclear Blast.

- Amorphis (2022): *Halo*. Atomic Fire.
At the Gates (2021): *The Nightmare of Being*. Century Media.
Dimmu Borgir (2018): *Eonian*. Nuclear Blast.
Kreator (2012): *Phantom Antichrist*. Nuclear Blast.
Kreator (2017): *Gods of Violence*. Nuclear Blast.
Opeth (2005): *Ghost Reveries*. Roadrunner Records.
Opeth (2008): *Watershed*. Roadrunner Records.
Powerwolf (2018): *The Sacrament of Sin*. Napalm Records.

3

MIKE EXETER

3.1 Introduction

Mike Exeter (b. 1967) is a British sound engineer and record producer specializing in rock and metal. He began his audio engineering career in the mid-1980s, earned an engineering degree in the early 1990s, and later became head engineer at UB40's DEP Studios in Birmingham.¹ Exeter's career gained significant momentum in the late 1990s when he worked with the black metal band Cradle of Filth, contributing to their albums *Cruelty and the Beast* (1998) and *From the Cradle to Enslave* (1999). During this period, Exeter met Tony Iommi of Black Sabbath, entering a long-lasting working relationship with Iommi, Black Sabbath, and other influential hard rock and metal bands.

With Black Sabbath, Exeter contributed to *The Dio Years* (2007), *13* (2013), and *The End* (2017). The album *13* received a Grammy nomination for Best Rock Album, and its track 'God Is Dead?' won the award for Best Metal Performance. Exeter also worked on Iommi's solo releases, including *The 1996 DEP Sessions* (2004) and *Fused* (2005). Other notable collaborations include Heaven and Hell's *The Devil You Know* (2009), Ian Gillan's *Inn* (2006), and Judas Priest's *Redeemer of Souls* (2014) and *Firepower* (2018), which he engineered and co-produced. Additionally, he worked on Rob Halford's solo album *Celestial* (2019).

Exeter's engineering and production style reflects a traditionalist philosophy, consistent with his work with influential hard rock and heavy metal bands. Rather than relying on the latest audio technology, he focuses on realizing the artist's vision, focusing on arrangement and automation. A strong proponent of collective songwriting through jamming and live recordings,

he believes these methods best capture a band's energy. While Exeter has gradually adopted digital audio workstations like Avid Pro Tools, he continues to prioritize songwriting and arrangement during rehearsal sessions. For him, capturing sound at its source remains paramount, with the digital audio workstation serving as a tool for enhancing musical expression, particularly through precise automation.

Heaviness

Exeter has a distinct perspective on heaviness, one that is grounded less in specific sonic characteristics and more in overall musical and emotive criteria. Heaviness, in his view, is not exclusive to rock or metal; it can also manifest in other genres due to common characteristics, such as the wide frequency coverage and pronounced sub-bass found in electronic dance music. Within metal, Exeter drew significant parallels with classical music, citing their shared broad frequency and dynamic ranges, and their reliance on expressive performances. Central to both genres, and to heaviness more broadly, is the concept of comparative perception. Exeter defined heavy moments by their contrast with preceding and following sections, typically marked by variations in intensity and sonic density. He noted that classical and metal music alike provide ample time to explore atmospheres and emotions between sections, unrestrained by the brevity of a two- to three-minute format. For Exeter, heaviness is fundamentally about emotion, conveyed through sonic storytelling, with audio engineering and production serving to enhance the musical qualities inherent in songwriting and performance.

Exeter's traditional, performance-driven recording approach is key to capturing the emotional essence of heaviness, making him averse to overly 'produced' releases. As an engineer, he focuses on translating performances into the recorded medium through carefully crafted tone creation and meticulous gain-staging during recording, followed by detailed automation during mixing. Trained in the analogue era, Exeter frequently employs digital emulations of channel strips for their non-linear colouration. He is similarly an advocate of tape saturation, which he uses to reduce peaks while maintaining dynamic contrasts, a central element of heaviness, as dynamic variation can serve to enhance contrasting feels. Exeter further argued that saturation preserves more of the performative energy than compression, while remaining less audible and distorted.

In Solitude

Exeter's mix of 'In Solitude' reflects his production philosophy, which prioritizes the song and its performance. Despite his traditionalist approach,

he incorporated standard metal production techniques enabled by digital technology, such as using drum samples from libraries to enhance the kick and snare performance. In addition to compressors and transient designers, EQ was applied to wave-shape the drum shells and enhance their punch, allowing them to cut through the wall of guitars. While Exeter did not use the available sub-kick track, he retained a significant amount of low end in the kick (and bass) across both slower and faster sections to avoid the ‘typewriter’ effect. Rejecting the ‘unmusicality’ of fixed frequency filters, not available on classic consoles or set at fixed frequencies, Exeter preferred shelving filters, which he credited for the pronounced sonic weight in his mixes. He used volume and frequency automation to transition smoothly between sections of varying intensity and sonic density, harnessing contrast to enhance the perception of heaviness. Consistent with his live-recording-oriented philosophy, Exeter placed considerable emphasis on the drum room microphone signals to capture the power and feel of a natural recording space.

To achieve maximum width, Exeter opted for four distinct guitar tones. Unlike most other producers, he chose not to re-amp the guitars, relying instead on straightforward processing. This included standard EQ to attenuate resonances, reduce low-mid muddiness, and clean up the low end, along with broadband compression and tape saturation to tame palm mutes, add harmonic richness, and enhance thickness. For bass, Exeter followed a similarly minimalist approach, primarily working with two tracks and excluding the DI. He used automation to ensure consistent volume and to highlight specific tracks in particular sections. To further enhance the bottom end and add heaviness, Exeter programmed a sub-bass synthesizer, using automation to integrate it into select sections; he was the only producer to do so.

The orchestral tracks were treated with a similar expression-oriented approach to mimic a more expressive performance. Volume and EQ automation played a central role, particularly for the brass, which Exeter considered a major contributor to the song’s heaviness. As a result, the slow middle section became the heaviest part of the song for Exeter.

Exeter emphasized pre-treating the vocals to achieve dynamic consistency without the overt sound of compression. In addition to standard techniques such as de-essing and EQ, he created different ‘scenes’ for various sections, utilizing custom processing settings achieved through detailed automation. Saturation was employed to give the vocals presence and added harmonics, ensuring they remained prominent in the mix.

Mastering, or stereo buss processing, was minimal in Exeter’s mix, limited to an SSL-style compressor used to control snare peaks and provide overall sonic cohesion.

3.2 Conceptual Interview on Heaviness

HiMMP

It's a really broad question, but how do you define heaviness?

Mike Exeter

I always think any of these descriptions come from a comparison point of view. So, the whole yin and the yang of the universe, etc., is heavy, as defined by what precedes it and what comes after it. For me, there was a meme that went out a few years ago, which was the gravitational force of the black hole, and then the gravitational force of one of Tony Iommi's riffs, and I know which one's heavier. I would say, for me, one of the greatest emotional changes in a heavy piece of music is 'Children of the Grave' (Black Sabbath 1971), where it goes from the sort of the shuffle leading into the middle section, where it gets so heavy and big. And it goes into the tritone; that's the juxtaposition. It's like how it goes from light to dark.

And whatever brings that emotional resonance to the heaviness, that majesty; just like with classical stuff, you've got emotive heaviness, you've got big heaviness and an orchestra. But you can also have the space. And something, after this long period of quiet space, you can have something that takes you to a different place, and that can be heavy. I think it's just how you emotionally react to it.

HiMMP

So, this idea of different forms of heaviness and heaviness in different genres. You mentioned classical music. Obviously, heaviness can be present in classical music. Do you feel it has to do with the same frequency content or the same sense of intensity with the performances? Or what are the correlations? Because classical music does come up a lot. Obviously, there are these virtuoso performances in metal music that are also present in classical music. What do you feel the links are from a sonic perspective of metal music and classical music?

Mike Exeter

I think intensity is a good word. I would rate probably, again, very divisive, but Hans Zimmer, I would say a lot of his stuff is very classical-sounding. So, let's put him onto one site; I don't forget about him. Mozart's Requiem Mass [The Requiem in D minor, K. 626, 1791] is one of the most powerful pieces of music. It goes from very subtle vocal, choral stuff to absolutely huge funeric stuff. It's a requiem mass. I mean, it's huge. It's got everything that stretches the frequency ranges and the dynamics; it's a very powerful thing. I'm lucky I've seen it a couple of times performed live, and it was incredible. And it's not the Sturm und Drang of bombast. It's just beautiful writing. And that's one aspect of it. That's where classical music can be very powerful.

You can also do things like the Tchaikovsky 1812 Overture [The Year 1812, Solemn Overture, Op. 49, 1880], which is just Sturm und Drang.

With Zimmer, I remember going to see one of his shows. They did this thing where it was the two superheroes, Wonder Woman and Man of Steel. So, that was the part of the suite. The Wonder Woman part was like being at a metal gig. It was so heavy because it was the way he'd arranged it. Now Man of Steel is just big; it's got the kind of drums. He had kettle drums and all that stuff going. But when it transitioned into the Wonder Woman suite, it was like, 'Holy shit, this is just massive.' It was powerful.

Now, again, that correlation, you're seeing it live; there's a big light show going on. But it was a metal gig as far as I was concerned. And that's where I think the synergy between metal music and classical is because I alluded to it earlier with the pop music side of things; you don't get time to explore movements. Whereas in metal, I'm in the middle of mixing an album. It's a 45-minute doom metal album. They said, it's not a bunch of songs; it's one piece. But you have to start and go through the entire thing to make it work as the listening experience. That's the dynamic journey you're going on. And that's got the lights and shades. There's one section where it's basically a bass with some chorus and reverb on it with a very quiet vocal. And then the next section is huge doomy guitars with sub-synth stuff.

So again, there are all these different things that create the heaviness, and as I say, like EDM, Jinjer, that's effectively EDM with heavy guitars and bass. It's because it's so programmed. It's got bass drops in it. There's so much crossover now. I don't get the whole subdividing of genres. Why do you have to pigeonhole it? I always get them wrong. I don't know what are metalcore and doom. I just don't care. It's like, do I like that, and is it good or bad?

HiMMP

So, obviously, you feel there are different forms of heaviness. And that's an interesting concept about what comes before and after it: a shout becomes less loud if it's just a continual shout than if you get a whisper, then a shout, that dynamic changes. But what forms of heaviness do you feel there are from both performative and production perspectives?

Mike Exeter

To me, it's always that comparison; there is no heavy without light. From a performance point of view, for a drummer, it's maybe choosing to go from a slow ride cymbal beat to then going to low toms, and that creates a heaviness both in note choice of the toms and what you can do with rooms. If something gets a bit quick, I don't equate speed with heavy; I equate that with energy. That's the change in energy that evokes a different kind of reaction. Whereas the heaviness is just the 'Ah'; it's that thing for me.

So, from a performance point of view, it's related to that. And that comes from the writing and the arrangement. What are you trying to achieve? What are you pulling these people along in this journey? That, again, because I watched lots of movie stuff, you take the journey of the 10-hour-plus thing of Lord of the Rings; you take that change in emotive storytelling and narrative. By the end of the third movie, you're at this point where it has got so dark and heavy that you just want this thing to end because it's painful. And that's the heaviness and the emotional response to what's been shown to you. You're living this story with the characters. And I think music can do that. I think music has a big part in dragging you along this timeline.

HiMMP

So, there is a lot about the performance and composition of the actual songs. You've had great experience engineering all the way from Black Sabbath, Tony Iommi, through to more contemporary metal, such as Cradle of Filth. There are obviously different forms of heaviness and different speeds and performance subdivisions; what are the different aspects that, when you're producing a band, convey this sense of heaviness to the listener?

Mike Exeter

Again, without being repetitive, it comes down to what comes before it. It's like if you start with a mid-tempo song to get a heavier feel, you've probably got to slow it down, and you've probably got to give yourself space. This is why I love the low toms in any recording because by the time you hit these things, they need to resonate. They've got to shape the room.

I guess, again, thinking filmic. You look at something like Interstellar with the huge sub-church organ stuff going on; that's heavy. That movie is pretty heavy much all the way through. There are light moments, but I guess, you're trying to capture something that makes you go inside, 'Have I achieved what I think that is'?

And it's just unquantifiable. It's such a personal response that one person's heavy may be going around in a circle pit. I don't know, I've never done that. But it's sometimes adding those elements; it's like adding some orchestral elements to it. Talking specifically about the track we've been looking at, as soon as that heavy brass comes in, it's like that change totally takes you to a different place from where you were earlier. So, it's all about contrasts.

HiMMP

And from the perspective of contrasts and these different performances, what are the central challenges of engineering and mixing metal music that are different from other genres that might also involve harmonically distorted guitars?

Mike Exeter

I would say some of the proggy stuff is similar to metal, and I know there is a massive crossover. When you talk about simple pop music, there's not much time to change things around, so you end up with some pretty specific choices. And, if we're talking about EDM, you get the drops, and you get those sections, which in themselves are heavy. But when you get to metal production, and proggy metal, it's about being able to bring in those elements, where you make a solid choice to maybe bring in octave pedals on the guitars, or maybe popping some sub-bass on a bass pedal or something. It's all these things that you can then go: what happens now if we take it away? We can lighten it up, we can prepare for what's happening next. It's really about knowing where you want to get to with the production. And that's the conversation you have to have with creative people in the bands; if we're talking about band-related music, what is their end result? What are they trying to convey? And then, are we getting there? There's lots of conversation.

HiMMP

From a technology perspective, you've witnessed a great change in the technology that's available for producing metal music. And certainly, there are genres and performances that are enabled by the technology that we've got; we look at quantization and drum sample reinforcement and replacement, etc. Do you feel that technology can continue to develop? And do you feel that the art of producing metal music will continue to develop? Or do you feel that we've reached a point where it's not going to change much from here?

Mike Exeter

I think I'd be surprised if there were many more developments. I mean, well, we're constantly surprised by what goes on. But I don't know what else you could foresee as being helpful. But then I started on tape. So, who'd have foreseen the ability to use equipment like this reasonably? I don't know. It's a difficult one. I'm quite pragmatic; I feel that technology gets in the way of a lot of conversations. Having a screen in the middle of the room as the centre point between the speakers drives me mental because it should be about shutting your eyes and listening to what's going on. I think that's a major part.

A lot of the older artists that I work with will sit in the room with their eyes shut, listening. It's very much about what's happening coming out of the speakers rather than let's look at and see whether or not that's perfectly aligned. And I think an imbalance can be quite good sometimes as well to actually attract the listener to something that's happening over there rather than just this constant wall of perfection going on. But to me, a lot of the music starts to become almost mono because it's tracked to perfection. And then people put wideners on to widen it out, and I would just have the two

guitarists do what they do. And hopefully, that gives you a sense of power and width. And it's the difference in the performances that makes everything feel more powerful to me.

HiMMP

That's an interesting perspective, particularly the emphasis on visualization. This concept of perceived perfection in metal music is something quite interesting; the increase of speed and this ensemble rhythmic synchronization, where everything's locked to the kick drums, and everything's very metronomic.

Mike Exeter

It's basically like dance music with heavy guitars. It really is. If you listen to a band like Jinjer, you might as well be at a rave. It's of its genre. I don't know what that is, but it's very heavy. But the only thing that keeps people interested in Jinjer, for me, is the fact that Tatiana has such a great voice because they're brilliant musicians. But just because they can, does it mean they should? You look at Dream Theater, and you've got Rudess and Petrucci basically playing the same solo together; it's great, but that's just proving they're really good players. Does that emotionally grab me? No, it's like going to something in the '70s, probably like Rush gigs. And I love Rush, where everybody was air drumming with Neil because that was the best part of the concert. It's like, now listen to the storytelling.

It's just me being a dinosaur. But I think there's something that is so much more real that you can connect with when it doesn't feel like it's just being gridded. Because it's like low-grade data entry, which, to be honest, anybody can do. And I think the people at the top do a fantastic job. But I think there's a middle ground. It's the technology that has enabled a lot of people to do it. And perhaps they're not getting the end goal. I think the technology is driving the production rather than the actual songs and the performances.

HiMMP

I think that's a really interesting point because there's that old legend about Black Sabbath, which is along the lines that, in the early days, they were jamming riffs in a soundcheck, and the manager on the subsequent day would be saying, 'Carry on with that song you were riffing on yesterday,' and they'd be like, 'What song?' So apparently, he would just take them into any recording studio in whatever city they were in to get a recording. And as legend has it, all of these recordings sounded exactly the same as the album because if you put microphones in front of Black Sabbath, that's how they sounded. And obviously, it's down to the user of modern technology, but I often think about how the Sabbath albums would have sounded had they been recorded in Pro Tools.

Mike Exeter

Well, just listen to *13* (Black Sabbath 2013). It's interesting. I think there are two sides to it; I'll probably forget both of them. But the one side is that because people have been given access to this, particularly a drummer, a drummer has been able to have the stuff perfected. And then that goes out on a record, and everybody thinks that's how a drummer should play. They're now attaining that by practice, so it's like, it took God knows how many years to break the four-minute mile, and then within six months, about another ten people had done it because it was no longer something that was unattainable. Nowadays, you've got people that know that this stuff can be done. You've got these incredible drummers who can do what drummers couldn't do 30 years ago. So that's driven it, and I think it's a shame. It's driven from that point of view.

But back in the pre-YouTube and camera phone days, people used to take their music out and test it out on crowds. I've got bootlegs from the '70s, where Pink Floyd played the *Wish You Were Here* (1975) album and the *Animals* (1977) album on the previous tours. *Animals* was debuted in its various forms on the *Wish You Were Here* tour. And they figured out what worked and how to inhabit these songs. When they go into the studio, suddenly it's like, yeah, this is how this is meant to be played. *Animals* is my favourite album as it's well known now. That is the album where Pink Floyd sound like Pink Floyd. And that's a heavy album, heavy in storytelling and darkness. And the same with Black Sabbath. I mean, it's well known their first album was basically their setlist. They went into a room probably smaller than this. And then they were told to go away while they mixed it. They probably had a gig in London the following day.

HiMMP

From that perspective of some of the initial recordings, what are your reflections on lo-fi production? I'd assume you don't particularly enjoy listening to lo-fi productions, or do you? Or do you find lo-fi productions potentially as heavy as higher-fidelity productions?

Mike Exeter

I guess it depends. I think you're taken to a place by memories of music. So, you have this connection with a piece of music. And then you listen to it years later, and you go, 'Oh, my God, that doesn't sound anything like I remember'. Faith No More's 'Epic' (1989) is not a great sounding production from the point of view of if you took it to today, it would be like, my God, that's just like, 'eh', but the energy that comes across with that, and we all remember the fish dying in the video, all of that takes you back to a place where that song was absolutely huge. And you get this connection with the time.

And *Animals* doesn't sound like a modern album at all. But it's the band playing in the room. And I love that kind of stuff. We've got expectations now that are probably so hi-fi that you look back and everybody's like, 'Oh, I wish we could remix that, I wish we could remix that', but that wouldn't be the same thing. It wouldn't give you the same response that listening to it the first time did.

HiMMP

Interesting perspectives about nostalgia and periods of your life, reflecting on albums that you sometimes go back to and thinking, 'Oh, it still sounds as fresh today'; then others, 'This I don't remember sounding like this', and emotional connections.

Mike Exeter

It's a lot from the '80s, which was defined by everybody getting access to digital technology, whether it was sequencing technology. I mean, you look at what happened. It's in the *Sound City* documentary (Grohl 2013); Keith Olsen opened up a room next door, and you've got this huge hair metal stuff going on, which isn't really hair metal. It's like Whitesnake and all that stuff. Not long after the *Sound City* stuff where, it was a grabby facility that was, there were just bands playing, you know, and the '80s.

I mean, I love the '80s; it was my teenage years. But it's so defined; the sounds are so defined by what the technology was doing at the time. And it's a real shame. It's like, you now hear bands like Europe, right? When they went out on tour and actually started playing what, maybe 10, 15 years ago, it was like, that sounds heavy. Nobody was taking the piss out of the lyrics then, were they? It was like Europe can actually do it. And it's an interesting one to see. Again, I'm all for the live experience of when they connect with that audience. And that's what makes it so much more real and engaging. And I think there's so much done in the studio that doesn't even take that into account.

HiMMP

Picking up from this idea of the live experience, and then capturing it and translating it to the listener. Of the albums that you've done, which are the albums that have the most significant challenges that really informed the end product? How did you get around these challenges in what you were trying to achieve and what the band were trying to achieve?

Mike Exeter

Well, I think to get around . . . One of the easiest projects was the album I did with the second incarnation of Sabbath with Dio [*The Dio Years*, Black Sabbath 2007], so that was written all properly in the studio. Lots of time was

taken; Ronnie would be upstairs in his kitchen with a little acoustic guitar and a CD player. And he was working on lyrics and melodies while we were working on the other stuff, and then we'd come together at the end of each day. But by the time we got ready to record, we were out in Los Angeles, and we booked a rehearsal room for a week so they could start playing the songs, and the songs transformed so that when we went to Rockville to record it, we recorded that album in 13 days, top to bottom, because they were ready.

And then you take an album, which was very much pulled apart and put together piecemeal, *Redeemer of Souls* (2014), which I did for Judas Priest. Now, that started with demos all done on the computer; then it was, 'We're going to get all the guitars done'. And Glenn [Tipton] didn't even want to bring the drummer in because he was happy with the drum sound. And I was like, 'No, Scott Travers is one of the best drummers out there. What are you talking about?' So, piecemeal piecing together an album that took from start to finish 14 months, not 13 days.

HiMMP

And how did that impact the final production? And from the perspective of somebody listening to it without understanding or knowing?

Mike Exeter

Well, I think it's a very divisive album because there was a very single-minded approach to the guitar sounds. Glenn wanted something very different to previous albums because it was like, 'Let's do something different this time; let's do something different here.' And I guess Richie Faulkner's first album with the band is not able to push back as much. That was the album that gave me a nervous breakdown. So that's what that did to me. But from the overall aspects of what went on, it was a slog; it was a real hard slog. We did *Firepower* (Judas Priest 2018) three or four years later, and it was really straightforward. The band were all there together. I mean, that's what bands are meant to do. They're meant to be in a room at least making decisions.

HiMMP

And what is the difference between *Redeemer of Souls* and *Firepower*? Do you feel one's overproduced?

Mike Exeter

Well, [Andy] Sneap always overproduces everything. No, I would say *Firepower* was much more condensed in the focus of the energy from everybody. Everybody was involved, whereas *Redeemer of Souls* was spread out. It was just that we had a month here to do this. And then Rob [Halford] came over and did vocals in a month, and it didn't feel like it was a band. And I think that's why it divides people. It's a different-sounding album. But then, I mean,

you've got a band that's done 50 years. You're going to win and lose fans along the way, aren't you?

I've got four favourite Rush albums; I've got four Pink Floyd albums. Queen didn't do everything right. I mean, they changed as they went through, so pick portions of time which are your favourite, and I copped a load of flak, the death threats, and everything from Priest fans who said it wasn't anything like *Painkiller* (1990). And I'm like, 'Well, thank God for that.' Because Judas Priest aren't just *Painkiller*. But you don't make records for the fans. You make them for the artists. You make it because these people have got something inside of them that they emotively want to put out. Well, you're an artist yourself.

HiMMP

Moving on to the production side of things and some of the concepts, when you're producing and when you're mixing. What are the trade-offs you're looking at? In other words, with an increased sense of cohesion, is there less clarity? Is there something that you're trying to trade off between? You talk about this idea when talking about the Priest album, the energy and the band coming together. There's always this balance between clarity and cohesion, which is a difficult one to manage. Do you have particular approaches to, say, parallel compression or room mics or separating the guitars and the bass or the distortion on the bass, these areas of trade-offs that you're looking at?

Mike Exeter

No, I mean, I have to say, I don't use parallel compression. I find it gets messy. Again, I would love to be as good as him, but I'm very much in the Andy Wallace school of things. Get the kick and the snare working, get the guitars working with that, and then make everything else fit around it. If the kick and the snare sound brilliant, and the guitars come in, the main rhythms, then that's half the job done. Then it's about getting the vocal in, and everything else has to fit in around that.

And I wouldn't even say they're compromises. It's just a case of not being lazy. From a mixing point of view, it's about automating anything that is in the way. If that is blocking that, then move it out of the way or change the frequencies or do something that separates them, even if it's only for a couple of notes, whatever it takes, because that's one of the benefits of technology: we can automate everything. Absolutely everything. So why shouldn't we?

And from a recording point of view, I think it's very important from day one to have everybody in a room together. Because what you tend to find is that if everybody's in a room working together, they're bouncing off each other. There are decisions made by a bass player and a drummer being in the same room and tracking together, which will impact both of their performances. Just an off-the-cuff little lick that the drummer may discount, 'Oh,

I liked what he did down; I'm going to put a little thing there or whatever.' Suddenly, this thing comes to life. There's none of this, 'Right, we're done with the first verse; right, let's copy and paste that through.'

It's all about seeing how the energy goes. And it's at that point that when people work together, you suddenly get this instant gratification of what the song is doing. How does this sound come out of the speakers? And at that point, you're then informed of what you need to do next. Because we've got people saying, 'I've got all these ideas for all these extra guitar parts'—do you really feel the music needs it now? Because at that point, we want some space. And we know that because we've got all this heaviness there, why don't we do some stuff in the background that just allows some space? What the vocalists are doing there needs to have a bit of room. Otherwise, it's just 'shove everything in and sort it out in the mix-up afterwards.'

HiMMP

Staying with that idea of space as a significant challenge from the engineering side through to the mix side: do you have any general principles that you're looking at? Because of this idea of getting the kick and snare, the Andy Wallace approach with the guitars, and then everything around it. At the recording stage, you've got this: a guitarist who's got a tonal blueprint. How do you manage the spectral footprint of the bass around that? Are there any principles where you're trying to look, 'Well, the guitars are quite mid-range heavy, so maybe the bass needs to be more in the lows or this sort of sonic jigsaw'?

Mike Exeter

You just hear what it's doing together. You go, 'Play, everybody, play.' And when they're all there together, and you say to the guy, at this point, the guitarist started doing low chucks, how about, you don't. Maybe you might want to go up an octave. Or you can do something where you say to the bass player, 'Why don't we go up an octave but stick an octave divider underneath it?' Suddenly, we still got this sub-bass going on, but the main mid-range aspect of the bass is up here. The guitars can fill in this middle region, and then you get them to listen and go, 'Have we compromised your sound?' And they might not actually; that doesn't matter, because it sounds great together. As opposed to going down the microanalysis of: should we move this microphone that far? Or, how long are we going to take to choose a cab sound? I think once you get people invested in the project, they become less retentive.

HiMMP

And then when you get to the mix stage, and you've captured those sounds and performances . . .

Mike Exeter

You ditch half of them. I always will record more than I think I need because there's an awful lot you can do if you've got left and right guitars. So, you've got two guitarists in the band, and you do a left and a right, well, I'll always double both. And then I can do the thing where it feels like the one guitar just wants to come in at the beginning of a section. I'll bring up a bit on the left. And then, as soon as the other guitar comes in, we'll either pan it back across or we'll drop it down. I'm always trying to make sure the energy shift is what I need to hear.

So, when I'm listening on Auratones, which in my place are normally over to one side just next to each other—I don't tend to do much mono listening—but it's effectively mono. I can't tell what panning stuff is happening there. I'm just listening to what the energy is doing. So, I can go, 'Yeah, something's really dropped there.' Okay, maybe I need to massage these two guitar parts, and maybe put a little bit of the other side in. Great, that's the energy I want. Now, what's it like in stereo? Now I need to pan them both across and see if I can fill in, or if while we're tracking that feels like that's happening, I'll get another part and choose another sound. We've always got the re-amping thing, but I've got to say, probably in the last two years, I've not re-amped anything. It's like it's there as an option, but you make the decisions when you record.

HiMMP

Continuing with this theme of the number of guitar performances, we briefly touched on double-track or quad-track guitars or recording four guitars but not using them. Do you have any general principles that you go with, where you will, if it's, say, one guitarist in a band that has certain principles or speed of performance?

Mike Exeter

No, again, it's just like, sometimes they have a preconceived idea that they may want to try something. I'll always go with that first. If they say, I'd really like to double all these parts, we'll double it, and we'll see what happens. If I don't feel there's enough of a shift in energy between sections, then I'll step in and go, 'Can we just tweak something?' Can we make something happen, so maybe do another part just for a few bars, or all changes?

I'm always there on pedal boards, putting different pedals in and trying to find something that will create more width, or there's a section that needs to be narrower. That's what you do as you go along; you're trying to get to this point where we used to call it 'broom handling', where you'd have a 24-track tape, and you take it from studio to studio, and you wanted to be able to 'broom handle' the faders up to zero and have a mix. And what I'm trying to achieve every day is just, 'Can I broom handle that mix?' and everybody is excited by what's happening.

HiMMP

And therefore, it's rarely the case that you'd ever go with quad-tracked guitars?

Mike Exeter

Well, I won't do it per se. It's just what I feel it needs. Some of these guitar sounds are so thick.

HiMMP

Yeah. And from my perspective, chatting about the multi-track that you got, you've got quite a lot of options. Under normal circumstances, we appreciate that it's just too many options; like a mix engineer would say, cut these right down. What were the options that were excessive? Or what would you have changed in the way that it was recorded or presented to you, for example, the levels of gain on the guitars?

Mike Exeter

I thought they were fine. I chose once I worked out the numbering scheme. I just chose one and three, and four and six because they were different performances on different amps. The two different guitar parts seemed to work together. And I stuck with it. And then, throughout the mix, I don't know what stage I got to in the end, but I was playing with different level changes and whether or not things needed a push. I found a part because they were all really well played, so it didn't really matter. It was like, what fits in?

Probably, if I had another six days, I'd start getting into actual automated EQing and stuff to make it fit around the orchestration. And when you say, 'What would I have changed?' I'd have loved to have had access to the orchestration. Because I ended up splitting them out to left and right rather than a stereo track, so I could actually play with balances and EQ to feature cellos against violins because there was some interesting stuff going on with those that I didn't have enough control over.

HiMMP

That's interesting because what we were mindful of is we didn't want to present this multi-track: 'You're mixing this track, it's 149 tracks of audio, off you go.' We gave the stems with the backing vocals and the brass stem. But from that perspective, it was just about working with the options that worked with the guitars. From the bass perspective, what sort of route did you choose?

Mike Exeter

I chose to mainly feature the more aggressive-sounding bass, bass two, I guess, not the DI, and I actually played in a sub-bass on the keyboard as

well, just so that there was something that I could bring in at certain sections that gave you that weight, the heaviness at the bottom sub, because it was like, the bass is doing something up there. The guitars are doing something up there. What happens if I have this grounding sub? And I did it the whole way through, and then I muted it in and out when I felt I wanted a bit more.

HiMMP

Excellent, because that's really what we want to get a producer's perspective on the track. What's your broad approach to dynamics? Is it limiters? Is it compression? Is it both, and what's your approach with saturation and analogue processing like tape emulation?

Mike Exeter

On certain instruments, I will use four, five, or six tape saturation units. So the Roger Mayer thing. What I'm looking to do is reduce the amount of peak compared to the RMS. I think digital is brilliant at capturing peaks; it doesn't do anything to help us with RMS. I like to get at least a little bit of help. And it's very subtle; it builds up over the tracking process. But you can get more energy to tape by saturating on the way in, but it's inaudible, it's not distorted, it's just taming the peaks. I don't think you can do that with compression. Compression always has an overshoot, whatever happens, even with lookahead; it just does this thing that doesn't feel right to me.

On the dynamic side of things, as dynamic as possible. I want to hear the highs and the lows. It's about leaning into the speakers and experiencing that. I don't want everything to be at the same level because it ends up being uninteresting to listen to; it's meant to take you on that journey. Because if there are no quiet bits, the heavy bits don't matter. If it's all one level, it's just 'great'. Compression-wise, I do use it, but I am very picky. And mix saturation I very rarely get unless it's for a specific effect. And very rarely, I go much more than using something like Crane Song Phoenix to give some high harmonics.

HiMMP

You wouldn't ever use Heat [in Pro Tools] or anything like that?

Mike Exeter

No, because I haven't got enough control over it. And that's why I ended up with the Crane [Song Phoenix]; it's the same process effectively. But I tend to want to go in and deal with the stuff that it's dealing with. Now, with my session, I actually created a sub-mixer within Pro Tools, which has a console plugin on each set of 14 stem channels. And they are all set to have a little bit of non-linearity. They are like the Brainworx things, and they're not doing anything except basically making the left and the right a

bit different. So, it just makes the mix . . . It's almost like a summing buss kind of treatment.

I don't do any saturation on the mix buss. In fact, the only thing I've got in the mix busses is a Townhouse compressor; it is basically an SSL compressor. And I mix into that. And I know if I'm hitting it too hard; I don't want any more than two or three dB of compression. I want this thing to be as wide-ranging and as open as possible. And I put the automation to massive amounts of work to make that happen. Again, like that sub-bass thing, if I felt that that was too much, and by pulling it back, it just backs off the main compression. I'm not going to do the filter on the sidechain; I'm going to make sure that I'm not hitting the compressor because otherwise, you're just transferring the problem somewhere else.

And I like to get it as dynamic as possible. And then I have severe words with mastering people who try to make it too loud. It's meant to be as loud as it is without destroying the fidelity to me. And I know I'm sort of old-fashioned in that respect. But I can't listen to a lot of modern productions because it's too crushed. There's so much fast attack and fast release going on in mastering to try and get these levels up that I think people have lost the ability to actually do what's right for the soul.

HiMMP

And along that route, where you're certainly not over-compressing, you tend not to compress the guitars?

Mike Exeter

Funnily enough, on this one, I did. I was getting into about four or five hours of automation until I thought I would try the new toy, which is Massenburg's standard dynamic range controller. And that has this detector circuit that just works the way we perceive dynamics. I didn't use multiband compression; I used the dynamic range controller to reduce the difference between the highs and the lows, and it did enough that I maybe got one or two moves on that. I tried it with the Arouser, which is the Distressor; nothing like it; it sounded compressed.

HiMMP

So, you didn't do it on the lows; it was broadband?

Mike Exeter

Broadband [compressor]. You need a degree in something to work out what's in George Massenburg's head, but this thing is ridiculous. It's very unusual. But it does that thing of basically controlling the dynamic range, and it enables you to settle stuff in a mix. You can take 18 dB out of a vocal and not hear it. It's insane.

HiMMP

This idea of the dynamics of mixing, giving it space and letting it breathe and not just slamming it, it's quite interesting. What approach do you look at with the bass, then? Generally, with compression, I appreciate it depends on the mix and the context. But are you trying to really get that mix to sit there without changing the level, or do you still want a lot of dynamics in the bass, particularly given that the guitars are very dynamically stable, usually because of the harmonic distortion?

Mike Exeter

Again, I just listen to it and go, 'Is it hitting me the way I think it should, or is something wrong?' And that can take you down a rabbit hole. But you can use sections where the bass maybe does a lick, and you want to feature the more distorted bit just for that lick and then automate it back. So, you're balancing two things.

That's another; I'm one of these Nazis about control surfaces. You cannot balance two things with a mouse; you can't do that with a mouse. You're constantly doing this serial functionality of 'change that, change that, change that, change that', whereas I want to be able to shut my eyes and go, 'Oh, that's hitting me better'. And even if it's, again, just a couple of notes, I'll punch that in and do that move. I'm listening for, I call it 'automation as a problem solver', but they're not really problems; they're creative decisions. But automation has always allowed us to do that. And there are a lot of people that still work heavily by moving faders. I mean, when people work in live sound, they're reacting to what's coming off the stage.

One of my greatest gigs that I saw in the last few years was Opeth because the guys rocked up, they had all their shit down on stage, and their front-of-house guy, he wasn't there with the Waves package or anything. He just had a show file that had his subgroups. And he spent the entire night pushing up solos and featuring vocal parts. It was all mixing; it was reacting to what was happening. And that's what I want to do; I want to react to what's coming out of the speakers.

HiMMP

Fascinating. Are we good to listen to your mix and look at some of your processing and mix approaches?

Mike Exeter

Yeah.

3.3 Mix of 'In Solitude'

HiMMP

Given those vastly different performance approaches in different subdivision speeds, what were the main challenges of mixing this song?

Mike Exeter

I think it was just getting my head down and solving the problems. For me, you can get so far finding sounds, and then you've got to commit to actually moving faders around. You've got to look at and go, 'I really like that; oh, no, we got to the next section that doesn't work. Oh shit, can I find a compromise, means like compression and EQ?' And it's like, no, what you can do is actually create the sections that work together. So, you work globally; you step back from the forest, you create your balances, and you just chip away at all the problems. It's not actually that much more complex than any other mix. It's the amount of time it takes to go through those stages, and you're not just doing a pass and then going, 'Right, that's done'. You're going back, and you're going, 'Well, that's now affected that, and now I need to dive in and affect the balance on those two guitars because for this section, I brought the strings up or the horns, and I need to focus the guitar over there because that's taking that energy range against that'. It's working on the problems and not getting bogged down in too many of the minutiae.

HiMMP

It's very much the handoff from section to section and making sure that the listener gets the journey that you're hoping for. That makes sense.

Mike Exeter

You're listening to the entire thing as a whole. I mean, there's the doom metal album I've been doing recently; you've got no option but to listen to 45 minutes at a time. But you have to go on the journey. Otherwise, you don't know in context what's happening before and after. I did the final dubs on the final Black Sabbath show when that got dubbed for the theatre. I was working with the director, and I said, 'I don't like the way that we're going from the studio section into the live performance. It sounds like the studio is way too present, and it's taking away from the live performance.' And the guy said, 'Oh, shall I just do that?' And the engineers span it back, and he goes, 'No, go back five minutes. Let's watch it. Let's enjoy that entire thing. Let's forget about we're listening for a transition. Let's watch five minutes' worth of this and see whether anything jars.' And that's the thing.

For me, it's always about taking the time to allow your brain to get used to what's going on, to then understand what you need to do next. And that's the whole thing; it informs you. It's like with the songwriting, and when you've got the performances of the band in the studio. By having them all there and trying stuff, it informs you of what needs to happen next. It's always about stepping back and going macro to micro, which, again, is why I love the ability to spread out across the surface and then dive into all the guitars and then come back out and not really worry about what's going on screen too much. It's always about what's coming off the speakers. It's a challenging mix, but it's just a set of creative decisions to make, and have I made them

the way I want them to? Is the artist happy? Who knows. I mean, thankfully, I haven't got to talk to the artists on this one. But I could go on and on refining, but would I be making it any better? I liked it when I went out and listened to it on the air pods, and it was like, 'Yeah, it's doing a good job. I better send it to him.'

HiMMP

And looking at your mix approach, what was the principal consideration you were looking at? Was it a sense of depth? Was it stereo width? Or was it all of the above? And how did you start the mix?

Mike Exeter

I just wanted to initially get a feel for what the track's doing. The reason I use control surfaces is that I can very quickly jump around the session. I put everything into my own template, which gives me macro-level control over everything. With this, I've got groups of tracks on all VCAs. This gives me the ability to throw sections up. I tend to work; I've crossed two levels. I work with kicks, snares, toms, and the rest of the kit, then bass, and then I have guitars A, B, and C, the lead guitar, lead vocal, backing vocals, keyboards, and percussion. And then I've got a get-out-of-jail-free all-fader.

So, when I'm in this mode, I can throw stuff up and get a feel for what the track's doing. And then I go into another level where I can actually access, say, all the bass tracks. These are all bass tracks available to me. And then if I want to go to guitars, it's the green one. So, that's given me my track choice for guitar. As you can see, I've got the two centre guitars of each pair muted and out of the way. I just want to look at the session and get a feel for what each part is doing. And I want to learn the song to find out what I'm about to have to deal with.

Drums

HiMMP

And after you've done that, did you then move to the drums?

Mike Exeter

Yeah, I work very much in trying to make my kick and snare sound powerful. And obviously, with this track, it's got three or four different sections. There's a blast beat section; there's a fast section, and there is a very slow section. I just want to get, 'What's the most powerful thing that works across all of them, and what are my options?' If I go into my kick drums, I've got the ability there to have kicks as a supply to me. Then I've gone with some Superior Drummer and some Slate triggers. And then I've got a summing kick thing and a reverb on the kick. And this sort of happens with quite a few of these

things. I've actually got all my kicks and snares available to me. It may seem like overkill, but I can move these around. And depending on where I am in the song, you'll see that I've already made some decisions about what each section requires.

As I get to the bit in the middle, I've made decisions about featuring a certain type of kick. I've given myself a palette of tools to work with. And then, I work through the song and try to figure out whether I need to do anything more to them. With this kind of stuff, ultimately, as good a drummer as he is and as good a recording as it is, there are sections where things don't feature; they don't speak quite well enough in the mix. I probably spent about half a day trying to make the toms work, and in the end, I just went to use the triggers and into Superior Drummer, designed a drum kit that worked, went through all the toms, and tweaked the MIDI. Because there were certain times when it felt like it wasn't natural; it was a little bit stiff on it. I started putting in a little bit of groove in the dynamics. And then when we came down to the actual mix, there's quite a lot of automation on the toms (Figure 3.1).

If I do it the old-fashioned way, which is to drag and make these bigger. If I pop up the pans as well, you'll see that there's quite a lot of pan automation going on. My intention is to make every single aspect of the drum kit speak as well as it can. There are times when you've got the drums going across the spectrum, and you need them to be separated. There are times when you just got the two low toms, and I spread them a bit more balanced because I don't want to get in the way of the guitars. Every single tom fill has a different panning position and a different level. And that's just by going through in a preview function and finding the balance that works.

If we go into the toms, which are in the drum section, that's these four here, you'll get a feel for little micro moves that are going on. And you'll probably see that the panning is changing there as well. It's all small stuff, but it all makes the difference because when you get a three-tom fill, it's there. We've got a two-tom fill. It's there; if it's a four-tom fill, it's there. I don't want it to suddenly feel like you've gone all the way across. And it's all done by

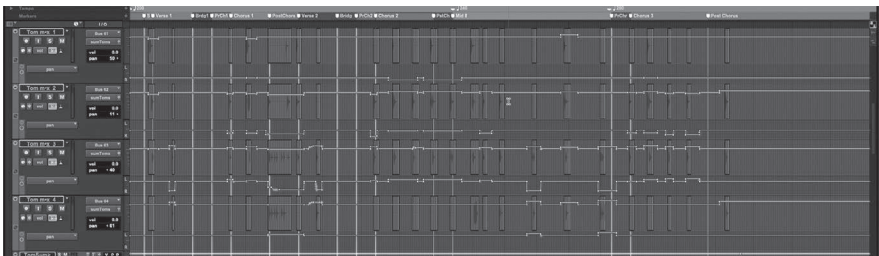


FIGURE 3.1 Meticulous levels of volume automation on the tom tracks to enhance performance clarity.

sitting with the eyes closed in a preview mode, rehearsing it, and then going, ‘I like what that’s doing on that fill. I’ll just punch it across that section.’ I do a lot of things where it’s a rehearsal. And then you go in, and you say, ‘I want to commit that.’

HiMMP

The real attention to do, like Andy Wallace, is just small moves that are almost imperceptible. And the toms were replaced?

Mike Exeter

Yeah, basically, I just found a kit that I liked. I tweaked it to fit in with what was there. I found that as he was doing the fast fills, there was just no speaking at all going on with them. It didn’t matter what I did. I tried triggering gates, I tried expanders, I tried automating stuff, I tried automating EQ, but nothing felt like it was really working from what the toms needed to do in each section. It was like, you had it; you can get a really nice sound for the heavy part, but you couldn’t for the very quick parts.

HiMMP

Yeah, you don’t get the power. And with this idea of what we’re considering here, which is sample replacement or reinforcement, did you use the samples created from the kit used for tracking?

Mike Exeter

No, I thought, well, because again, there’s a bit of a disparity on those recordings. I always record top and bottom mics on everything, but I combine them at source, and I make that decision based on what I want to hear. Any EQing I’m doing while I’m recording is based on the combined signals. There’s always a potential, and I use the same microphones, top and bottom. Toms are a huge part of this for me. And what happens is that if people separate the top and the bottom mics, they’ll do a little bit of EQing on the top and bottom. And that changes the phase relationship between the two mics. I’d rather go: this is the sound of the two mics combined. Now, what do I need to do to make it sound how I want it?

And so, I had this thing where there were three rack toms or three toms that were top and bottom. And then there was one, which was the single mic. And it actually feels more natural creating a tom kit that works within what I felt the mix should sound like because I’m from that, you know, the proggy stuff. I wanted this to sound huge. And I don’t seem to have a problem with still getting bass in mixes when they’re going fast. I want full range, and then I’ll decide when I want to take it out. I haven’t had to EQ any of the tom moves or anything. But if there was a problem on a particular fill, I just engaged an EQ for that. We just automate it until it sounds right.

HiMMP

And with the kick samples, was it that you were looking for one for weight, one for click?

Mike Exeter

I guess if I go into the kicks, these are my available choices. That's one of the recorded ones. That's a click one. And that's a lower kind of thing. And combined, at those levels, they do that. Whereas in the faster section, it's more clicky, and it's just done by balance. You feel there's a bit more bottom end because, in this section, we've got room for that to happen, whereas over here, it still wants weight. But it doesn't want as much weight as the slow section, whereas in the pre-chorus . . . So that wants the heavy kicks.

Now you'll see there that completely changed because we're going for a quicker section. It's about what suits that section. And that may not necessarily be the same for each one because there's a build of parts that goes on through them, and what he sings changes. So, I'll just do tweaks on it. And that's as easy as that. If I'm in preview mode, I can try it with a bit less of that. I take that one out completely. I can compare them. So that's what's recorded. Take that out, and it changes it. So, I can constantly go between the two and go, 'Actually, what would it be like if I did this?' Which is a bit extreme. I'm making decisions, not looking at anything going on there. I'm listening. I'm listening to see what feels like it's adding to the track.

HiMMP

And with the snare, you've got four snare drums?

Mike Exeter

Hundreds. You've got three mains. That's the recorded one. There's a drum gate on there, there's Oxford Drum Gate trying to get rid of all the crap (Figure 3.2).

And then I've got a massive amount of top-end boost (Figure 3.3).

I mean, if I take all those off. It's enhancing it rather than it being a huge difference. Compressors are doing quite a lot; just grab those peak transients (Figure 3.4).

And then on another track, I've got the other mic. That's the condenser, which I like because of the tone of it. So, added together, it worked quite well; the combination just seems to add.

If I then go to the snare three, I'm not using much of that. Probably the under-snare; I don't need that because I've got that as one of my samples, the other sample's doing that. They're also hitting a snare ambience, which is that. It's a Lexicon 480. It's almost like a gate, but it isn't; it's done with shape. If you listen to just the sample with that, it's almost non-linear, but it isn't. When you hear the whole lot, it's quite a punchy snare. Now, again,

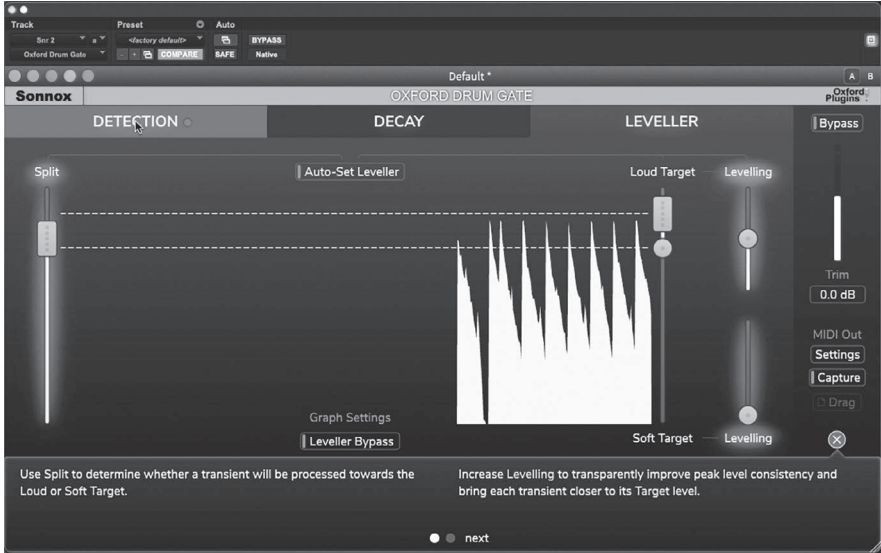


FIGURE 3.2 Gate cleaning up the snare drum.

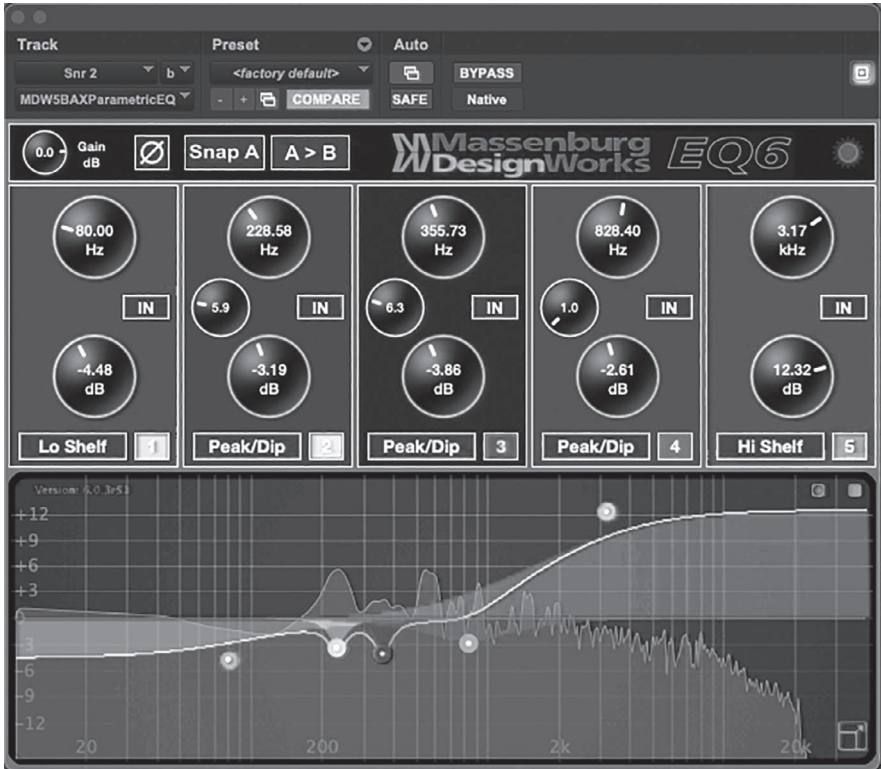


FIGURE 3.3 Snare EQ adding clarity and attack.



FIGURE 3.4 Snare compressor controlling peak transients.

within the context of different sections, there is a bit of a difference; it's more of a textural thing. But if I go into solo-in-place, you now listen to what the reverbs are doing there compared to wherever it is. I'm bringing in a second reverb there to create a different depth on the piece.

HiMMP

So, for the most part, you just got that shorter . . .

Mike Exeter

I've got three reverbs going because I'm just that sort of person, and they're all Lexicon 480 (Figure 3.5).

HiMMP

Chatting with you previously, you've been a big fan of the large wooden room, if I remember correctly.

Mike Exeter

Yeah, it may be on this. I can't remember. That's a large chamber. That's probably a large wooden room. But what happens is my snare is combined

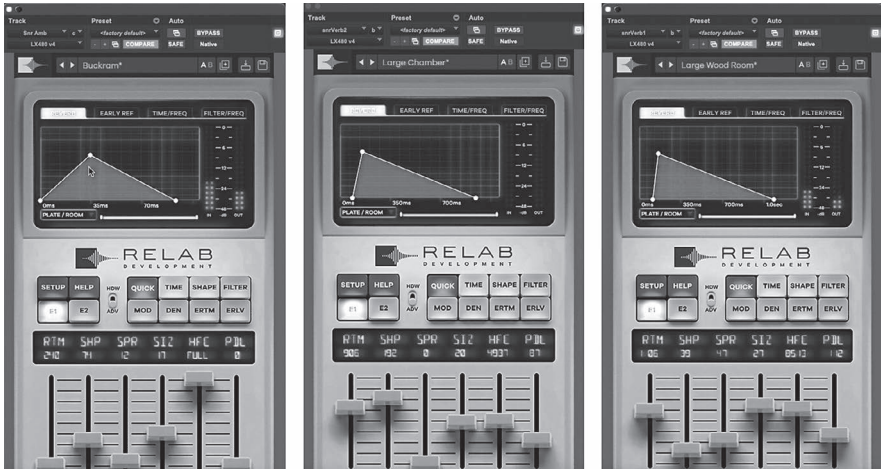


FIGURE 3.5 Three Lexicon reverbs with different characteristics for the snare drum.

into a single buss here. Everything to the left of that buss in that folder group is my snare. What happens after that is I then feed to two reverbs. And I can automate what goes on with those in terms of how I want them to sit within the mix.

HiMMP

And is that an approach you usually use that you don't take your reverb send points from the individual channels; you take them from the sum?

Mike Exeter

Yeah, because what I'm doing is I'm creating a snare sound. The ambient snares, which are these ones here, are being fed from the individual snare mic, so they're feeding the first Buckram [LX480 reverb preset]. I'm deciding what I want my snare sound to be. And that's all done by balancing the microphones effectively. Then I'm going with sending them to a global reverb for the snare.

The reason I use different reverbs for each element of the kit is because further up my session are my stem tracks, which are basically double-bust off all of my 14 . . . My 14 folders create my stems, so I can print in one go a stems mix because my reverbs aren't being fed across stems. It's just a slightly complicated thing that I devised that makes my life easier because that's helpful in tracking as well. Because if someone says, 'Can I get a copy of just this without vocals?', I can basically give them a stems mix or whatever, or they can have the stems and work on stuff.

HiMMP

The two tracks that were getting sent to the Buckram, were they the snare samples?

Mike Exeter

It was the four snares. So yeah, snare one and two. I'll go to snare ambience. And if I look at that, they're not actually feeding that; maybe that changes during the mix, I don't know. That's Buckram; if I take those out, the Buckram gets a little bit longer. I'm just giving it that extra smack in the track.

HiMMP

What are those two samples?

Mike Exeter

It's Superior Drummer. When I was listening through it, I wondered what they were lacking. Or what can't I get out of those that I want to hear? Normally, it's low-mid stuff. I want that smack. What also happens is, you tend to find that people are a bit over-obsessed with saturation at the recording stage. And then you've got no leading edge to the track. So, I make a decision. What are the few things that I need? If I was recording it, I'd have four microphones. What do I need to get those choices that I wanted from a mix point of view? And then, I commit them, and I line them up phase-wise. And I'm just like, right, that's what I'm dealing with. If they need anything else done to them, which they don't in this case because I'm really good at what I do. If I needed to, I would put an EQ on there, and I would treat it like I'd recorded it.

But the thing with it is: if you go with a kick and the snare, that's my Andy Wallace thing. How did they sound with the guitars? I want that to be my starting point. I want the kick and the snare to punch and for the guitars to work with that. So, my guitars, which are that one, I could choose now while I'm starting the mix. I could choose at what level I want to bring that in. Now, I've got my guitars kind of balanced amongst themselves. And if I like that, as a starting point, that will be where I initially commit it to. I've changed that by three dB; I could now punch that, coalesce it, and say, 'Right, that's my starting balance.' And then, for another section, I might go, 'I'll just raise that up a little bit'. And that's how I'll start to globally shape the mix.

The beauty of the VCA side of doing things is that I can maintain the relative balance of them. But if I want to, I can pull them back a little bit for a section and commit that on the VCA track, automation-wise, and only when I'm really happy, I could decide to write that. If I go into my guitar track and change that to touch mode, say, or latch even, I can choose to record that as a part, which you're obviously seeing now on screen as being that; I can capture that. And I can go back, and at the beginning of that section, I can say, 'Right, so when that comes in, I want to commit that'. So, I'll punch in,

and I'll listen to it. I've now made a decision based on faders; it comes in at the new level. And once I'm happy with that, maybe the drums are going to come in, I don't know. That's not bad. I might want to push it, and I can write that all the way through to the end of the song if I wanted to. I'm not messing around with drawing lines on screens and things like that. I just want to go: what does it feel like that needs to be?

HiMMP

Just a quick look at your EQ on the snare microphones.

Mike Exeter

That's what it sounds like without. There's a transient designer on there, which ended up not . . . I think the problem with transient designers is that they bring in the really nasty, knocky sound of the snare. The moment you bring in a transient designer, you need to then find those sections where you can pull that out.

HiMMP

And are you enhancing the transient, or are you shaving a bit off?

Mike Exeter

I'm enhancing it (Figure 3.6). That's one of the ones I don't like. And that's another one I don't like. So, when you pull those out, and I'll turn off both boosts, that's not going to cut through a track. You put in as much EQ as necessary, which is that for me, and then after, I've just got a compressor, which is knocking quite a lot . . . It's making the differences between the highs and the lows more consistent. That's what the DRC does, is enhancing this sustain as well. On the other snare, I'm doing quite a lot on that. Again, I just want it to really speak in the track against the guitars.

If we get the guitars in there, I need to compete with that. Right, let's knock that back a little bit. If I've got that snare without that EQ, it just doesn't cut it against the guitars. Both of those, if I do all of them, pretty naff, isn't it? Then the samples come in and give you that bottom end that I want. Again, if I take all those off and go into solo-in-place, you'll hear the reverbs in there now. So, that will get soaked up once the guitars come up to their proper volume. If I kill those two reverbs, it sounds like nothing again. So, you've got to do it in context. I mean, there's even a case where it could be there; it just depends on how you feel as it's going through.

These are things that are constantly changing, which, again, is why I've got in my layouts the ability to get all my kicks and snares together. I've got a thing called VIP, where I have certain things set up that I need access to because 16 faders would appear to be limiting, but it's not. If I go to my layouts, my VIP layout is like my sub-bass, my three basses, my four guitars, my lead vocals, my piano, my strings, and my orchestra stuff. That VIP section



FIGURE 3.6 Top: EQ adding more clarity and attack to the snare; bottom: compressor enhancing sustain for a more balanced snare sound.

allows me to concentrate on getting the later elements of the mix together, all on one layer. And then I can go back and look at the vocals. I just need to be able to get around the session without thinking about it too much.

HiMMP

And looking at your approach with the different kick sources, obviously, you gated the acoustic kick drums.

Mike Exeter

Yeah, so the main kick is gated. If I take that off, it's not punching. This is actually the only SSL-style plugin I've got on there (Figure 3.7). Typical SSL; I've got a bit of expansion and compression on it. So, that's my acoustic kick one; acoustic



FIGURE 3.7 SSL channel strip on kick with dynamic range expansion (noise control), compression (wave-shaping, level), and EQ.

kick two, I don't know what that is; I change the order of them because that's me. As I say, I tend to just call them a kick one, two, and three, and snare one, two, three, and four; I don't care what microphones are used. I want to listen to what they're doing. I didn't use kick three. That's probably the sub-kick.

I've got a Superior Drummer (Figure 3.8). This one's live. This will probably be doing most of the major lifting. Surprisingly, not as much bottom end

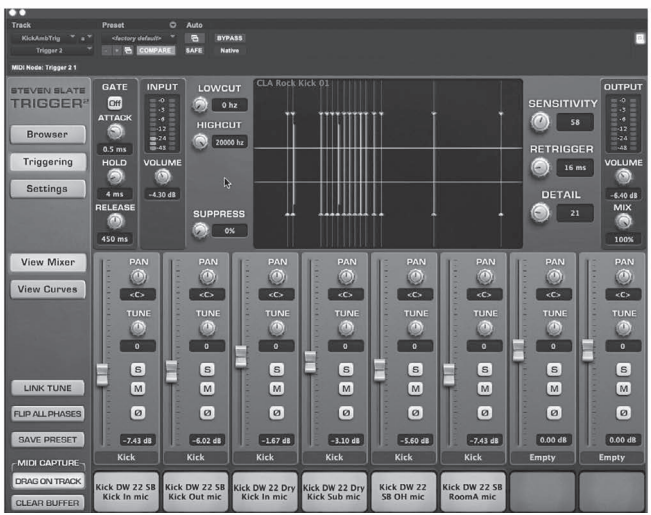
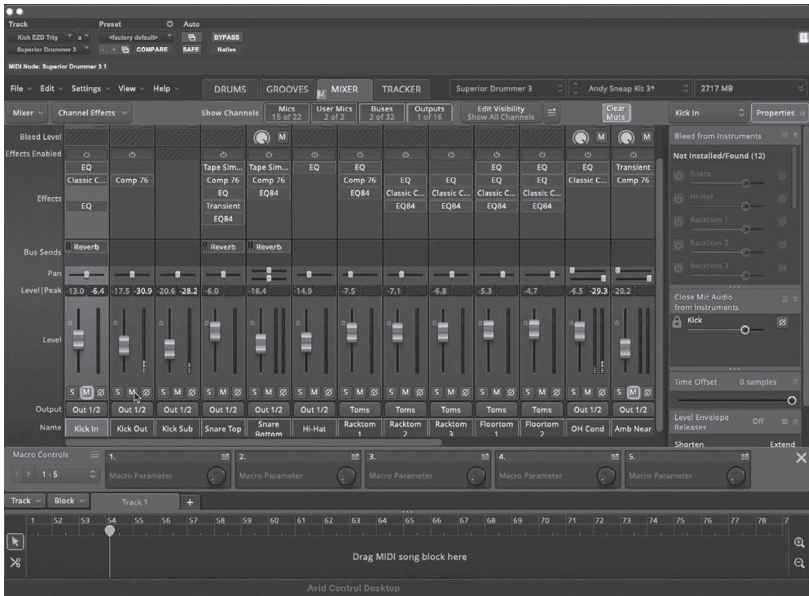


FIGURE 3.8 Top: Mix view of Superior Drummer drum library; bottom: collection of kick samples in Slate Trigger.

as I thought it would have. Something else is in there; oh, it's the X kick, it's an extra kick. So, they're doing something, and then there's an extra kick in there to give it a bit more attack. It was all done while I was listening to the guitars against the kicks and snares because none of this makes any sense in solo. That gives me a bit of low-end punch. So, that's a typical trigger kit. And as we looked at earlier, we're making those choices based on them all being in there together. And, depending on which part of the song we're in, you'll see that first fader just jumped down. It's mainly because I want to hear that kick presence.

HiMMP

And is that the Phoenix?

Mike Exeter

That's a different one. It's almost a bit more like a compressor (Figure 3.9). That suppresses peak and hardness, and it will bring up the low levels and things. It saturates differently to Phoenix. I find that is a bit more useful on kick drums. Again, these are all fairly subtle. And again, none of this is decided without it being in context.

HiMMP

Sure. And then the EQ approach with your kick drums?

Mike Exeter

There isn't any.

HiMMP

Same with the snare drum?



FIGURE 3.9 Saturating the kick to enhance the low end.

Mike Exeter

Yeah, I've got an EQ sitting there, ready to go. And I didn't need to dump the frequency. And I didn't think the compressor helped either, so that came off. There's a raw again on the entire thing. You'll hear a bit more weight coming in; it's a different setting to the other one; it's bringing up more of the low level. So, you can really change it. But again, it felt like too much in the track. The bass is doing a nice job. And then there's a bit of [Lexicon] 480 reverb on there. Not a lot.

HiMMP

That's a very tight reverb time, is it?

Mike Exeter

Just to give it some sustain.

HiMMP

A short plate?

Mike Exeter

It's, I don't know, probably a room or some sort of chamber. So, it's one of those things when I listened to one of Andy's [Sneap] mixes, and it was like, as soon as he hit stop, there was this church going on behind everything. And it's just this cohesive thing. The moment you take it away, it all jumps forward too much. It's trying to sit it back in the track. It's part of an overall mix rather than just sounding like an exercise in data entry.

HiMMP

And having looked at the kick and snare, let's look at the toms. Are the toms going to the same verb approach?

Mike Exeter

Yes, so the toms are being fed into a sub here. So, my toms are here. They're going to a reverb at the end of that section, which again seems like a bit uh . . . , but once you're in the track with it . . . If we get rid of the toms, there's nothing of them until they're actually engaged closer, and as I say, there's a lot of automation going on. Now also, what's in here is the room. That's treated to enhance what's going on here. So, it sounds like it's a three-dimensional room. And that's another of my pet peeves: mono room mics.

What's the deal with that? Why can't people put up stereo room mics? Because if you've recorded a stereo room mic, you can always mono it up. My choice was to go, okay, whatever that was, the cardioid, I think that single microphone sounded the closest to what I wanted to use. I then put that into my UAD Ocean Way rooms and created a stereo room from that. It's similar to what Chris Lord-Alge does when he only feeds his rooms into

reverbs. I wanted to make that sound like a really expensive room, but not a reverb. To me, that sounds like a really nice, powerful room.

HiMMP

But we're obviously not just hearing the reverb; that's a mix of the mic and the reverb?

Mike Exeter

Yes. The only reason I haven't got it live is that I haven't got my UAD card. So, I had to commit it. But I EQ'd it so that I didn't have as much snare in there, anything that was really splatty; I wanted that room to sound like it was gorgeous. And then that envelops the rest of the kit. You'll also hear it when you're in the snare. The snare really gets enhanced by that. If I go back to my VCAs, if you listen to just the kick and the snare, and then you bring the rooms in . . .

HiMMP

Do you roll off a lot of the metalwork in the room?

Mike Exeter

Yeah, I tend to do more spot EQ (Figure 3.10). I do lots of bell-shaped EQ. I mean, say that snare EQ that we looked at earlier. So, you see,

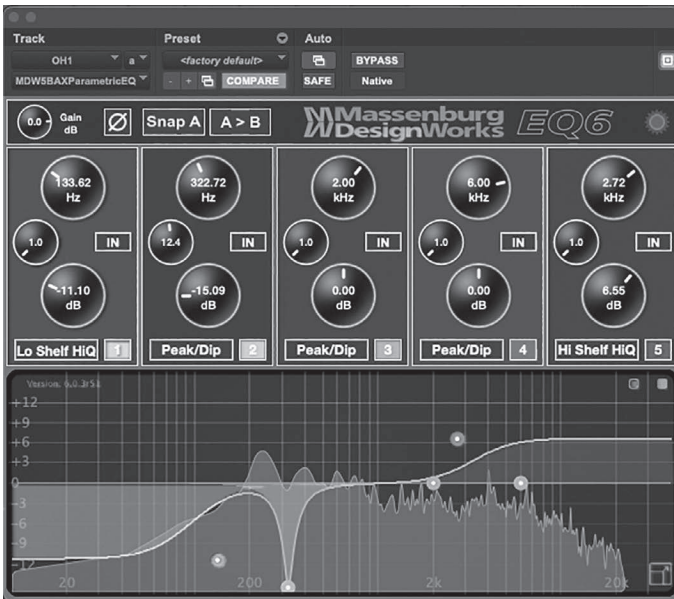


FIGURE 3.10 Overhead EQ enhancing the top end of the snare and cymbals while attenuating low-end rumble and resonances.

I'm taking out frequencies that you'd think, 'Oh, why don't you just do a wide frequency?' But I'm actually targeting specifics. I want to make sure that when I'm taking out a particular frequency, I'm taking out the right amounts. I'll do that with the room as well. I don't know what I've got on. I'm assuming those are the toms. It's like with my overheads, I'm dumping a load of that. Let's have a look and see what that is, actually. So that's those two overheads. If I bypass those two, it starts to get a bit more cardboard-sounding. I'm using the overheads to bring out the top end in the snare again. I'm getting rid of this horrible frequency here. Nobody wants that in their life. I'm also taking a lot of that; everything below there is a shelf.

You'll notice I never use filters, either. I don't like them. I think they're indiscriminate in what they do. So, I tend to use shelves, and I turn down the bottom end. It's probably why there's so much bottom end in my mixes; I don't want to indiscriminately go, 'Everything below this frequency is useless', because it's not. We didn't use to have filters on desks, or they were fixed at 120 Hz, so you turned down the bottom end. And if you do a test between a filter and a low shelf, you'll find what the shape of the filter is. It's a very severe, unmusical-sounding thing. You don't want it on a heavy guitar. And you're so almost dismissing everything down low and don't necessarily need to dismiss it, or you just want to take it out . . .

HiMMP

Even with the more gentle positions, with six dB an octave, you still prefer . . .

Mike Exeter

I don't think they're useful enough. If you look at one of these. If you put a filter on that high-pass, see, it's doing a completely different job than if you have a shelf. You're able to choose how much you want to dump, and it makes a huge difference, especially in rooms and overheads, as well because you'll find this section . . . If you try to use a gentle filter and you take it up too high, you're just as likely to be getting rid of stuff you want.

HiMMP

Interesting. And back to the metalwork in the rooms. Are you taking the metalwork to reverb?

Mike Exeter

No, that's literally just making use of the rooms.

HiMMP

So, the metalwork's pretty clean. Just a little bit of EQ.

Mike Exeter

Yeah, the metalwork is this. So that's the rooms and cymbals.

HiMMP

And was it just the one microphone that you chose in the rooms?

Mike Exeter

Yeah, I thought that felt good. That's the snare overhead. It's just harsh to me. It's getting everything I've created to get that kick and snare sounding great that gets in the way. To me, that's like parallel compression.

HiMMP

Yeah, I had a pair of Coles 4038 up, but one of them went down.

Mike Exeter

That's typical, isn't it? I mean, they sound good, the Coles, but let's have a look. I mean, that's been treated. But that feels almost like it's compressing, and it's not (Figure 3.11). See, I've got to work that one to make that do stuff, which I could. I mean, that's okay. And I'd probably have to do some remedial



FIGURE 3.11 Compression on the room tracks.

work before it to get rid of some of that abrasion, but to me, it's just, 'Actually, what's that like sitting in a nice room?' So, make the most of it.

HiMMP

And the [UAD] Ocean Way, you've got that on a separate aux, have you?

Mike Exeter

No, that was in insert mode. I just took your cardioid microphone and put it into the room. So, it was creating a bigger room but a stereo version, and then you play with the mix control to see how much of the centre you want, which, in this case, I don't really want much centre. I just want it to be like a reverb but not a reverb.

HiMMP

And then you just rendered it down.

Mike Exeter

Yeah.

Guitars

HiMMP

Beautiful. Moving on to the guitars, because you start with the kick and snare and guitars?

Mike Exeter

Yes.

HiMMP

Are we hard-panned with all guitars?

Mike Exeter

We are; is there any other way? We've got four guitars, and they sound very different. But that gives you the width; they're different amps; I chose them deliberately. I can't remember what the choices were. But I definitely went for different choices. And I've taken those as my main ones.

This was the thing, for me, finding a compressor (Figure 3.12). There was a particular section where this was really obvious. So, you'll see it. Now it's attacking it; it sounds like a consistent performance, whereas if you take that off, we lose the next bit.

HiMMP

Sure. And then EQ-wise, you've gone for EQ on the individual tracks. Generally, do you try to keep it on the individual tracks rather than the sum?



FIGURE 3.12 Broadband compression of the rhythm guitars for a more consistent volume.

Mike Exeter

Yeah, because they all need to do something different. Again, I've looked for resonances (Figure 3.13); it's the typical 3k[Hz]. We hate that. And a little bit of that [lower middle frequency] can sometimes be useful in the sound, but in this case, with the number of guitars I'm using, which is four times, I felt they needed brightening up a little bit. So, we've gone with some top end just again to get it out of the doldrums a bit, mainly because I've gotten rid of this frequency. I just wanted to compensate.

There's a great plugin called AIP (Amplified Instrument Process) by Korneff. And it's got this three-band filter thing. It's called the insufferable mid-range filter. It basically takes care of that. But it does it across three harmonic frequencies. I'm just in love with the Massenburg stuff. In fact, apart from probably one or two EQs, the entire thing is being done off Massenburg EQs and compressors because I haven't got the time to start going through which channel strip is right; they just work. I've got it mapped on here as well, although my mappings are probably not working.

But, like my EQ mapping, it's easy for me to grab hold of stuff than just tweak knobs. I can go into my mid-frequencies and screw with them and



FIGURE 3.13 Rhythm guitar EQ attenuating low-end rumble and high-mid harshness and resonances.

listen at the same time. I don't want to be doing it on screen; I hate it. And I've got it set up with custom plugin maps. Now, I'm sitting further over than I normally do. But when I'm sat mixing, I can reach over and grab my EQs. And it doesn't matter what EQ I put on; they're all mapped to have the same function. If I go for something like a FabFilter, or an SSL channel strip, I still know that the second screen on here, that knob, is the high-mid gain. So, it's like a console for me.

HiMMP

And the last plugin that you've got on the tracks?

Mike Exeter

That's Phoenix (Figure 3.14), and that's doing again, probably more than I thought it was. It's taming a bit of that top end but making it a bit more under control. It just tones down the peaks. You hear how that's really thickening it up but adding high harmonics. And I spend a lot of time with Phoenix choosing which brightness level and what type of emulation; it's meant to be like tape. It's a saturation thing that doesn't sound like [FabFilter] Devil Lock. Or what's the other one that I won't use? [Sound Toys] Decapitator.



FIGURE 3.14 Saturating the rhythm guitars to control the top-end peaks while adding harmonic overtones.

HiMMP

You don't like the Decapitator?

Mike Exeter

Well, I've got other things that do stuff. The Decapitator I would use if I needed to crunch up something. If this isn't doing it, I'll use FabFilter Saturn because it gives me more control. I mean, if you want to hear what that's done. That's what we started with, which, again, when you put it in with the rest of the tracks . . . If I solo that, so that's without any of this stuff, they can speak better now. Now, obviously, there's always going to be this level change when you take out all the processing, but you can tell. I just want to be able to make that sound like that.

HiMMP

That bass is working beautifully. I love the way the bass is set with the guitars. Can we have a look at the bass? There's no processing on the guitar sum; you've done it all on the individual?

Mike Exeter

No, all I've got . . . Once I get past the drums, I don't have these individual subgroups. I have default routing folders. So, guitar, these are a [SSL] G series (Figure 3.15); I'm using these to do that non-linearity thing. There's nothing going on except maybe a bit of harmonic distortion, but I doubt it's even touching it. So that's my summing buss. Basically, I've got those on every one of my 14 sub-mixes. Basically, each routing folder has one of those on it. And you'll see they've all got different channel types on them.

HiMMP

And just tell me what that processing is doing.



FIGURE 3.15 SSL channel strip on the guitar buss adding harmonic saturation.

Mike Exeter

Dirk [Ulrich] from Brainworx will tell you that they've analysed every channel in an SSL. What they've actually done is they randomized every single component or certain key components by about one or two per cent. When you choose a channel strip, it's changing values. If you were to put two identical things up left and right, let's say two guitar sounds, and then you went into this analogue mode, you'd feel a width change. And I used to do this thing where I'd randomise them and see what was best, but life's way too short. I just trust that they do it. I've also got Phoenix ready to go if that's not working, but I don't tend to use it.

Bass

HiMMP

And onto the bass, if that's alright.

Mike Exeter

I'm actually only using two [tracks]. That's the standard. I'm not actually EQing anything. It's just that's how they were recorded.

HiMMP

So, it's not the Skar Bass?

Mike Exeter

Yes. Skar Bass, and then I've got the amp. And this here is this sub-bass that I put in, which comes in and out at certain times. This is a section where there's some sub-bass that helps. It's just a synth. And there are times I want it, and there are times I don't like for the fast section. Obviously, there's a move on the bass. So, you'll see I'm bringing up the . . . that's changing the energy. If I hadn't done that, that aggression would have been gone. This is why I like the fact that I've got the options; I've got the choices of various things to play with because I don't have to go, 'Oh shit, do I need to automate an EQ or put a bit of extra aggression' (Figure 3.16). It's like, no, I'll just change the balance of those two faders.

HiMMP

And on the Skar and the Ampeg, have you done any processing on them?

Mike Exeter

Nothing, just balance.

HiMMP

And then they just go into the sum, and there's no processing on the sum.

Mike Exeter

Yeah, that's just flat.

HiMMP

And no compression?

Mike Exeter

No.

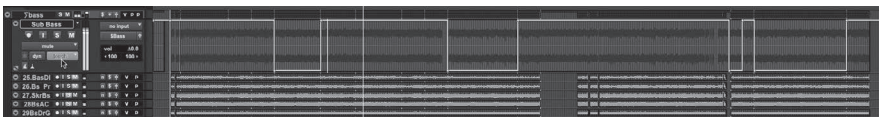


FIGURE 3.16 Volume automation of programmed bass synthesizer adding sub-bass in various sections.

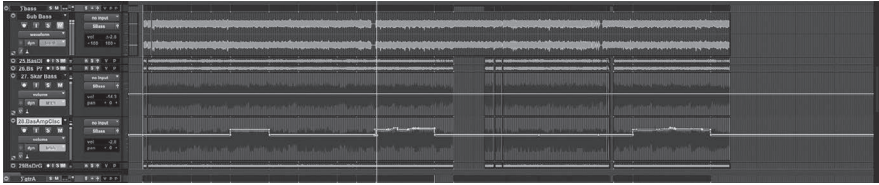


FIGURE 3.17 Volume automation on the Ampeg bass track.

HiMMP

That's fascinating; it sounds great.

Mike Exeter

Well, that's because I'm dealing with the dynamics by mixing. I don't know if I've got anything other than just a straightforward . . . Oh, okay. On my sub-bass, I'm riding that like something I can't talk about (Figure 3.17). The sub-bass has a lot of automation on it because there are times when I want it to, like, hear, or just go, and then it needs to cut back again. It comes out there. I've got a little bit of automation on the main Ampeg classic, especially in this section. I think there's a lick that goes on here; just, 'Oh, something's happening. I can't hear it, so turn it up.'

Vocals

HiMMP

That's fascinating. On to the vocals.

Mike Exeter

Vocals, there's quite a lot going on with that, mainly because, again, I'm at this stage where I want to pre-treat; there isn't a sidechain, well, there is a sidechain on this compressor, but I'd like to pre-treat my vocal. This is quite a dynamic vocal across the whole song. There is still quite a power difference in the delivery of that vocal. Sort of sits back because he's probably done that; he isn't as close on the proximity. What I'm looking to do is make it as consistent as possible without sounding compressed.

Now, initially, I want to get rid of any bottom end in the vocal (Figure 3.18), any subby stuff. There is some, but again, I've just turned it down; I've also got rid of that. It's the resonance of the microphone and his voice combined. So, I pre-treated that.

And then, in insert B, I've de-essed him (Figure 3.19), probably at the beginning where it says 'in solitude'. Not going mental with the de-essing because we don't want to turn him into a lisp.

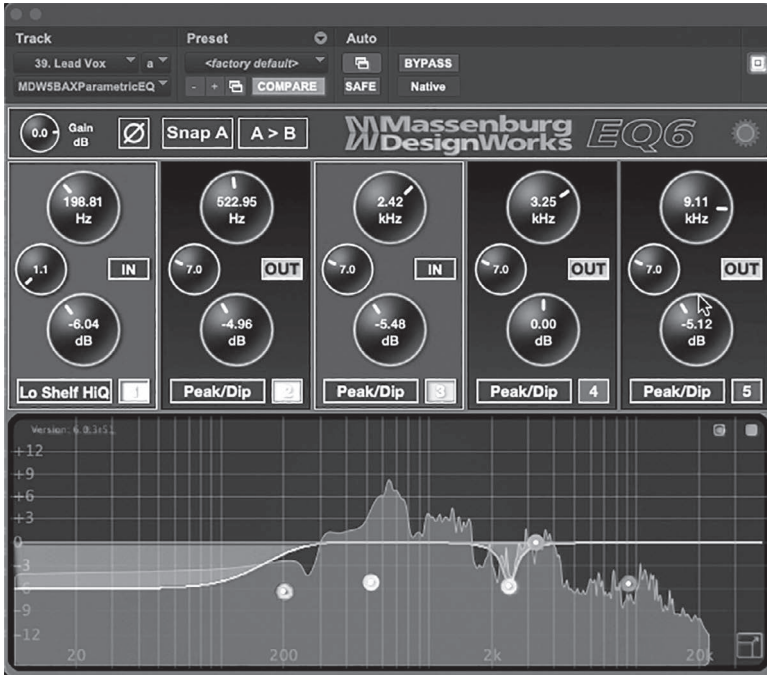


FIGURE 3.18 Lead vocal EQ attenuating rumble and microphone resonance.



FIGURE 3.19 De-essing the lead vocals.

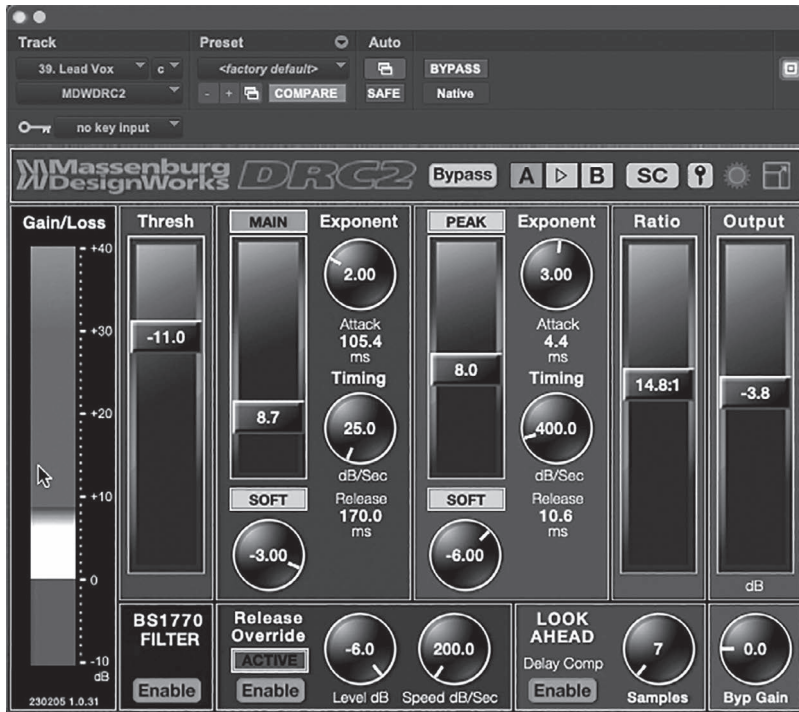


FIGURE 3.20 Compressing the lead vocals for more consistent volume.

But that's sort of prepping for what comes next, which is the dynamic range control (Figure 3.20). It's just solid across it. Without that, I'm hearing that distance change; it disappears back. I'm trying to give this the best chance possible of setting up in the track before I think about mixing it because I have actually got quite a lot of automation going on.

But then I'll go into another EQ, to which, in this case, I haven't bothered. I might put back some low mids if required. If it was a single vocal that I had just the raw track, I might craft it a bit more, but to be honest, there's so much going on, on these vocal stems; there are doubles on this one, so it's a bit of a compromise. There's nothing going on, on that one. And then I've got Phoenix at the end just to give it a bit of a lift. Just again, it's that adding harmonics a few octaves up.

The real key for me with vocals is my throw automation. All of that stuff that's going on, all of that automation happens going out to these sets of ridiculous amounts of effects returns and things (Figure 3.21). So, you'll see there's all this [long effects decay]. I'm just riding this stuff in the track. It gets soaked up by the track; as soon as you hit stop, it sounds like I've gone mad. But what I do with the vocals is I try to set scenes. So, it's like a certain

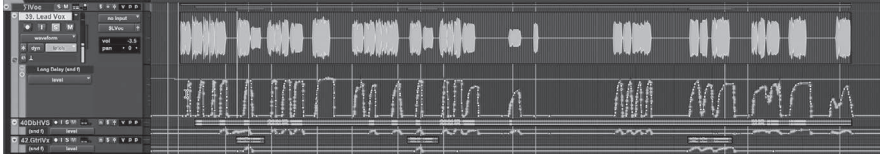


FIGURE 3.21 Automation on lead vocal effects busses.

point in a song, I want it to sound like this. If it was a section where I needed it to be drier, I would set up a scene of that, and I would commit that; I'd rehearse all of the returns feeding back into the other devices without feeding into themselves.

I've got five sends plus a throw, well, plus this long delay throw. I've always got a reverb, I've always got a ducking delay, a mono one, I've got a widener, a stereo delay, a throw, and then a long delay. And I've put a harmonizer on this one as well just so that it goes to an Eventide. At any point, I can sit, and I can go; I'm going to send this lead vocal across to the widener. From the widener, which these are all in the same order as the sends, I've got a reverb delay widener. In this instance, I've gone for two mono delays, as opposed to stereo, but it's still in there so that I can do feedback between left and right easily. Then I've got the throw. At any point, I can say, right, 'In this case, my widener I'm sending to it', and my widener is sending to the ducking delay, and it's also sending the reverb, the reverb is sending back to the stereo delay, so I'm actually delaying the return of the reverb. So instead of getting delays into a reverb, you're getting the reverb washing, and then this pulse at the end of the reverb tail is like waves.

And it's just a feel thing; I'll go mental on it. And I'll be like, does that feel like setting the depth right? Do I want the effects to be connected to the vocal, or do I want them slightly behind? If I want them connected, I'll do the sends off the actual main tracks; if I want them to be slightly behind, I still want the presence of the vocal, I'll send them off the widener because then the wideners left and right and that then sends to the other thing. So, you're disconnecting them slightly, and you're able to totally play with the depth of what that thing needs to do.

HiMMP

Fascinating. What do you use for the widener?

Mike Exeter

In this instance, I'm using TriceraChorus by Eventide (Figure 3.22). But I also use Wider, which is actually just inactive. It's called Infected Mushroom Wider. It looks like Nightrider's front end. It makes it wider without it being



FIGURE 3.22 Chorus enhancing the width of the lead vocals.

phasey, whereas in this instance, I wanted it to be a little bit behind; I wanted to smear the background a bit.

HiMMP

What reverb time are you looking at on your main verb?

Mike Exeter

Well, amazingly, I'm actually using Seventh Heaven (Figure 3.23). I've got to change that to the [Lexicon] 480, three and a half seconds. And that doesn't often change, to be honest, because it's the amount you send to it. If I kill these, that's without the widener. There's a backing double in there, but with the widener, it's giving it a bit more width and confidence. And then you have to balance the amount you're sending to it. That's now becoming part of your vocal sound because if I mute it, it's quieter. Everything has to happen from this balance between the two again, which is why surfaces are good. That's feeding the ducking delay, which is that.



FIGURE 3.23 Reverb for the vocals.

HiMMP

Did you get the vocal itself side-chained to a compressor on that?

Mike Exeter

It's just the EC-300 (Figure 3.24), which has it built in. You'll see the gain reduction, which is not actually doing that much on this one. If I were to feed more to it, it would duck out there; well, I can actually just up that. So I can change the amounts and the threshold. It's just not loud enough to be sending to it. But I want this mono delay behind. And I'll sometimes make it a slap-back delay, depending on what kind of genre it is. That then goes out to the reverb, which is here, which is also getting a little bit from the widener. It's a bit of a carry. If I turn up the send there . . .

Those are the kinds of things, and they're all automatable. Once that's done, it's like, where does the reverb go? Well, I've got it sending to the stereo delay. Now again, it all sounds like overkill, but once it's in the track . . . If we kill those, there's just no drama; you can't make him sit in the track, put those in, and then once everything's doing it, we'll see the movement starts to happen on the vocal tracks. So, here is my actual automation for the lead vocal. They look square; I'm not doing rides with a mouse; what I'm doing is I'm finding out what level I want this to be at in preview, and then I'm committing that for that section. Now, because the growl is going to come in, I need to turn the lead vocal down and balance it so it allows the growl to take over. It's all about the automation.

HiMMP

Fascinating.



FIGURE 3.24 Delay unit with gain reduction on a vocal delay buss.

Mike Exeter

And that's compressed and dynamically controlled, but it still needs automating.

HiMMP

Sure. And then, with the backing vocals and the harmony, you could possibly go for more spread and ambience on that.

Mike Exeter

Yeah, I mean, that was a single stereo track. I've gone through a similar process. I've used an [Eventide] H949 harmonizer to spread it out even more (Figure 3.25). With the lead vocal or anything like that, which is a centre instrument or centre vocal, I'll use something that's a little less obvious. Backing vocals, I'm always trying to get them out of the way. I go with these old ones, which have a little bit of modulation on them.

HiMMP

Ralf [Scheepers] is all about the stereo widening; that's what he wants, like really wide vocals.



FIGURE 3.25 Harmonizer spreading the stereo width of the backing vocals to create space for lead vocals and other instruments.

Mike Exeter

What I've also done is it's a simpler return set-up, but it's still basically the same stuff. It's a reverb and a delay, a widener, and a stereo delay, and it's how you treat those together and what you feed into them. That allows you to make them make a point. I keep saying about speaking in the track; it's like you don't want this wash of stuff going on. But if you can just introduce something that you get that little ear candy, that makes it do something a bit more interesting. You have to do that.

HiMMP

Interestingly, in your mix, you've gone for quite a prominence in the lower growl vocals. Was that just the additional impact and the drama?

Mike Exeter

Yeah, I mean, he's done them. I figured that it was something that people would want to hear rather than just bury it. That doesn't feature that often. I mean, how many times does it feature in the track?

HiMMP

It's actually a separate vocalist; it's Aaron [Stainthorpe] from My Dying Bride.

Mike Exeter

Okay, he's only got four sections across the entire track, so we might as well feature him. And we've heard the lead vocal, so why not just balance them in and get a little bit of something different?

Orchestration

HiMMP

And then, the approach with the depth and dimension of the orchestration is something that you found interesting with this track.

Mike Exeter

Yeah, to be honest, all the stuff at the beginning is just what it is, isn't it? So, we've got some of that. Now, those I definitely automated relatively heavily because I'm trying to play those to make them do something (Figure 3.26). I'm listening to the parts that they're playing, which, in solo, are pretty boring. That lift there, when everything else is in, I want to hear his vocal.

There are some strings there. But here, I want to push that. And EQ-wise, it's actually fairly straightforward; I'm boosting the snout out of both of them (Figure 3.27). But on the left side, because that's historically where the strings would be the higher violins and things, I've dumped all that low-frequency stuff because I don't need it in there. That can't compete with the guitars.

For some reason, I've got another EQ in there that might be something that's automated, actually, for a particular section (Figure 3.28). I've got loads going on there; there's a master bypass on it.

I brought it in for just one section, literally all taken out for one section. I didn't want that particular thing to get in the way. For some reason, I did that, I don't know. I've done all this off the VCA because they're identical. And then I coalesce the VCA down. I'd basically sat there and rode the string parts in and kept going back. And when I thought the vocal needed some support from the strings, I'd push them, and when the guitar needed to do something, I'd change the balance on the guitars.

The brass stuff is the heaviest part of the track for me. And the same deal, really, they're EQ'd differently to do the same thing to get that width going (Figure 3.29). When you get those two going, you've got to make them work together. See, there are some slight movements going on here. I'm trying to make those fit in with everything else that's going on. Because it's a nice part. I'll probably start feeding the horns up a bit more in the second half. No, I just left them as they were. That was fine. They did their job by the looks of it.

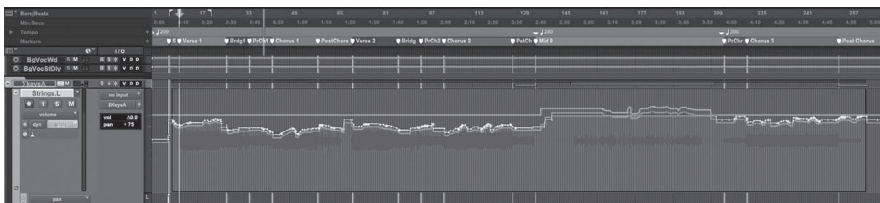


FIGURE 3.26 Volume automation of the strings to enhance their expression.

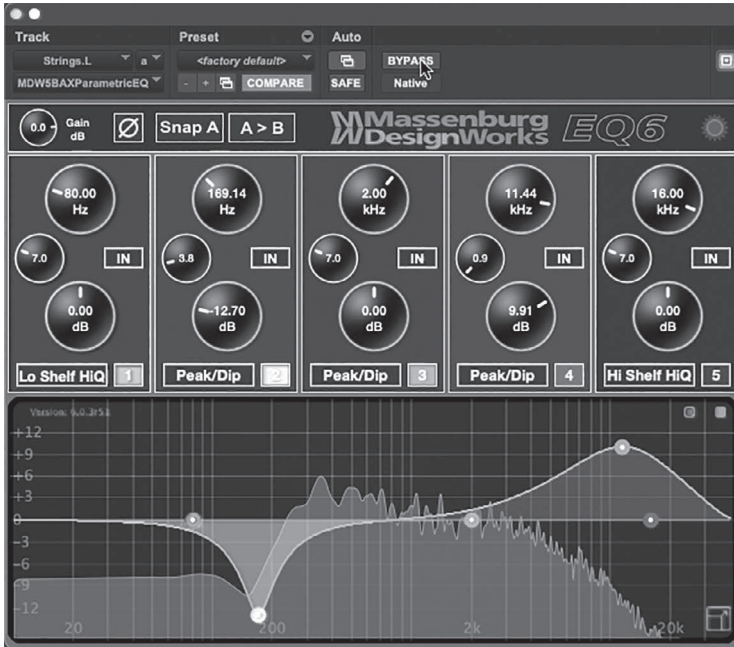


FIGURE 3.27 EQ on the strings enhancing their width for tone and intelligibility while attenuating the low end to create space.

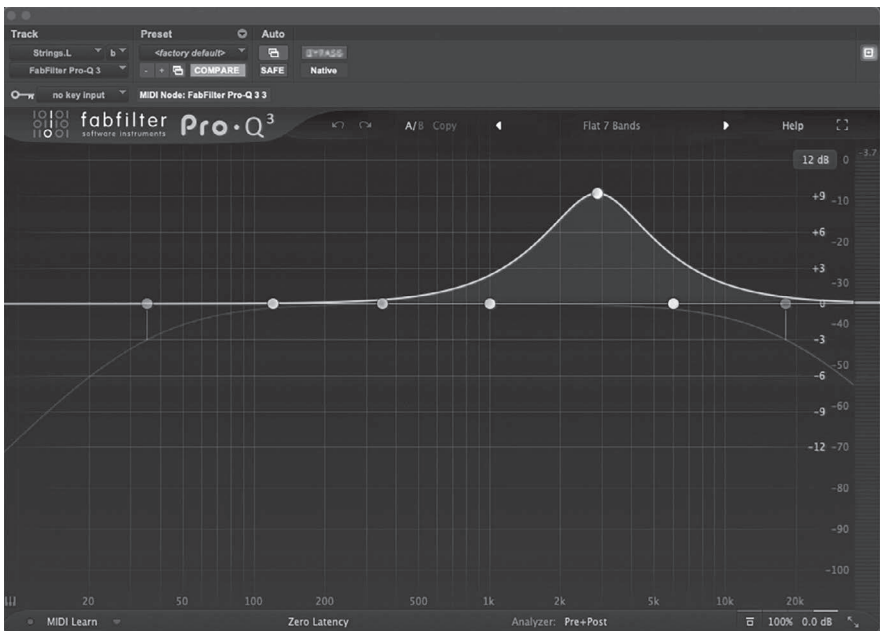


FIGURE 3.28 Automated high-mid boost to feature the strings in one section.



FIGURE 3.29 Two EQs for the brass instruments, improving the top end and making space in the low end.

HiMMP

And the spatial treatment of the brass and the strings . . .

Mike Exeter

[FabFilter] Pro R and Timeless (Figure 3.30). I'm not doing anything on the strings. In fact, I'm not doing anything. It didn't need anything by the looks

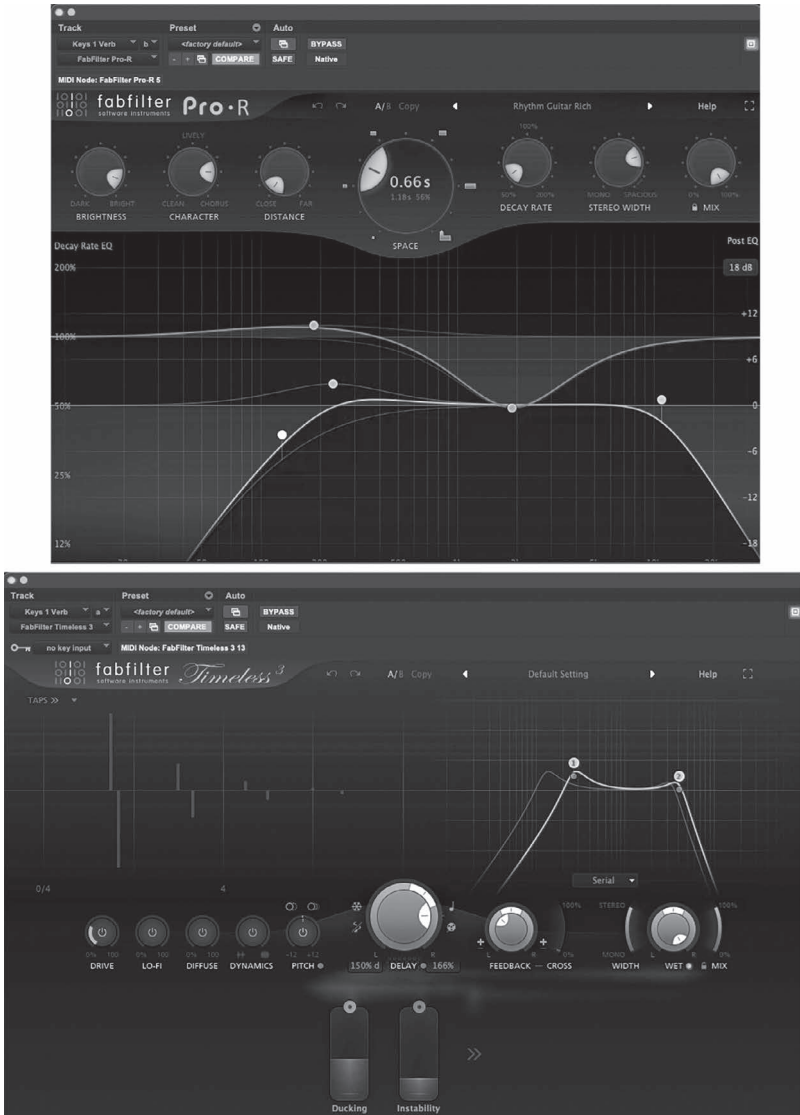


FIGURE 3.30 Reverb (top) and delay (bottom) for the piano to create more atmosphere.

of it because it already has a reverb on it. The piano is going to the reverb, which was really nice. That's a nice part. Again, there are little bits of automation trying to grab the first notes because he's still singing. You want to be able to hear the first note of the piano, so you have to turn it up. You could go in and clip gain this. No, listen to what it feels like it needs; you never know until you're there, like at the end, there's nothing else happening. So it just sits up there. It's nice.

Mastering

HiMMP

And then, last but not least, just a quick look. Am I right in saying you got a VCA compressor on the master buss?

Mike Exeter

Do you want to see my door slams? My door slams are any time we want to enhance a particular hit. That's when the first snare comes in; none of this, the snare isn't heavy enough. The door is slamming it. And the same is true with the snare, so you get this. Now, if I take them out. I just do anything to make it sound bigger because those are the sections where it's like, 'Oh, we really lose something here anyway; we lose the guitars.' So, fill the space. That's the heavy.

That's where suddenly you've got all this space. And there's room to put stuff in. You've changed the dynamic, and the guitars have been really present. But they've gone; we've now gone orchestral. Let's make the most of it. And that sets up the next section beautifully. And this is one of those fills where we actually hear every hit. We all love this part. It's easy doing slow stuff. But fast needs to be heavy as well.

HiMMP

It's interesting, as you were saying earlier when we're chatting, there's the very fast stuff. You were saying that's more about energy, and then you get the slower stuff. And that's where you get the heft and the weight, and it's a lot easier to when it's slower, you've got more space for reverb and got more space for low end, and it becomes a lot easier to put that weight in.

Mike Exeter

It does. But I think what's interesting is when you get into these faster sections, people will be frightened of having bottom end in the bass and the kicks, but you need it; if you don't have that bottom end at that point, you just get the typewriter effect. You get the choruses, I guess; everything's still doing its bit. The bass is providing that energy, but you still need to have . . .



FIGURE 3.31 SSL-style master buss compressor focusing mainly on the snare.

So, the bass is sitting under the kick because that's doing something more interesting. But by the time you get to this section, the bass is doing, I don't know what the bass is doing, to be honest. It's fine, but it's not that aggressive. It's about finding all the elements that work together. And in answer to where you're trying to go, which was the master buss, it's a [Brainworx] Townhouse compressor (Figure 3.31), which is all it's doing, and you'll hear it settle the snare, does more than that, but it's like, that's a bit aggressive for me actually.

HiMMP

Oh, you got an immediate attack time there?

Mike Exeter

Oh yeah, none of this slow attack, quick release bollocks.

HiMMP

So, fast attack, auto release?

Mike Exeter

Yeah, it's the Andy Wallace setting. The beauty is that, across all VCAs, I can choose how hard I want to hit it. Maybe that feels more appropriate. But I don't tend to do master fader pushes. That's where I liked it. That's where it felt right. If I do feel that it's hitting too hard, I'll just back it up a bit.

HiMMP

And you got the [ADPTR Audio] Metric AB? Are you just using some reference?

Mike Exeter

Yeah, it's brilliant. It gives me loudness metering and spectrum comparison on playback. Things like that. [Process Audio] Decibel is another metering

system. That's just something I have on a second screen at home, which does similar things. It gives me an idea of where I'm at RMS-wise and loudness. I tend to mix two. Generally, I mix in -14, -11 LUFS at the moment, and then, if it needs pushing, it can be pushed up.

HiMMP

Sure. Reasonable headroom for it to be mastered.

Mike Exeter

Yeah. My main thing is that I have an old-fashioned VU meter, which is great because that's what I understand. I've got a compressor. That's my reference thing. And again, it allows me to see dynamics and loudness. So that tells me what's going on with the peak-to-loudness ratio. And Loudness Penalty is like the website, which allows me to see what all of the streaming platforms are going to turn it down unless you use SoundCloud. They don't do anything, and then you get into arguments with bands.

HiMMP

Absolutely. Mike Exeter, thank you very much.

Note

¹ Here and in the following, our interviews have been expanded by this interview found online: Origin Effects (2022). Thomas (2015) and Thomas and King (2021) provide more details of Exeter's approach to metal music production.

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4

ADAM ‘NOLLY’ GETGOOD

4.1 Introduction

Adam ‘Nolly’ Getgood (b. 1987) is a British bass player, engineer, and producer specializing in contemporary progressive metal. After completing a degree in Music with a focus on bass performance, Getgood’s career gained momentum when he made a guest appearance on Periphery’s debut album, *Periphery* (2010). He later joined the band as their bassist and engineer, co-producing *Periphery II: This Time It’s Personal* (2012) and *Periphery III: Select Difficulty* (2016). Although Getgood left the band in 2017, he continued to collaborate with them, recording bass and co-producing their subsequent albums, *Periphery IV: Hail Stan* (2019) and *Periphery V: Djent Is Not a Genre* (2023). Notably, ‘The Price Is Wrong’, a track from *Periphery III: Select Difficulty*, was nominated for a Grammy Award for Best Metal Performance, with Getgood serving as engineer and co-producer.

Beyond his work with Periphery, Getgood has collaborated with numerous alternative progressive metal bands, many of which are signed to Sumerian Records. His credits include Animals as Leaders’ *The Joy of Motion* (2014), Devin Townsend Project’s *Transcendence* (2016) and *Empath* (2019), Sikth’s *The Future in Whose Eyes?* (2017), Architects’ *Doomsday* (2017), *Holy Hell* (2018), and *For Those That Wish to Exist* (2021). He has also contributed to several albums by Bleed From Within (e.g. *Shrine* 2022), Haken (e.g. *Virus* 2020), and Currents (*The Way It Ends* 2022). His influence in metal production has grown rapidly, and he has contributed a masterclass for Unstoppable Recording Machine’s ‘Nail the Mix’ series.

In 2015, Getgood co-founded GetGood Drums (GGD) with Periphery drummer Matt Halpern. GGD offers drum sample libraries specifically

tailored to rock and metal styles, MIDI drum grooves and fills, and drum compression processors. The company has since expanded its product range to include guitar cabinet impulse responses and a bass library, which features Getgood's 'renowned . . . percussive attack, rich distorted midrange and massive low end'.¹

Reflecting his background in contemporary progressive metal, Getgood produces entirely in the box using Apple Logic Pro. While his approach remains musical and performance-oriented, he fully exploits the capabilities of digital technology, including intelligent and dynamic processing. His production philosophy is artist-centred, aiming to support bands in realizing their vision rather than imposing his own sonic signature on their music. Getgood emphasized the importance of connecting with the music, stating that his enjoyment of the material is the primary prerequisite for achieving excellence as an engineer or producer.

Heaviness

Getgood offered a clear articulation of his understanding of heaviness, emphasizing its cultural heritage in classical music with its powerful sounds and emotional resonance. He cited Pyotr Ilyich Tchaikovsky's concert overture *The Year 1812, Solemn Overture, Op. 49* (1882), which reflects Russia's successful defence against Napoleon's invasion in 1812, as an example. Getgood referenced the distorted textures of string instruments and the immense volume, noise, and sonic weight generated by cannons.

In the context of metal, Getgood interprets heaviness literally rather than emotionally. For him, heaviness is represented by the sound of massive objects or phenomena, such as enormous machinery, animals, or natural disasters. These sounds tend to be characterized by a stomping quality and mechanical or military traits, which he associates with unstoppable forces like robots such as the Terminator. This imagery conveys a sense of overwhelming size and power that dwarfs the listener, creating an exciting, visceral, and bodily experience.

Sonically, Getgood sees heaviness as embodied by distinct low-end frequencies, sub-drops, and industrial loops that evoke a bodily response. Digital audio technology allows for the full exploitation of the frequency spectrum, able to deliver power, punch, and clarity. Achieving this mechanical quality requires highly synchronized performances, which create the 'oneness' of sound and punch necessary for a cohesive wall of sound, as exemplified by Meshuggah. For Getgood, this high-fidelity approach represents the primary form of heaviness.

By contrast, lo-fi productions—common in black metal—represent a different kind of heaviness, centred on emotional atmospheres and feelings such as bleakness and nihilism. While the harsh sounds in these productions

effectively evoke such feelings, for Getgood, they lack the overwhelming physical sensations of sonic weight and synchronized energy that characterize contemporary high-fidelity metal music.

In Solitude

Getgood's mix of 'In Solitude' balanced contemporary production techniques with a respect for the recorded performances. For the drums, he prioritized the acoustic recordings, enhancing the kick and snare with samples only where necessary to compensate for lacking qualities. The kick sample provided a lower tuning, less muffling, and more clack, while the snare sample added a room sound, allowing Getgood to replace the recorded room tracks with a triggered sample plus reverb for greater control and a modern aesthetic. Automation was applied to the kick and snare to smooth out tonal and volume disparities between fast and slow sections. Notably, Getgood boosted the low end of the snare's top and bottom tracks to add weight, but controlled it with a dynamic EQ to maintain tonal consistency between slower backbeats and faster blast beats. He also heavily compressed and saturated the snare to emulate the sound of drums in a live room, achieving a balance between hyper-real and natural aesthetics. Instead of relying on naturally ringing shells, he used reverb to create an artificial room sound with an explosive quality. Saturation further enhanced harmonic overtones, controlled transients, and introduced an aggressive character, while parallel compression was used to increase energy and cohesion.

To address cymbal bleed, an inherent challenge when working with natural drums, Getgood employed multiband saturation and dynamic range expansion. He applied multiband compression and dynamic EQ to balance the timbre across the different performance features in various sections. Transient designers and EQs were automated to shape the attack and sustain for each section.

For the bass, Getgood chose to work with the existing tracks rather than create a tone from scratch. He used all the provided tracks unchanged, except for the DI, which required dynamic range compression to address uneven loudness. He emphasized the importance of the DI signal for its non-distorted tone, which contributes a round, flat low end and a stringy character. Processing at the buss level was straightforward but effective. EQ adjustments included boosting the low end to provide a solid foundation for the bass and guitar combination, attenuating low-mid muddiness, and enhancing the mid-range to accentuate the clacking character, enabling the bass to cut through the mix. A low-pass filter was also applied to create space for the guitars, drums, and vocals.

Many of the frequency spectrum adjustments and multiband compression were dynamic, responding to changes in the audio content over time

to ensure a consistent timbre and volume across all sections. For low-end management, Getgood employed parallel processing to duck the bass's low end during kick hits, achieving a balance between the transient impact and the sustained elements of the low frequencies.

Getgood re-amped all four guitar tracks, using the same tone for each and stressing the importance of the cabinet in shaping the guitar sound. He chose Mesa Boogie Oversized cabinets to achieve 'the sound of the genre'. For Getgood, mixing guitars involves creating a more controlled version of the raw sound while keeping the process straightforward. In 'In Solitude', this approach included boosting the mid-range to enhance intelligibility, attenuating low-mid muddiness for clarity, and applying high-pass and low-pass filters to narrow the guitar's frequency spectrum. Dynamic processing was limited to multiband compression in the lower range to even out the guitar's volume during palm-muted sections.

Orchestration and other post-production elements were relevant in Getgood's mix. To widen the stereo image and create space for the primary instruments, he reduced the mid-range of the strings in the centre channel. While the orchestral elements smoothed transitions between light and heavy sections and added atmosphere, Getgood placed greater importance on sub-sonic drops, ambient samples, and booming sounds for their impact on the overall mix.

Vocal production was relatively straightforward. Getgood emphasized the importance of compression to ensure a consistently even volume, allowing the vocals to compete effectively with the distorted instruments. Similar to his approach with instruments, he employed multiband compression and dynamic EQ to maintain a balanced timbre across pitch ranges and vocal articulations. For vocal effects, he chose standard tools, including delay, reverb, and widening.

Getgood's mastering process employed two main summing busses: a relatively untreated vocal buss and a more processed instrumental buss. On the instrumental buss, compression gently reduced the dynamic range, primarily affecting the snare while adding aggressive qualities and cohesion. Getgood highlighted the importance of tape emulation in his mastering workflow, noting that it enriched the mid-range with harmonic distortion and enhanced the low end of the kick, contributing to the overall sonic impact and heaviness.

4.2 Conceptual Interview on Heaviness

HiMMP

I'm interested in your early experiences with harmonically distorted guitars and rock and heavy music. When was that? And what impact did it have on you?

Adam Getgood

It would have been pretty early on. I remember being in the car listening to my parents' cassette tapes, and I don't know if they had their own compilations or compilations that they bought, but there'd be all sorts of music from the '50s and '60s: Beatles, and then more pop from the era. But I would always gravitate towards the guitar-driven songs. This is something I only realized much later. But there are a couple of Chuck Berry tunes on there and stuff like that. And for whatever reason, those songs excited me.

But almost to go back a step, my dad was a huge classical music fan, still is, and when he'd be around the house, it's quite often in the evenings, he'd put on a vinyl, like concertos, symphonies, that kind of thing. And similarly, if you put on something by some of the Romantic composers, Tchaikovsky, Beethoven, that kind of stuff, you get these really powerful things, Beethoven's Fifth Symphony or the Tchaikovsky symphony [*The Year 1812, Solemn Overture, Op. 49, 1882*], which I'm thinking of that literally has the sound of cannons in it. It's about Napoleon. It's got that sound of cannons, and I remember he told me I would get so excited about those moments, those feelings of power, the huge noises that were coming out of the speakers for those kinds of things.

So, that's for me, where I draw it from. And I think a harmonically distorted guitar is not that far off, like violins and violas and double bass when you think of that really grindy sound off the bow on the string. All that stuff, for me, is in that similar ballpark.

HiMMP

So, you feel there are other genres that can be heavy. Anything else apart from classical music?

Adam Getgood

I feel like almost reframing the question; it's like, what is heavy, which I guess is what this whole thing is about. And my theory is that heavy is a very literal description. I'm not talking about emotionally heavy; I'm talking about massive objects, the sound of massive objects. You think of huge machinery like massive ships, foghorns, or massive animals, that guttural, grunty, heavy stomping character that you think of like industrial, mechanical, or military objects; these sounds that we encounter; or natural disaster type things, earthquakes, volcanoes, and thunderstorms and lightning. All these things are, for me, the root of what we experience as heavy, like our association with these massive things that are much bigger than us and dwarf us when we hear them and overwhelm us with power. There is nothing you can do; you are just completely overwhelmed by the world. And for me, that's the root of the excitement.

When you hear heavy music, it's experiencing a bit of that. When you hear a sound that sufficiently crosses this threshold of sounding, or I mean into something like yelling, like when someone's really yelling, the sense of power that you get off them, again, could be related to a gorilla or an elephant trumpet or something like these hugely powerful animal noises. They do something: they physically move your body in a way that we don't experience every day.

And, for me, heaviness in music is related to that, so industrial music quite obviously has this heavy machinery thumping away and grinding and flanking. The really messy subgenres of metal, like the grindcore and sludge stuff, for me, are more like that animal kind of thing. And it's reflected in the vocals if you think about it, that disgusting, squalid, like natural organism heaviness through to progressive metal. I mean, which is what I do a lot; a lot of the music, for me, is not actually heavy in the moment. But there'll be moments in the songs where it descends into heaviness in that Meshuggah mechanical, soulless, machinery robotic way, which, again, is like that Terminator-like unstoppable force kind of heaviness. So that, for me, is the root of heaviness.

HiMMP

Fascinating. Psychoacoustically, all sounds give a perception of size, and you wouldn't expect a household cat to roar like a lion. So, this perception of size is all around us. And that's when you even hear distorted guitars quiet. They sound loud because when we're growing up, the voice distorts through volume, and our hearing distorts through volume. So, as soon as we hear this distortion, we associate it with loudness. Those are really fascinating perspectives. And from a musical performance and sonic perspective, how would you characterize heavy music as having changed through the years since those early Sabbath albums and since those early albums that you were listening to, Chuck Berry, and the perceptions of early stages of heaviness through to really state-of-the-art heaviness these days?

Adam Getgood

I think our expectations of sonic presentation now are so different. Our playback mediums are so good. Even on air pods, things sound pretty good. And production in the box, in good studios with the software, techniques, and the knowledge that we have now, I think we can just get so much further past that threshold of where it's triggering those animal associations, those psychological body experiences when we hear them.

So, for me now, it's difficult to listen to the early Sabbath. I certainly wouldn't hear the things I heard as a young child, like Chuck Berry, as heavy. I hear Black Sabbath, but it doesn't cross that threshold for me. I hear some guys in a room playing music, but I've been desensitized through exposure to modern heavy music to find that that doesn't invoke those feelings in me. But

for sure, at the time, I'm sure because people hadn't heard anything like that, it must have very much brought out those feelings of emotional overwhelm, as it were, due to the sound, the heavy guitars, the heavy bass, which was huge with Black Sabbath, of course.

HiMMP

And from the perspective of recording and reproducing heaviness, you were referencing bass there and the contribution to early Sabbath. What are the qualities that, within a mix, contribute to heaviness and translate those feelings? You were explaining there about the awe of thunderstorms and of earthquakes and machinery in industry that translate those emotions to the listener. How does it vary across these different categories of music, like progressive metal, metalcore, or more traditional metal? How do those aspects change in delivering heaviness within the mix?

Adam Getgood

It's a very deep question. But I think something that gives me a sense of heaviness is tightness in performance, at least in the modern sense of this more mechanical, industrial-type, military-esque, war-like heaviness. It's about all of the things hitting at the same time and generating this oneness of the sound. So, talking about the bass, when you've got a distorted bass guitar, it really adds huge amounts of richness to that lower end. Combining with the guitars in this way makes it sound like one massive floor-to-ceiling sound, punctuated so that every attack is hit with a kick drum, and you've got this punch of the snare as well. It's like the sum of all those parts together gives me, if I think about it, that sensation of a huge object, the heavy aspect.

And for me, and I know this is very different for other producers, when things get too far out of alignment, when they're too human-sounding . . . I'm not saying that everything needs to be 100% on the grid. When stuff starts to not be as locked in anymore, you start to lose that element. Now, maybe that generates a different kind of element. If you think of a huge army of people, they're not 100% in sync; I mean, honestly, they're robots. This is all very imaginative, I guess. But there are plenty of huge sounds we encounter in nature and in life that are not this incredibly single punch, single wall of sound. And I guess the performance somehow needs to invoke one of those things, or maybe multiple at the same time, like chucking heavy string arrangements on top of a more basic rock band to layer a couple of different feelings of heaviness.

But I think, for me, the bands that stand out as the absolute heaviest have just that one source, like Meshuggah, where it's so refined in this deep mechanical, psychopathic, unknowable universal sense of heaviness, that it would be weird if they started throwing strings on top or bringing too much

of, like, a sludgy, disgusting grindcore element to it or something like that—it just somehow wouldn't fit; I think it would be too confusing.

So, I feel like I'm giving you a very wavering answer. But that's the thing I'm thinking of. You mentioned metalcore, and for me, metalcore riffing plays off a lot of classical themes. It is a lot of that minor scale, harmonic minor scale thing done, and harmonized stuff as well. It's like what you hear when you hear classical music, Romantic music really, or Baroque. So yeah, I think the different genres are pulling from different real-world cues that they're probably not super aware of. And also musical, cultural heritage that comes in as well from another side, and they're fusing it in different ways.

HiMMP

Fascinating. We briefly talked earlier about the way that you want to represent the musicians' intentions as much as possible; you will get a multi-track with the perspective of 'I need to represent, and what I'm getting given is representative of what the musicians want'. From that perspective, how do you square that with your feelings about absolute synchronization? In other words, will you try to avoid quantizing the drums? And I think what I'm asking about is your search for perfection, which a lot of metal music is about, this strive for rhythmical ensemble synchronization, incredibly tightly synchronized while retaining the performative elements as actually captured. How do you navigate that divide?

Adam Getgood

I think what you're talking about there, for me, is more of a life philosophy. It's more related to me as a person and how I like to approach my craft. And what I think my craft even is, as a mixer, is that I'm doing a service to someone else who's had the musical vision. If something comes across my desk as a potential thing to work on and it's really not ticking the box, it's not the music that I like, then unless I'm really strapped for cash, I'm not going to take it on because I feel like there isn't going to be this natural alignment of what they're looking for and what I do, and I'm not going to really enjoy it. I'm not going to intuitively do what they want, and they're probably not going to get the best result.

I think really it's more like a philosophy values thing. I don't want to become the kind of person where my work is just about imposing my absolute fascist dictatorship over their music and making it what I think it should be; I've done that in the past. I think everyone does, especially when you're learning. You're using the music that you're working on. It's like a testbed of, like, 'Can I achieve this kind of thing?' And I guess you get to a certain point where you do a few productions, where everything goes your way, and you're like, 'Oh, cool. All right, I've done that now; what's next?', and I guess one option would just be to do that over and over and over again. But that

seems pretty boring to me. Replace the drums with the same drum samples of the same family of drum samples, use the same amps, and use the same processing.

Mix processing falls in a slightly different ballpark because you're working on different source tones. You can use the same compressor on a vocal, in vocal A and vocal B, and the results can be really different because they're different vocalists. You could just flatten out all the differences between every job you do, and I think that's a bit boring. So, there's more of just a curiosity for me of, like, what is this person trying to do? If everything's really loose, and I'm like, 'Guys, is this intentional?' And they're like, 'Well, it's not really what we wanted,' then sure, let's go and quantize it. But if the client comes back to me and goes like, 'No, that's how we want it. That's how we like it to sound,' then, unless I'm just completely turned off by it, I'm going to try and work with them and be like, 'Okay, cool, let's see what happens.' I'm going to do my thing and see where we end up. Maybe it's not going to be my favourite record in the world. But I'm curious to see what will come out. So that's a different thing than achieving heavy perfection.

HiMMP

Yeah, that makes sense. And continuing with the theme of the way that heaviness has changed over time, what are your observations about how you navigate the challenges of these performance tempi and very fast performances with very down-tuned instruments? So, you've got several times more performance events per second than in most other genres, combined with incredibly slow, long wavelengths. And that's a specific challenge. And then you've got the space available for reverb. What are your observations about performance tightness and about representing those sonics to the listener?

Adam Getgood

I think a lot of it is intuitive. When I work as a mixer, I'm not thinking too technically about it; I'm just listening. And when I'm mixing, I'm error-checking. I create some sounds by working on the source tones, and then I listen. And I'm checking for errors like, 'Oh, the low end's getting out of control; I should do something about it.' I could use an EQ to maybe duck the low end out of a kick or even the whole mix. But then I might be like, 'On this section, now it sounds really thin, so maybe I should do something dynamic instead.' So, it's about error spotting and then finding the most appropriate fix.

So, I don't know that I've necessarily got a very specific, objective answer to what you're asking. But I do think that tightness of performance helps clarity, especially if you're talking really fast, really low consistency of performance, like, so if it's fast guitar playing, even-sounding picking if it's supposed to be just like constant sixteenth or gallops or whatever, if the guitarist

is really tight and plays with a very similar intensity throughout, you can get that to sit really audibly in the mix. Whereas if you've got the opposite of those things, you're just always fighting for it. Frankly, some bands would sound better if they played slower and higher. But it's all just different; there's a whole spectrum of what people want to hear in their music. And as a mixer, I would just be trying to get appropriate tones and then listening to see if things are getting out of control and if there's anything that can be done to aid listening ability in certain sections.

HiMMP

Sure. And what textures have you dealt with that you feel have really contributed to the heaviness of the band outside of drums, bass, guitar, and vocals?

Adam Getgood

Outside of that? I mean, the very classic thing is the sub-drop, classic, you know, to someone of my age, which, especially in the early 2000s, was getting used a lot in the very commercial metalcore thing where you're getting these low bass drops and stuff like that, which especially live would have a huge impact. So, there's that, but I mean, I'm aware of people using synth reinforcement on their bass. I do. I didn't have to add any of these things [on 'In Solitude'], but I do quite frequently get music now that has lots of synth layers and programming. That's become very fashionable in the more commercial metal genres.

And that stuff can add; you quite often get these industrial-sounding loops, usually from a [Native Instruments] Kontakt library that everyone uses. There are the very industrial-sounding loops that people just chuck under a stompy riff, and it immediately gives it this huge industrial character. I'm starting to think outside of the things you're talking about. But it's supporting sounds; it can be synthetic. They could be strings; they could be more percussive elements. But all those things, layered up, can add to heaviness.

HiMMP

What are your thoughts about how low-fidelity productions contrast with high-fidelity productions? Obviously, you're renowned as a specialist within a genre of music which broadly characterizes as progressive metal that's got a really high emphasis on clarity to understand the complexity of the performance because those performances no longer make sense if you can't understand them. And so, from a genre of music with really high prestige on the clarity side of things, how do you compare it? That's a sense of heaviness from a progressive metal production that's very high fidelity compared to a lo-fi black metal production, for example. Do you still feel that they are subjectively heavy? Or is it a different kind of heaviness?

Adam Getgood

I think it's a different kind of heaviness. I never got into that music and felt emotionally connected to it, which is, I think, where that heaviness comes from because it certainly isn't coming from the sonics. If we're using my definition of heaviness, which involves this broad range, especially the low frequencies, those overwhelming body sensations. When you hear black metal, it's much narrower sounding; it's lo-fi, like you say, so it doesn't give me the feeling of heaviness, but it can give me a whole other range of emotions. And I certainly understand that in trying to talk about bleakness and nihilism, harshness is appropriate. You know what I mean? It shouldn't sound glossy and nice if you're really trying to talk about the most nihilistic and sadistic elements of the world; it's a bit weird to present it really hi-fi.

So, I respect what it's trying to do, and also bands like Converge or other Kurt Ballou productions. They tend to have this very raw aesthetic that, again, invokes feelings, and I think Converge can be quite heavy. I think it crosses the threshold into a big frequency range enough that it can feel really heavy. But it's a different emotional takeaway for me when I'm hearing that music, and it's just different; it doesn't hit me in the same way as hearing a really modern heavy production.

HiMMP

And with the albums that you've produced, do you look back and remember certain albums having presented certain challenges to you? What were those challenges? How did you overcome them? How did that impact the outcome of the albums?

Adam Getgood

I think the number one thing which has happened across several albums is very dense productions. I'm thinking of working with Devin Townsend [*Empath*, 2019] in particular, where we mix the record, and then we actually mixed a second record, and he ended up taking the stems and pretty much re-mixing it himself. But we went through that process of mixing that music, and these are some of the most challenging mixes, not only the densest arrangement-wise. But with someone who has the vision for the specificity of the level of every element and understands the intention behind every element there, that's incredibly tricky. And when someone wants everything to be turned up, everything. I'm not saying that he doesn't know what he's doing; it's just that everything needs to be audible.

You can get to a point where it either sounds washy, or you end up globally turning everything down to fit it in. Just so it's not all, everything apart from the rock band underneath. And it can lose the size. And I think the way that I dealt with that, apart from plenty of automation to make sure that things could shine through when they needed to, plenty of use of modern

digital plugins that are quite clever, things like Track Spacer. I didn't think I had Gullfoss at the time, but dynamic band EQ or multiband compressing, side-chaining things so that things could stay out of each other's way in a consistent way. If you understand what I mean, if everything's more dynamically flat, then you can make them this different in sound and still hear both of them. Whereas if they're both all over the place, then it gets really confusing.

So, there's that, and then I think the other thing is choosing your moments. Letting it be overwhelming at certain points when it really hits its peak and allowing the drums, guitar, and bass to get a bit overwhelmed by all of these things because it is an overwhelming sensation. If it was like that the whole time, it would just be like, 'I can't hear the drums and guitars and bass.' But if you've heard enough of the band in the build-up to these massive epic bits, then you can let it get a bit out of control. And if the listeners followed you along for the ride, then it's going to have the necessary impact. So yeah, allowing it to ebb and flow a little bit.

HiMMP

Yeah, the listener journey really provides the dynamics. What are your reflections on metal music production that is overproduced? Have you heard many examples of these productions that sound too overproduced or excessively fake?

Adam Getgood

I think there's stuff that I hear that is overproduced. When I think of overproduced, I really think of poorly arranged, by which I mean too many competing elements. And no amount of mixing is going to make them all passable. You're not going to be able to follow all of that as a listener. It's a bit like too many voices speaking at the same time. So that, for me, will be overproduced.

Fake, you definitely hear it, especially drums. I think that naturalish-sounding drums can be combined with incredibly edited guitars, and the overall output isn't going to sound too fake. But I think the drum sound is not even just about the timing; it's when someone's clearly thought about every element of the kit in a separate little box: 'I'm going to make the most powerful snare sound, I'm going to make the most powerful kick sound, and make the most powerful toms, and cymbals are going to be doing their thing up there.' I'm not saying this is right or wrong, but for me, they haven't approached it thinking of the kit as a whole cohesive element that was recorded simultaneously in a space. For me, it starts to become more like electronic music. And for me, I lose . . . Gosh, that sounds like a really harsh word; I don't mean it in a harsh way. But there's a loss of integrity in the real definition of the word of playing together, which is what I'm looking for when I hear music. Like, if I subconsciously or consciously can relate it back to a real event that

happened, a drummer in a room playing or drums that were sampled in a room, which is what I try to do with my company, and I'm not trying to do a plug.

But with my company [GetGood Drums], when we sample drums, my goal is hopefully that people use them in their completeness, that they don't mix and match between loads of things and stack them up with too many samples, so it still sounds like a cohesive thing. But I feel like when I get that sense, my attachment to the music and the depth of engagement with the music is much deeper. It's like, you could have an amazing plate of food. It's delicious. But then, if the same experience was preceded by someone showing you around the farm where the vegetables were grown, and explaining a bit about the cooking process, or you just have the knowledge to be able to infer that from what you're eating, that's more information that your brain can do stuff with, and more gratitude that you can have for every bite and understanding. Do you understand what I mean? Like me, when things get too fake, it's like, 'Cool, that's amazing, but I lack the engagement.' You know, cerebrally.

HiMMP

And longer sounds like the energy that you'd get out of a drummer in a room, for example. And, therefore, you don't imagine the drummer behind the kit. You don't perceive the energy of a drummer hitting objects that are getting the actual hits. It just, like you say, becomes almost like dance music, which is fine if that's what you want. So, a really interesting perspective there is about the representations of the performances and the way that you solve the challenges with different albums. What are the general trade-offs you're looking at when you're mixing a metal album? Is it that with increased punching clarity, there's less of a sense of cohesion, or with a greater sense of punch with the drums, they're less natural sounding, or with increased attention to quantization, you lose the sense of authenticity? Are there other general trade-offs that you're trying to navigate all the time?

Adam Getgood

It's a good question. I suppose, yes, inevitably. But I do think that technology, experience, and skill are adding up to productions that more and more are having their cakes and eating them. I feel the quality of high-end metal production now is achieving punch like never before, along with frequency bandwidth, low end, and high end. And what I mean is just really pleasing amounts of information across the frequency spectrum. The best ones are still having some kind of character, whether you've got discernible performances. The genre is getting older, and people know more and more what to do with it, so the harvesting and engineering of tones are getting better and better. It's gone from a pretty small subgenre where just a few people were

very skilled at it to now. There's information out there so that everyone can tune drums really well, technology to get rid of bleed, and guitar amp sims sound phenomenal, like the best guitar recordings from a few decades ago.

And instruments are coming a long way as well; you've got things like the Evertune Bridge, for example. It allows things to sound more in tune to people who don't necessarily have the patience to go down those rabbit holes tuning a guitar that doesn't have one or basses with long scales that can represent the notes better; the standard musicianship is going up. So, what I'm trying to get at is I think that a lot of the things that used to be trade-offs are gradually becoming more able to be coexistent. But I think, inevitably, that the one we were talking about before, the drum sampling thing. You can create too much emphasis; you can lean too heavily on robotic or fake-sounding samples that, maybe taken as an individual hit, are getting bigger and punchier, but when copy-pasted across a whole tune, they lose their impact, or they lose that authenticity.

We're talking about age-old trade-offs of any creative thing, where if you try and push too far in one direction, it starts to flatten back that, like, if someone yells at you all day long, you're not going to feel the way about his yelling like the first time he yelled at you. Then likewise, if a production starts off a song insanely heavy, but then it stays at exactly that same intensity the whole time, by the end, you're going to be a bit desensitized to it, and it's not going to be impacting you in that same way. And I feel like that's something as old as time; any dramatic or creative outlet would have the same problem. I think it's just the nature of us as humans, as listeners, as consumers. I feel like that's a pretty conceptual response to what you're saying.

HiMMP

And it's very true in films. I think they call it the 'jump scare', don't they, where the dynamics are very quiet before a significant event. And that event at the chest-burster scene in *Alien*, where it's very quiet to heighten the dynamic changes, and I think if it's like that all the time, as you say, you get desensitized. Fantastic. Thank you so much. Are we okay to have a look at the mix that you've done?

Adam Getgood

Let's get into it.

4.3 Mix of 'In Solitude'

Drums

HiMMP

When you first got the multi-track, did you develop an idea of where you wanted to go with it? Or did you just start with the drums or the vocals? What was your initial approach?

Adam Getgood

When I started mixing, I wasn't really thinking in those terms of, like, the challenges and stuff like that. The first thing I'll be doing is just importing tracks and working on the drums. The drums are always first because that's the one element where I feel like you need to do a lot to get them up to par for a modern, heavy music mix. There's a lot to be sorted out. There's maybe stripping of the toms, although that was taken care of here. There are gauging bleed levels, like signal-to-bleed levels, figuring out whether the room sound is going to be usable in terms of making it really loud in the mix. Or if there's too much cymbals, or the drums aren't really, you know what I mean? Performance elements, like whether you are going to need to use samples to flatten stuff out or not.

So, that'll be the first thing that I'm scoping out, and I'll be doing that by working on it at the same time. I'll just be loading up the tracks and doing some of my typical moves to reduce bleed. And once the drums are sounding pretty decent, that's when I start to bring in the other elements. Because you never know if it's right. I'm pretty good at getting the levels and stuff on the drums with no reference, but you need to bring in the other elements, the guitars and the bass, especially to get a feel. And for things to start hitting the master buss chain in a way where you can really start to get a feel for stuff.

And then, when it comes to having lots of layers on top, I've arrived at a place where I like to think about it pretty simply; it's just like mixing the rock band and putting the other stuff on top. And not in a slapdash way, but not overthinking it; hopefully, the song arrangement's going to allow for those things, or they're doing something harmonically that's interesting and wants to be heard. So, it'll be a question of finding levels and maintaining dynamics, basically.

HiMMP

And staying with the subject of drums. We briefly chatted earlier about your approaches to sample reinforcement. What was your general approach? Firstly, with the kick drum samples-wise, and then moving on to the snare and toms?

Adam Getgood

So, I did end up using a bit of a kick sample. As I remember, it wasn't in from the start. I was working with the natural kick for a while. It ultimately came down to maybe wanting a slightly different tone than what was captured from the drum, getting something more like a clacky, maybe a slightly lower-tuned, less muffled sound from the drum, which you can't really generate. I mean, not yet. I'm sure AI is going to allow that to happen very easily, very soon. But for now, I decided I wanted that, and also just to help with some

of the dynamics, more than the timbre shifts between the fast sections and the slower sections.

And then, when it came to the snare, I was approaching this, having in mind that we were going to be doing this and wanting to show a lot of my standard approaches to things. I didn't want to change things a lot by putting loads of snare samples on there, which is not something I typically do. I wanted to work with the natural snare close mics as much as possible. I did end up supplementing with a snare room multi-sample, which has more to do with the character of the room mics perhaps not having a huge snare focus. Also, the room mics were mono only, I'm remembering now.

HiMMP

Yeah, there were various set-ups within the room. There was a mono Coles 4038, and then it was a pair of [Sennheiser] U87s, if I remember rightly.

Adam Getgood

As I can see in the session, actually, I didn't use the 4038. They're all mono tracks here. So, in the end, I didn't use any of the natural rooms. What I did want was some snare decay, for which I used a triggered room sample as well as some drum reverb.

HiMMP

So, the two kick sources you used from the recording, which were they?

Adam Getgood

I used both the [Shure] Beta 91 and the sub-kick.

HiMMP

Okay. And how do they sound in isolation and then together?

Adam Getgood

They're running through a gate; perhaps it might not sound right. So, that's the Beta 91 going through some processing, and the sub-kicks are really just adding some lows.

HiMMP

Perfect. And then with them together?

Adam Getgood

With them together, we get this. Without the sub-kick, the Beta 91 sounds like this. It looks to me like I've done some nifty stuff here, reducing the dynamics of the top end of the kick in this multiband saturation plugin (Figure 4.1), as well as saturating the top end of the kick. But that will be mainly



FIGURE 4.1 Taming bleed on an acoustic kick track through multiband saturation.

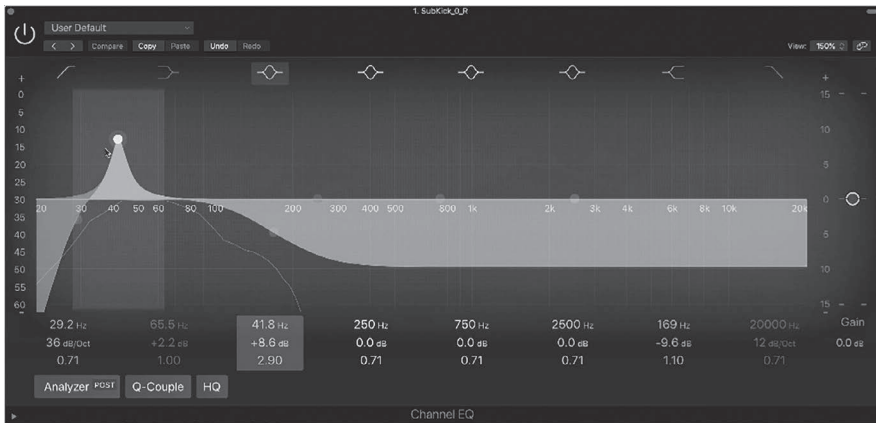


FIGURE 4.2 EQ on the sub-bass limiting the spectrum to the relevant frequencies.

for bleed management purposes—that dynamic reduction in the top end, so you get the click and then not much cymbal through.

And then you've got the sub-kick, which looks like I've also done quite a narrow Q boost really low down at around 40 Hz and used the shelf to cut out a lot of what was above it (Figure 4.2). So, the two together come out sounding like that, and some through some processing, I should add.

HiMMP

What's the processing?

Adam Getgood

This is a really important part of not needing to use samples; it's this Drum Leveller plugin that you've probably come across before (Figure 4.3). That's able to flatten out the peak levels of the kick within a certain threshold. And I'm using it for a tiny bit of gating as well. But the important part is this compression band here, which I've got turned almost all the way up, that's going to be maintaining certain peak levels, which will be why when we auditioned the two mics separately, they sounded very even in volume. And then when we heard them together, the volume was still the same because they're all getting flattened dynamically through here.

So, we've got that and then got some EQ (Figure 4.4). It looks like I'm actually doing quite a lot dynamically in the low end and in the high end as well. Some of these are strategies really to flatten out the timbre of the kick drum between the different dynamics. I'm doing, for example, a big boost here up at eight and a bit kHz, but I'm also dynamically reducing on the same band. The harder the hit is, the less of that boost is being applied functionally

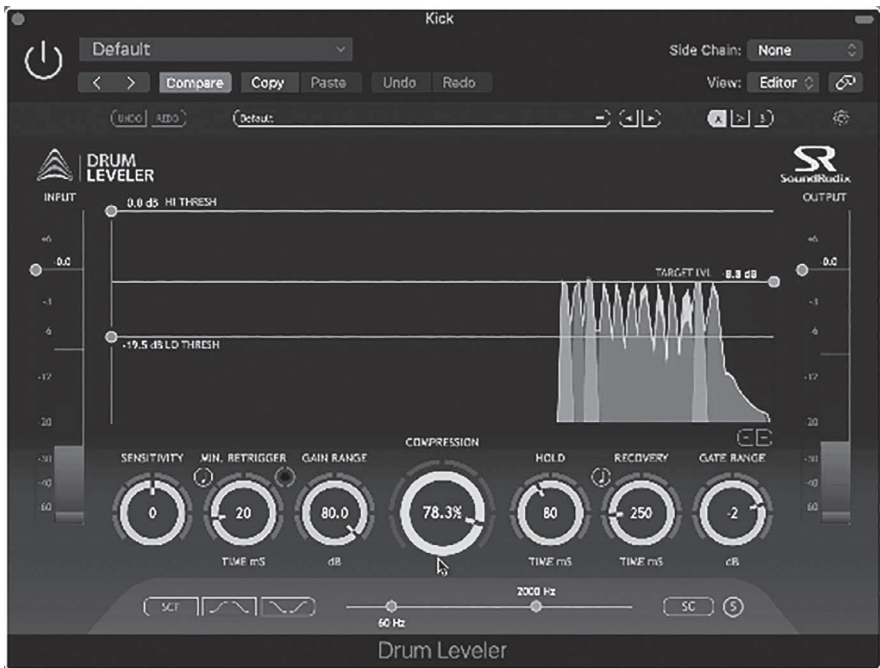


FIGURE 4.3 Dynamic range levelling on the kick buss for more consistent volume.

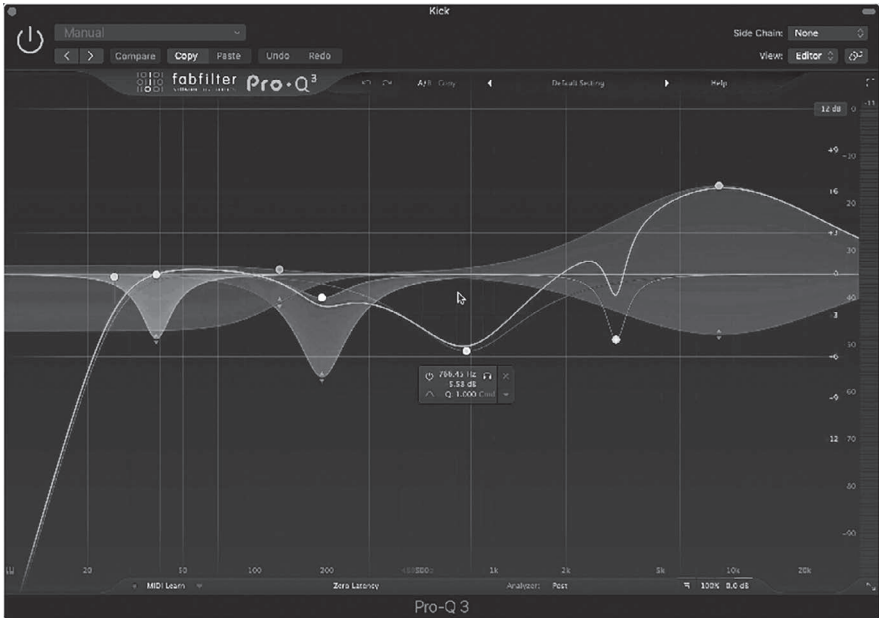


FIGURE 4.4 Kick EQ attenuating the low-mid mud and boosting the brightness and attack ('click'). Some bands are dynamic to respond to performance differences between slow and fast sections.

in the transient. So, that's a way of making sure that when the drummer starts stomping in the slow sections, it doesn't suddenly get really clicky and that the top end's there on the softer hits.

HiMMP

And that's with the two acoustic sources, some to that EQ, but is the sample also summed through that buss?

Adam Getgood

It's not. The sample is not. The sample and the kick are going up to here, what I've labelled Kick VCA, which further has a limiter [Waves L1], a bit of further EQ (Figure 4.5), and just again, trimming things so we can get into the . . .

Well, first of all, let me finish the processing on the kick mics. I've got an Opto-style compressor here (Figure 4.6), which I like because it gives it a really strong, fat character, but all of the low end doesn't get too flattened and reduced by that. I've got a little bit of mix dialled in so that there's some dry signal going through. Without, it sounds like this, and then with it, like that. Obviously, that's also increasing the level quite a lot as well.

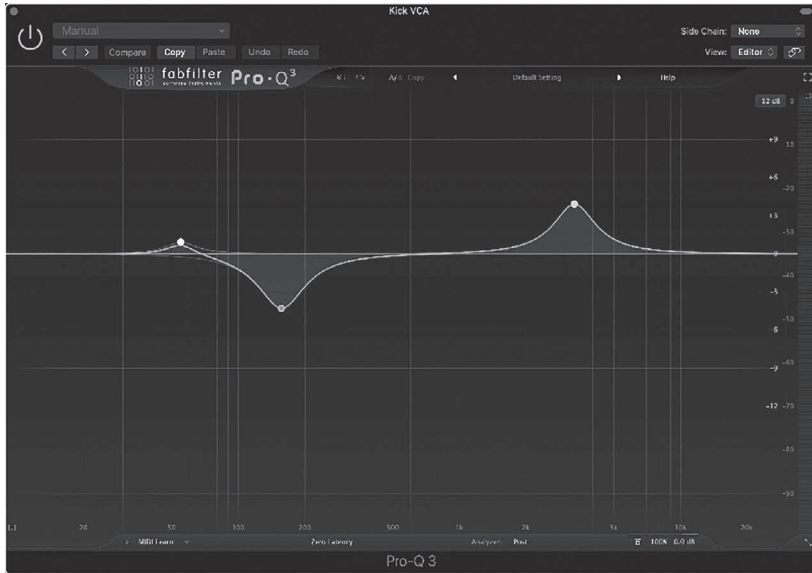


FIGURE 4.5 Buss for acoustic kick and samples; EQ removing low-end mid and enhancing higher mids.



FIGURE 4.6 Analogue compression, EQ, and saturation on the kick for character.

I really like this plugin by Slate. It is just like a high-end, low-end big broad move EQ. I quite like it on kick and snare for, without having to think too much, just being like, 'Okay, I want the kick to be a little bit more present.' And I'll use a little bit on there. Same with the snare. And then here I'm doing some saturation with this very coloured-sounding saturation device, which is also functioning as a bit of a trim. And it's also got a bit of high-pass filtering dialled in on it as well. So, that is going to be splatting the transient a little bit, flattening it level-wise, and just generating more harmonics so it sounds a bit more aggressive. I can do without and with if you'd like, so this is without, and with everything on.

So, that's the natural kick, and then going through the VCA with the trigger sample, which sounds like this. You can hear the sample has a lot of that clack, like that 3k-ish, real slappy, flat character, which is what I felt like it wasn't getting from the natural mics. And then that all summed through the VCA together sounds like this. Just based off peak level, it looks like it is marginally more sample than natural. It's probably about 60% sample, through the VCA; there's a limiter here, flattening out any big spikes, and making sure the kick stays really even.

Obviously, a big part of working with natural kicks is trying to make them sound consistent. And then it looks like I'm doing a little bit of sculpting, actually adding a bit more clack around that three-and-a-bit kHz area. And then finally, I'm trimming it back a little bit because it was a little bit hot. And I didn't want to have to redo the automation (Figure 4.7), which is fairly minor. It looks like in the mid-section, I have brought down the overall kick level a touch.

HiMMP

Moving on to the snare drum. I'm very interested in what you've done to the acoustic snare recording. Did you use the snare side mic or just the top and the bottom?

Adam Getgood

I kept it really simple, with just top and bottom. I'm going to bypass the things on here because that's going to be quite important so you can hear

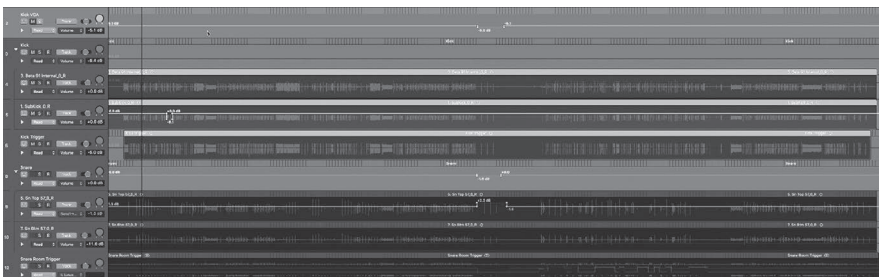


FIGURE 4.7 Volume automation on kick tracks.



FIGURE 4.8 Snare limiter for peak transients and slight saturation.

what's going on. So, listen just to the snare top, and bear in mind that I do have parallel compression active on my drum buss. That's the natural snare; you can hear it's getting a bit of compressed punch, which is nice. I decided to use the Apogee soft limiter (Figure 4.8), which I really like. It's what they have on their hardware interfaces; it just prevents overs, but I quite like using it; it has a slightly drivey, saturation character as well. I'm using that because you can see visually there's a huge discrepancy between the volume of the snare in certain sections where it's practically at zero. And then there are other sections where it's a lot quieter during the blast.

So, this [automation] (Figure 4.9) is evening out the peak levels a little bit so that compression further downstream has a more consistent envelope. That's taking between one and three dB off the hard hits. So, it's really quite transparent. And then this is a very popular trick of mine. I said something I use a lot, where I've created a band around 1 kHz in this same multiband saturator I was using on the kick. And then I've turned the dynamics knob almost all the way down. And this instantly gets rid of a huge amount of bleed, so without, and then with.

HiMMP

Are you gating as well or not?

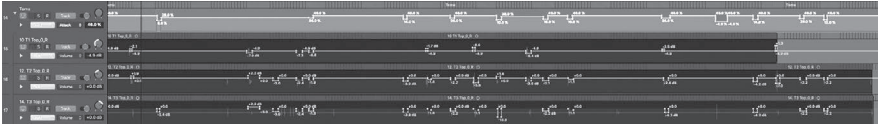


FIGURE 4.9 Volume automation on snare tracks prior to compression for a more consistent level.



FIGURE 4.10 Bleed control on snare through multiband saturation.

Adam Getgood

There is a gate further downstream. And that's also doing a little bit of saturation (Figure 4.10). It looks like we've also increased the top end just to touch on the high band on that.

And then, finally, I'm doing a little bit of EQ here. This is a move I like doing; it's a high-Q-value shelf, so that you get a peak, which you can target at the fundamental of the snare drum, and then it's also decreasing any mud above that. So, it's quite steep, a fundamental enhancer and muddiness cutter, and it looks like I've done a similar thing up top to what I did on the kick where I've used the dynamic band to even out the attack of the drum a little bit, and there was a specific notch that's probably the character of the microphone with the snare wires. I was finding it a little bit ratty sounding around, like, 5k-ish. So, without the EQ, and then with it. You can really hear it enhancing that low end in a way that's not adding mud.

Moving on to the snare bottom channel. That being the natural snare bottom, it looks like I've wanted to take out a little bit of the mid, kind of 1k-ish, and then also just revoice that (Figure 4.12). Is it an [Shure] SM57 on the bottom?

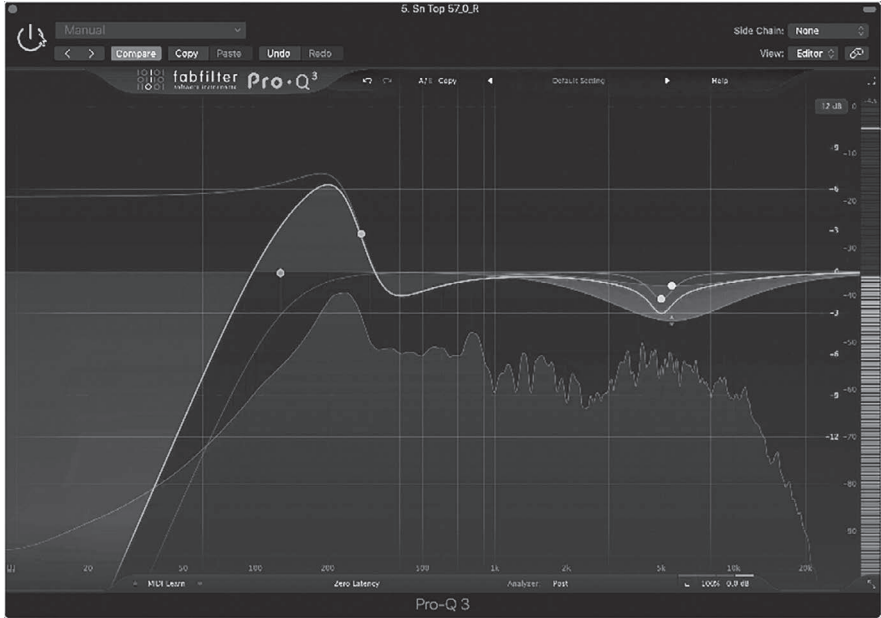


FIGURE 4.11 Snare EQ removing rumble, low-mid mud, and harshness, and boosting fundamental frequency.

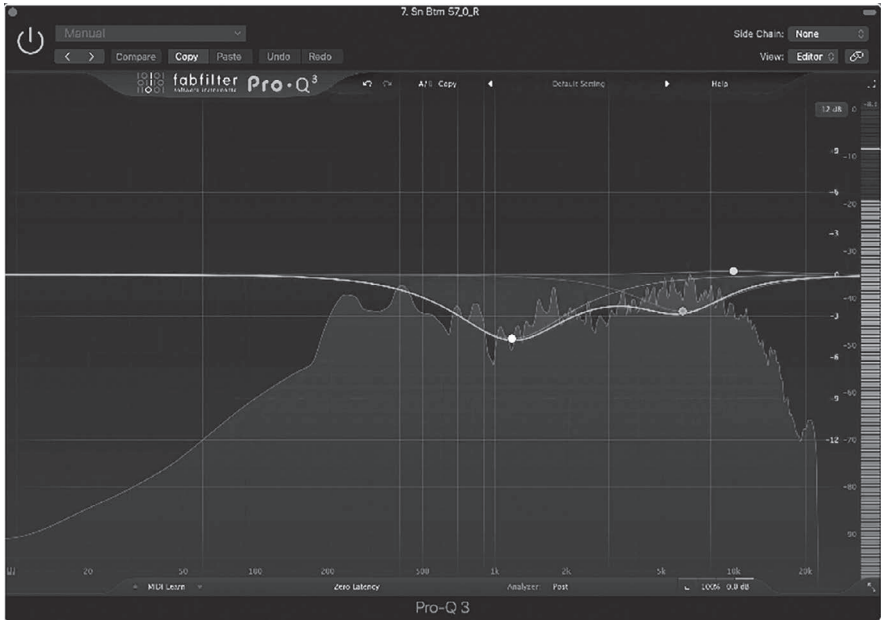


FIGURE 4.12 Snare bottom EQ attenuating higher mids to revoice the tone.

HiMMP
Yeah.

Adam Getgood

Yeah, SM57, that does tend to have a bit of a peakiness around five, 6 kHz. I've reduced that to give a more flat, white-noise character to the snare bottom. I've got Saturn here (Figure 4.13), and I'm using it to overdrive, just adding some extra saturation. I'm actually cutting a little bit of bass as well since it's possible to do that there. And I guess here I'm trying to generate, again, more harmonics into that rattle sound so that it sounds more even and white-noisy. And I'm also taking some peak off as well so that it's more dynamically flat. And also just to take a little bit off the peak of the snare bottom signal, so it's got a bit more of a flat character that's going to blend with a really punchy snare top.

And then I'm using a transient designer here (Figure 4.14). I don't always do this; it depends on how tight the wires were turned off on the drum when they were played. Here, I felt like maybe the wires could have had a more loose character to them. So here I'm boosting the sustain quite considerably, actually. Again, bear in mind this is going to feed into a gate [FabFilter Pro G], so this is more about having a specific envelope, which is filled with that white noise sound. And then a bit of the excessive sustain is going to get trimmed off.

This EQ probably got added quite late in the day (Figure 4.15). I've cut the loop around 4 kHz, probably just dialling in that wire sound in the snare.



FIGURE 4.13 Distortion the snare bottom to enhance the rattling noise component of the tone.



FIGURE 4.14 Transient designer to emulate looser wires on the snare bottom through enhanced sustain.

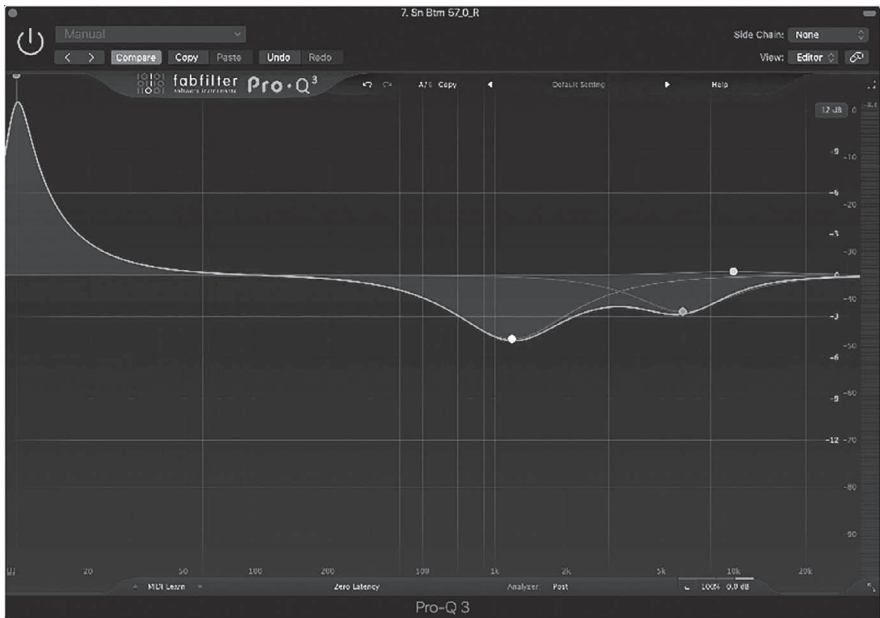


FIGURE 4.15 Snare bottom EQ further revoicing the low-mids and boosting sub-bass.

Those two summed together with a little bit of reverb only applied to the snare top to sound like this. First of all, I'm getting that. I guess expanding is probably the more correct term, keeping a little bit of the sound around the hits. I'm increasing the amount of top end, and it looks like around here, I'm doing

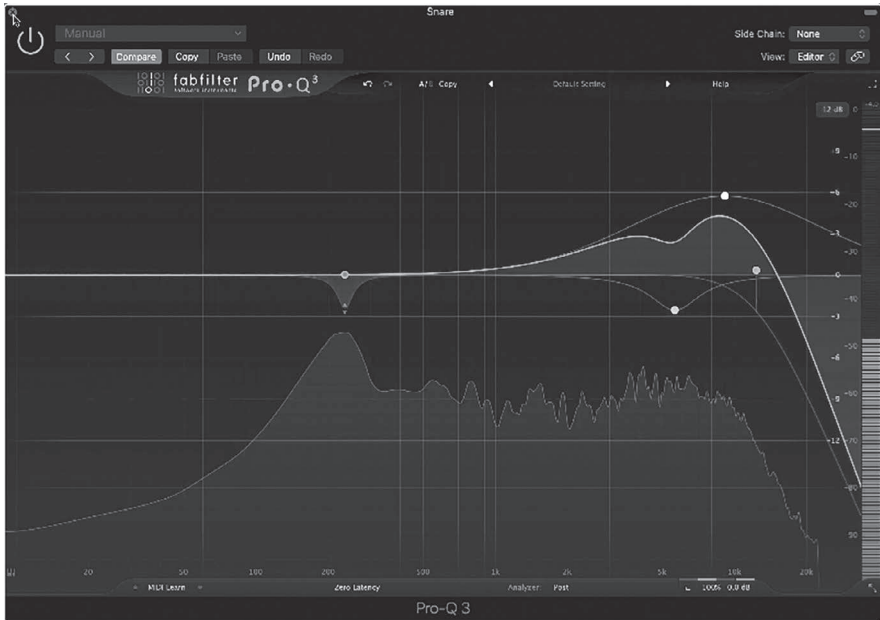


FIGURE 4.16 Dynamic EQ on snare buss to attenuate boxiness on softer hits.

a dynamic reduction on that same fundamental frequency of the drum just to prevent it from getting too boxy, especially on softer hits (Figure 4.16).

This is something where a blast beat can become problematic. If you've boosted a load of 200 Hz into the snare, that works fine when you've got a lot of balance in the upper mid-range because the drummer is hitting the drum hard. But when he starts doing a softer centre hit, it's so much less bright sounding that, suddenly, that fundamental tone can become this really overwhelming character. That's probably why I'm doing what looks like about three dB dynamic reduction around there. Again, just fine-tuning the high end to get it to work in the mix.

And I've also ended up low-passing it, which is a move that I don't typically do. And that is specifically because of the cymbal bleed; I'm trying to reduce that a little bit. In an ideal world, that would have been recorded with a hyper-cardioid mic, which would have meant that the cymbal bleed would have been less audible in the signal. So that would then round out the EQing on the drum. I show you what that sounds like with EQ engaged, it's adding a bit of an extra snap.

Then here, I'm compressing pretty heavily with a slow attack and fast release, saturating quite aggressively afterwards (Figure 4.17). I'm compressing hard because, for me, snare close-mic compression is about how a drum



FIGURE 4.17 Significant analogue compression on the snare to emulate the sound of a hard-hit snare in a room.

sounds to you in the room. Like when you hear a snare in the overheads, it actually has way more of a focus on the attack and less on the sustain than the room mics. Once you forget about the room ambience, you're hearing more of the attack of the drum than the detailed sustain. But obviously, that close mic's so close to the head that it's getting loads of sustain and less of the attack. So that, to me, is why you need to compress a snare close channel quite a lot so that it starts to sound more like a real drum does in a room. But then you can end up with a very spiky transient at the same time, which is where using some pretty heavy-handed saturation can help.

HiMMP

Interestingly, at that point, am I right in saying that you've sometimes, just thinking about snare and compression, you've adopted master buss processing compression with faster attack times to control the transient of the snare

on previous sessions? Is it sometimes the same with your buss compression for the snare? Do you sometimes go for faster attack times, or do you generally go with longer attack times?

Adam Getgood

Yeah, part of the character of my mixes is this interplay between generating lots of attack on the close mics and then flattening that out and filling it out with parallel compression and the way the master buss works. I have rarely done it, where I've done a fast attack on the close mic with a particularly high-tuned snare or something which is very attack-focused. But the problem can also be bleed; you're squashing that peak down in such a way that makes the bleed relatively more loud. So, I tend not to do that so much on the close mic.

HiMMP

And from that really important perspective that you're highlighting about the sustain of the snare. Looking at the transient designer with the snare bottom there, is it sometimes the case where you're looking to balance things out? You mentioned balancing out the transient-heavy snare with the sustain from elsewhere in the signal chain, that you will look to your snare sample for that sustain and ring.

Adam Getgood

Rarely. I think you can get sustain on a snare sound in many ways in the mix. It could be a ringy sound, which is not my typical approach. I tend to get it more from room sound or whether it's a sample room or real room, and to an extent, reverb. Some people lean really heavily on the reverb and none of the other things. But for me, I like the carry of the snare drum to be that explosive room sound. And I don't really go for much ring on my drums.

Partly that's because, during tracking, I find a really ringy drum is far harder to manage. You can hear the tuning slip a lot more. You can hear the variations in the drummer's hits a lot more when the sustain has got a different character on every hit because they're human, and they're not hitting it identically every time, especially when they're really trying hard. That stuff flags that error-checking thing I was talking about before a lot more than when the drum's more damped down, and it's more of the blatty attack of it. And then, we can manipulate the attack character using dynamic EQ. Or just, if it's hit consistently enough, regular flat EQ and compression.

HiMMP

Sure. And then the snare aux that you've got there that you're feeding the top and bottom to, are you also feeding the room sample to that as well?

Adam Getgood

I'm not because I don't want the room sample going through this very hard, slow-attack compression. And I want to be able to EQ that as well separately. As you can see here, I'm using this presence knob thing again, which I think is like a four-and-a-half kHz lift on the snare, just to make the snare drum cut through the mix a little bit more. And that would be something I'd dial in with the whole mix playing.

HiMMP

Sure. And then, can we have a listen to the snare drum without the compression and with the compression there?

Adam Getgood

Yep, so without compression and then with it. I compress quite aggressively quite frequently; I'll be up around 10 dB.

HiMMP

And your signal chain with gating is interesting because the traditional approach is often to gate first. Whereabouts is the gate? Is the gate on your snare aux, or is it later down the chain after the processing on the snare top and bottom?

Adam Getgood

So, the top has that top-end expansion thing happening directly on it, and then the top and bottom feed to the aux. And the first thing on the aux chain is the gate. And I like to get the two of them together because then they have the same envelope. I think some people specifically prefer to have separate control over the two. But for the way my mixes have evolved, that's just the way I like to do.

HiMMP

Sure. And back to the idea that you'd like to get the sense of sustain from the room and from the reverbs. Do you have a general approach to your reverb sends? Will you send from the snare aux? Or do you like to send from samples and do the Andy Wallace trick of having the clean feed from the samples? Or does it vary with every project?

Adam Getgood

It used to just be send from the aux. As of a couple of years ago, I've moved to preferring the sound of the reverb just on the top mic so that you're not getting the ratty kind of . . . I think my mixes have started using more and more bottom snare, actually. And I found that that going into the reverb didn't have a character. I've even done a couple of mixes where I've duplicated the

snare top completely raw and put a reverb 100% wet on that, not even done anything to tame the bleed. And that can sound really good. It's a much more mid-rangey reverb sound, and you've got a little bit of a warm room effect of the other kit pieces, minimally bleed-wise, coming through and being sent to that reverb.

HiMMP

That's so interesting.

Adam Getgood

Yeah, it was one of those things I did. I guess it came from during tracking, liking how the reverb was sounding. And it was a raw drum recording, and I just had a reverb send on the snare top and wanted to carry that through into the mixing phase and thought, well, I'll just melt off the snare top, naturally raw as it was during the session, and leave it like that as part of the sound.

HiMMP

There is a great sense of cohesion as well, with everything going to the reverb. Do you ever take a reverb send from room mics if you use them to reverb?

Adam Getgood

Sometimes, not always, I might sometimes do it on a mono mic if I want to lean on it more heavily in the mix and want to spread it a little bit. I might do it on a sampled room if I want more length, in particular for a big snare bong moment where you want a massive sustain. Instead of just putting loads of reverb on the closed mic, it can be cool to put that on the room mix; it can really spread it.

HiMMP

Sure. And then can we listen to the room sample?

Adam Getgood

Absolutely. The room sample was a sample I took from Real World Studios [in Wiltshire, UK, founded by Peter Gabriel]. I tried to find one that has a similar tuning as well. That's something; some people like to stack the room sound from a low-tuned snare with a high-tuned snare, kind of mix and match. For me, I'm looking for that cohesion. I want it to almost sound like it's the real thing. It looks like I'm actually sending a fair bit of that to the reverb, as you can hear. So, without the reverb and then with.

HiMMP

And what reverb are you using there?



FIGURE 4.18 Stock Apple Logic Pro algorithmic reverb for the drums with a bandpass filter to contain the space occupied.

Adam Getgood

That is Logic's ChromaVerb (Figure 4.18), which I've come to like a lot. I started with this preset Versicle 80s drums, but I've manipulated it a little bit. And I've also followed it up; it's got some post-EQ and damping EQ there within it. But I've also high-passed it, taking some low-mids out, and it looks like I've notched a higher harmonic of the snare drum out of it particularly so. That's the sound with the snare top close mic and also the toms and everything going to the reverb.

HiMMP

Interestingly, on the EQ, that's the opposite of what Chris Lord-Alge often does. He boosts the high end on his reverb. But is that a general approach that you'd like to keep your drum reverb in the mid-range?

Adam Getgood

I suppose so. I would say I think probably that specific reverb patch is quite high-endy. It's not the brightest in the world. But I think it's also a lot to do with how that interacts with the real-world sample room sound. I prefer the

high end of a snare room sample than the high end of reverb to be cutting through. And I do not really want there to be perceptible reverb in the final mix. I mean, you might know just by implication that it's there, but I don't really like it when you can hear the character of a reverb in the mix. It's just, again, that cohesion integrity thing we were talking about before.

HiMMP

And is this the only drum reverb you've got?

Adam Getgood

Yeah.

HiMMP

Perfect. Moving on, you made the decision to use the waveform-edited toms and not use any samples. And is it through a lot of EQ work or compression work on each of the toms?

Adam Getgood

There is a little bit of bleed that's coming through that. Again, I wanted to show you the way that I typically work, and I typically will try and engineer for as minimal bleed as possible so that I can always use the toms without much sample or just paste in a clean hit right at the end. But I'm using this same trick of expanding the high end (Figure 4.19). Here, I've reduced the toms across all the way down to 320-ish Hz, it would seem, and then I'm doing some . . . This is just that each tom will have had a slightly different EQ, different amounts and positions of low-cut; I'm just trying to get the boxy frequency thing sorted.

Because of the different tempos, there is a sense that some of the fills are being hit really hard, and some other ones are more fluttered, and on those, it becomes very low-end heavy once you normalize out the volume. I think I haven't done much dynamic EQ or anything. I don't think I've done any of that. But it looks like I've done automation on some of the tom hits (Figure 4.20), just trying to flatten them out so that some fills aren't way louder than others. So, for example, on this one, you can still hear a fair amount of bleed coming through, but obviously, he's playing pretty fast. That's more like what the toms sound at their best to me when they're being hit a little bit harder.

HiMMP

And are you taking the reverb feeds from the individual toms or the tom sum?

Adam Getgood

They're coming from the sum in this case.



FIGURE 4.19 Tom processing, consisting of taming bleed through multiband saturation and EQ to attenuate low-end rumble and low-mid mud, as well as adding stick attack.

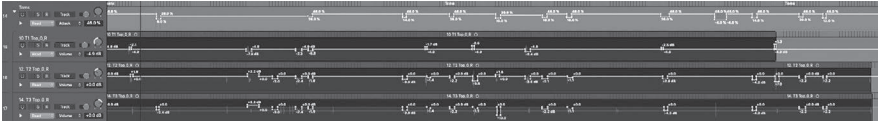


FIGURE 4.20 Volume automation on tom tracks to even out volume.

HiMMP

What processing have you got on this sum?

Adam Getgood

I've got a transient designer, boosting attack and a little bit of sustain [more attack than sustain]. And I'm automating that, mostly trying to ensure that the fast stuff has plenty of attack. And then the really hard hits. I'm bringing that down so that there are a couple of bits like this little flump on the floor toms here, whereas, with the transient designer set like that, it would just be way too attack-focused. On that, I've automated down the attack quite considerably. So, I've got that going on.

I have a limiter [Waves L1], which is similarly trying to trim a bit of transient off. That's hopefully providing me with a little bit of elasticity with my transient designer. And it's making it a little bit more forgiving. Basically, the limiter is going to catch any big overs if they do occur.

Here (Figure 4.21), I'm actually cutting up around 15 kHz, which is probably a bleed thing. And adding a tiny amount of 4 kHz; that'll just be a tiny bit more presence.

And I have an automated EQ here, which is a high-shelf cut (Figure 4.22), which, for example, happens exactly on that hit I just showed you. Again, I am trying to even out the timbre. So that's cutting by nearly 6 dB high shelf at 2 kHz, preventing the stick attack from being way too overbearing at that moment. It looks like that's the only moment; I didn't seem to do it anywhere else. It might be that I wanted to just make a little example of that to be able to talk about it.

HiMMP

And what was your approach with the metalwork with the overhead mics?

Adam Getgood

Let's have a look. So firstly, I tend to sum together the close mics and the overheads and process them on a buss. It looks like I've done something on the ride, which is fairly typical (Figure 4.23); ride in person can sound so clingy and loud.

And then you hear it in the close mic; it doesn't have the same kind of impact. I think I was trying to actually take some top end out of it. Let's find



FIGURE 4.21 Analogue EQ on tom buss to attenuate high-frequency bleed and high-mid presence.

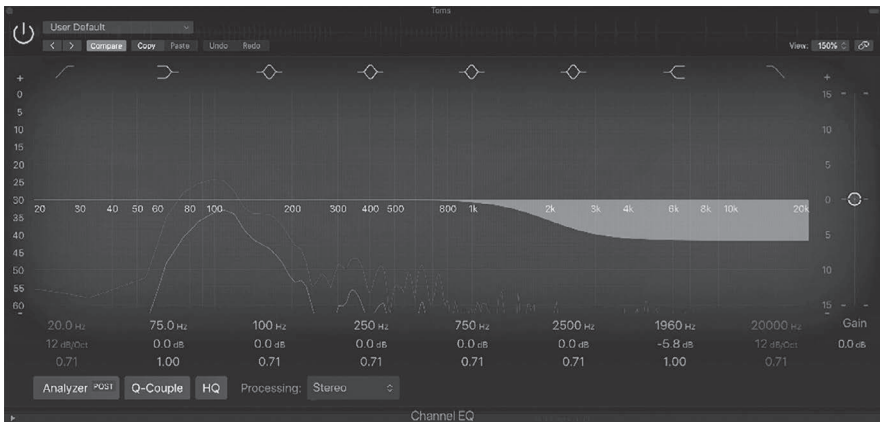


FIGURE 4.22 Automated EQ on the toms to control stick attack and even out timbre.

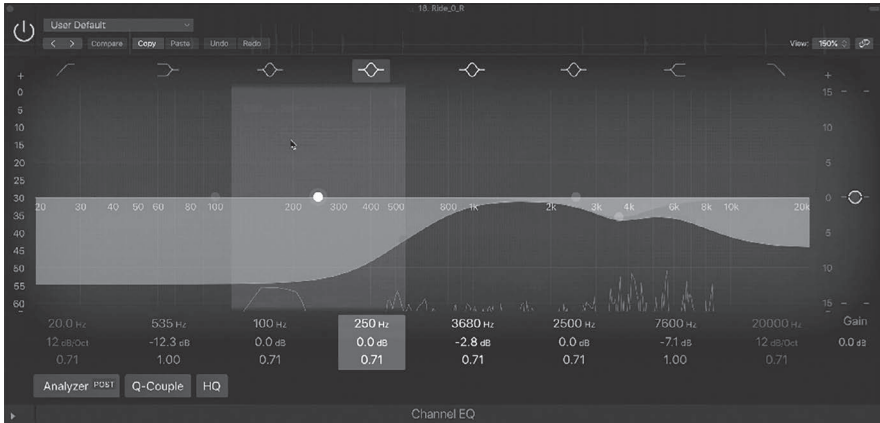


FIGURE 4.23 Ride EQ to refocus tone and energy to the higher-mid frequencies.

a moment where it's getting hit. Here we go. So, without my treatment, that sounded like that. Just focusing it in a bit more on the specific frequencies of the bell, less piercing. But then, apart from that, everything else just hasn't got anything on it. It's just levelled, and I'm going to cymbal buss.

HiMMP

And on the cymbal busses, you're high-pass filtering?

Adam Getgood

Yeah, so I'm using a low shelf rather than a low cut (Figure 4.24). But that's pretty aggressive to the point where it basically makes no difference. I think I'm cutting a bit around 500 Hz, which will probably be a bit of boxiness on the snare, particularly. Also, a lot of my EQ will be about the snare in this range as well, like the 1,300 Hz frequency range, which probably has to do with the attack of the snare. And then it's really normal for me to cut quite a lot around, like, 6 or 7 kHz. In this case, up to 8 dB with a little bit of dynamic push added to that as well. As it looks, I'm mostly cutting high end. And once we got above, like, 3 kHz, I'm mostly subtracting stuff because I guess it's quite a bright recording. I think what's happened is, as I've cut the low end out of that, I've needed to also compensate by cutting higher, so it doesn't sound too thin. So that's my overhead EQ.

This is interesting. I don't do this very often; I am saturating the top end (Figure 4.25), just above nine and a bit kHz, and increasing the dynamics. I'm essentially compressing and saturating the glossiness on the top of the cymbals. This is not a move that I do very frequently. But that's probably in an attempt to get the cymbals to sound really washy and consistent. So, without. I'm also cutting some top end on that band as well. I'm not necessarily

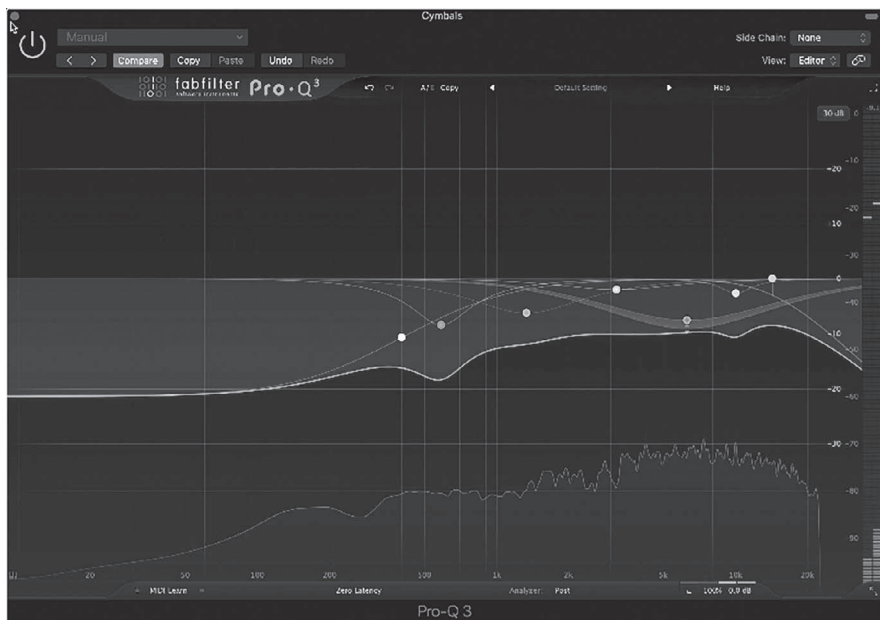


FIGURE 4.24 Overhead EQ with static and dynamic bands, attenuating unwanted frequencies and reshaping the tone of the snare.



FIGURE 4.25 Saturating the high-end frequencies of the cymbals for dynamic range compression and a more ‘washy’ sound.

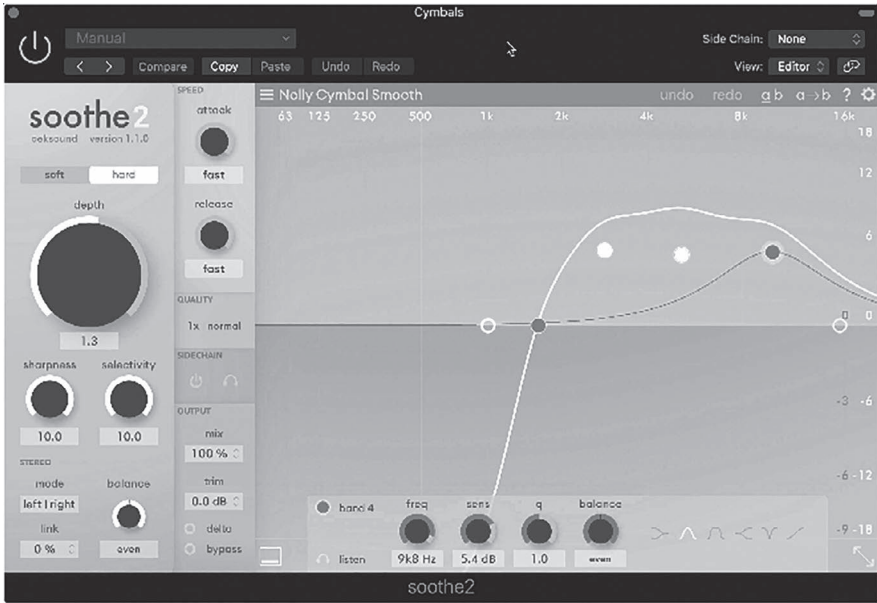


FIGURE 4.26 Dynamic attenuation of high-frequency resonances in the cymbals.

trying to increase, in general, the amount of high end; I'm trying to make the top end more complex and even.

And then I'm using Soothe, which is a bit of a godsend (Figure 4.26). I really like to use this; I have a preset that I use as a starting point most of the time. So that's going to dynamically reduce the high resonances in the cymbals. It looks like it's doing a lot, but I've got the sharpness and the selectivity turned up all the way. Basically, I don't think it changes the character of the cymbals too much; it doesn't turn them into white noise or something, but it makes them a lot more listenable and, therefore, it can be louder in the mix. I've got this Apogee soft limiter clamping down on the snare. That's without.

And then I have Track Spacer (Figure 4.27), and this actually relates to the vocals, which we'll get to. I'm using Track Spacer; it won't be doing anything right now. If I play the full mix, I basically get the cymbals being ducked dynamically around the 's' region of the voice. Because that's something I found when working with bands with vocalists that need to be really upfront, you end up in this trade-off: there'll be other cymbals that are too loud, clouding my articulation. This is where something dynamic can help. So, instead of having to just broadband make the cymbals quiet, or do some really painstaking automation, stuff like this allows the voice to not have to be super loud relative to the cymbals, and yet they can both be heard at the same time.



FIGURE 4.27 Plugin ducking the ‘s’ frequency range of the cymbals during vocal performances to improve vocal clarity.

HiMMP

So, the vocals are side-chained?

Adam Getgood

Yep. And it’s just acting from that 7 kHz up and with a really small amount because I don’t want it to be audible that cymbals are going.

HiMMP

Sure. And then, just briefly, on the width of the drums, do you keep your cymbals entirely wide? And are you panning audience perspective or drummer perspective?

Adam Getgood

Drummer’s perspective. I’m always drummer’s perspective.

HiMMP

And do you go hard left and right with the cymbals?

Adam Getgood

Yep.

Bass

HiMMP

Fantastic. Moving onwards to the bass guitar. I heard one of your earlier mixes, and one of the most apparent things was the impact of the bass guitar, and the relationship between the bass and the guitar was a really interesting one. The presence of the bass was very strong in the mix, but without overpowering the guitars, which worked really well. And it gave it an impact and a density that was really nice about the mix. So, I think this will be a very interesting area.

Adam Getgood

Thanks for saying so. As someone who has played professionally as a bassist, I really appreciate what bass can bring to the table and how much apparent power is lost from the mix when it's not doing that. I didn't want to just use a chain that I might use, like the pedal that I developed with Darkglass or Parallax. I wanted to try and work with what you provided. And you provided lots of options. I didn't necessarily know whether you expected people to just choose one and roll with it. But I loaded all of them into the session and listened to them as a unit, and that sounded pretty good. So, that's what I did.

I used all of the five tracks. We've got a DI, and we've got four different kinds of amp-style, pedal-ampy things running there. If I get rid of any of my processing here, the bass channels, it actually looks like they're all flat apart from the DI, which I would expect, and probably compress it. I haven't done anything to the individual channels apart from the DI, which I'm compressing quite hard with this 1176 kind of thing (Figure 4.28).

I'm seeing the DI is like a counter to the distortion that's present in all the other ones. I want a bit more of a round, flat low end you get from a DI, and also a bit more of the stringy character that you get out of a DI. But it's so much more dynamic; I feel like compressing is necessary to be able to have it fixed at a certain level relative to everything else. Everything else is flat.

So, we've got the DI, that's the Parallax. We've got SkarBass and Darkglass pedals. And I think the Parallax and the Darkglass pedal are really the ones that bring the mid-range grind; the SkarBass and, obviously, that's an Ampeg style, it brings more of that scoopy, slightly gritty drive thing. And they are all combined together to sound like what you're hearing. I think it



FIGURE 4.28 Analogue compression of bass DI for consistent volume.

sounds really cool. That's why I decided just to work with everything. I have a really good-sounding bass channel to work with.

The first thing I've got [on the buss], I've got a gain reduction here because I've got five tracks, all of which are quite loud. I've nipped it back over 12 dB just to have it in a decent level range to then process. I'm using this plugin, which I don't use a whole lot, made by Dan Korneff (Figure 4.29). It's like a channel strip, which, to be honest, I find it tricky to figure out what's going on with it sometimes because of the orientation of everything, but essentially, I'm primarily using it as an EQ and as a compressor.

We've got a low cut at around 180 Hz, so it's reducing a little bit of tubiness. We've got some boosts, one around 900 Hz and one around 2 kHz. Those will both be bringing some clunky, clacking character that, to be honest, I didn't find super pleasant to listen to on its own until you get used to it, but in the mix that is what really allows it to cut through. So, we're using those EQs. We've got this 'insufferable mid-range filter', which is like

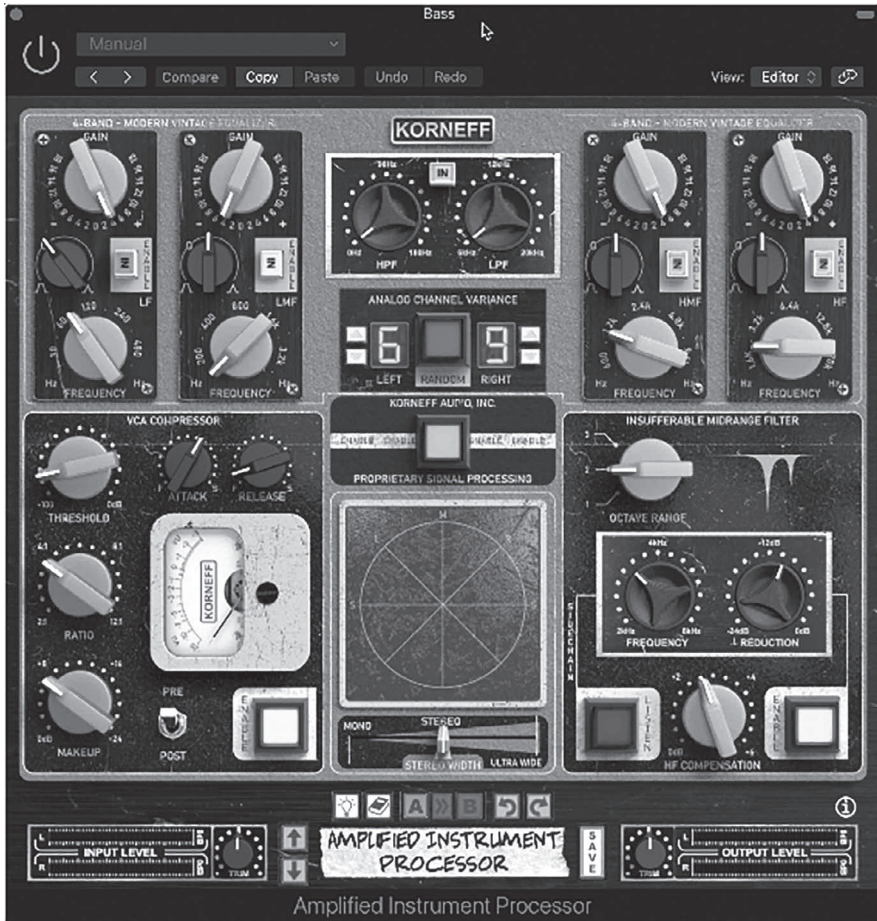


FIGURE 4.29 EQ and compression on the bass buss reducing low-end tubbiness and enhancing string sound, helping the bass to cut through the mix.

a notching EQ with an octave-up harmonic as well, which I've got tuned to 3 kHz with a -10 dB reduction; it's pretty awesome. And I'm also using a bit of VCA compression with a medium attack and fast release, so without it sounds like this, and then with it.

I should add it's also low-passing all the way down to 6 kHz (Figure 4.30). That's reducing quite a lot of top end. I'm using that like a console channel strip kind of thing. Here, we've got a whole mountain range of EQ. So, that's revoicing the low end, making sure it's got plenty of 80 Hz energy, reducing the 250 Hz mud zone. I've got more of this 850, 900 Hz boost; for me, that is a really key frequency to get the bass to honk through the mix, but it looks



FIGURE 4.30 EQ on the bass buss adding sonic weight, attenuating low-mid mud, enhancing mid-frequency honk for presence in the mix, and low-pass-filtering the high end to create space.

like I'm doing it dynamically. And here again, that's the kind of thing where I'm trying to make sure that the sound is consistent in that aspect. This is all just dialled in by ear, basically finding the right spots to enhance the presence and reduce the mud.

And this move of reducing the mid and enhancing the low end gives us a clean focus on the note of the bass without too much of the immediate proximate overtones, which can make it a bit more difficult to hear the note. Then I'm using a multiband compressor here also to flatten out that presence region (Figure 4.31), so this looks like it must be from 700 Hz and up, set with a slight amount of boost but quite a lot of cut. And that's keeping the timbre consistent, a bit like the kick drum. Consistent timbre is key when it comes to bass, depending on the way it's played; if it's played with the pick incredibly consistently, you might not need to do this. If something's played with fingers or played with a bit more alternate picking, it can start to become necessary to use these dynamic devices to make it sound very consistent.

Then I love this plugin [Low Control by Black Salt Audio] (Figure 4.32); it's made by a friend. It is a low-end compression, and then you've got this big, low-end bump that you can add afterwards. So, it's just doing that low

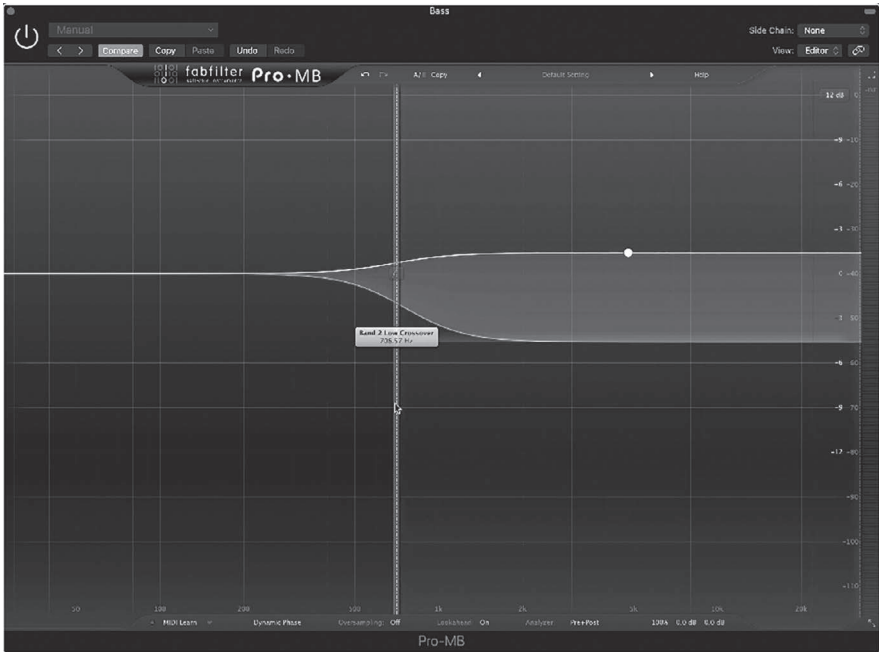


FIGURE 4.31 Multiband compressor on the bass buss to achieve an even volume in the presence range and a consistent tone.

compression thing. You can see here that if I turn that down, it's compressing the low end by about 3 dB, and I'm compensating for that. But then this enhanced frequency throws in this really delicious 80 Hz that I love.

And that rounds out the processing, which has to do with the bass. I then have Track Spacer on here, which is side-chained from the kick drum. That's limited to just under 115 Hz. Let me play that in conjunction with the kick drum. So, having made the bass sound as huge as it does, it's our responsibility to make sure it doesn't step all over the kick drum. And that does a really good job of it. That's a way of being able to make the bass huge and upfront.

HiMMP

And obviously, it sounds quite transparent because it's only hitting the lower frequencies. You're not hearing any pumping or breathing in the bass; it sounds really natural.

Adam Getgood

Yeah. And I have it set as fast as it can go. And it's only got 15% of the actual effect on, so it's not huge.



FIGURE 4.32 Low-end compression and boost around 80 Hz on the bass buss.

Guitars

HiMMP

Could we look at the guitars and then listen to the guitars and bass together?

Adam Getgood

The guitars are re-amped through a 6505+, like a slightly tighter version of the original 5150. I've used the same tone on all of them. So, I may as well play the four of them together. I've used all the quads at equal volume. And on the individual tracks, I have dropped 7 dB again because I recorded them quite hot. So, guitars on their own.

So, as we were talking about before, I'm a big fan of having access to the cab sound after the fact in the form of an impulse. I think the cab is such a huge part of getting the guitars to sit in the mix right. I can commit to an amp sound very happily, but committing to a cab sound, for me, it's really you're committing a lot. So, I love to use this plugin [GGD Studio Cabs Cali]



FIGURE 4.33 Guitar amplifier cabinet simulation to sculpt the guitar tone ‘at source’ in the mix.

(Figure 4.33), which I developed with my company (Figure 4.33). It’s all based around Mesa Boogie oversized cabs, which, for me, are just the sound of this genre. And I’ve used one of the cabs here with a [Shure] SM57 as the primary; you can see that fader is a lot higher than the others with a little bit of [AKG] C414 for extra low end and a bit of a [Sennheiser] MD421–2 for a little bit more scrape as well. So, this is what it sounds like. Without it, you’ve just got a DI from an amp.

And then EQ-wise (Figure 4.34), I have done a little bit of not quite notching but narrow band cuts, just compensating for any particularly sticky, spiky stuff in the top end of the speaker. I am boosting a little bit around 1 kHz, just to add that intelligibility in the mix. Probably the most crucial thing of any is cutting around 250–300 Hz, not super wide Q, just enough to take out any woolliness that’s in there. You want to find the frequency spot where you barely notice it when you cut it, if that makes sense. It really should not cause the guitar sound to fall apart. You’re making some space there, and it should enhance the clarity.

I’ve got multiband, like a dynamic thing here, doing the classic multiband expansion on the low end. So that’s set around 115 Hz. I’ve used one of these bands with the 24 dB per octave slope, so it looks a bit more trapezoidal, just to be able to have more of an impact on a wide range of frequencies there. And then a simple high pass at 60 Hz and a low pass at 10 kHz. So, without EQ, it sounds like this. Really, for me, guitar EQ should just be about a more

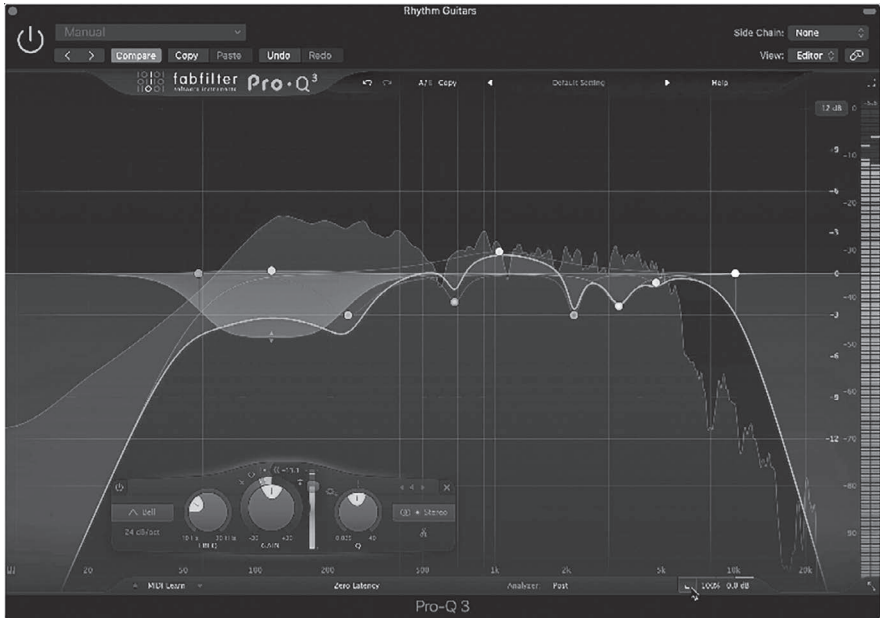


FIGURE 4.34 Guitar buss EQ attenuating low and high end, dynamically controlling low end for palm-muted notes, and various boosts and cuts for greater clarity and intelligibility in the mix.

controlled version of the raw sound. The raw sound, maybe, can be a little bit bigger than you need, but it should have all of the character that you want. And you shouldn't be trying to incorporate that by using processing.

HiMMP

Sure. So, you've got all four guitars at equal gain?

Adam Getgood

Yep.

HiMMP

And you're EQing them all collectively on the sum?

Adam Getgood

Yep.

HiMMP

And is there any other processing on the sum?

Adam Getgood

There is a little bit of stereo image widening, just a touch. Just a tiny bit with this classic [Waves] S1 Imager here. You can barely hear it, only up to 1.12.

HiMMP

What's the first process on the signal chain?

Adam Getgood

That is the cab impulse response.

HiMMP

Fantastic. And do you ever use tape emulation or clipping on guitars?

Adam Getgood

Never.

HiMMP

Brilliant. Could we listen to the guitars and the bass together? You've got real separation there. They're not masking each other. They're not at all fighting with each other. And they're working really well together. That sounds absolutely great.

Adam Getgood

Thanks. That's that thing we were talking about earlier for me. I don't know what that's connected to in real life, but there's some massively powerful kind of grinding; I don't know what it is. It's an animal or a machine; it's somewhere between the two.

HiMMP

Fredrik Nordström likened it, too: 'I just want it to sound like a tank. I want it to sound like a big tank'. That was his visualization, which I quite like.

Adam Getgood

That really echoes with the things I was doing.

HiMMP

And with your low-end management, we looked at a number of techniques which were really interesting there, such as the frequency-dependent ducking of the bass from the kick drum. With the low-frequency content of the guitars, are there any general principles you'll look at in terms of how it interacts with the bass and this relationship with the kick drum? Is there any mix theory that you generally go with, or is it just analysis and listening?

Adam Getgood

Yeah, it's just error-checking when I'm listening. If I can hear the palm mutes, if I'm aware of this swelling sensation on my ears as the palm mutes are happening, then I know that the guitars may just be kind of . . . Mixing, for me, is about reducing distraction, and if I feel like I'm being distracted by this pumping low end on the guitars, then I know I need to do something about it, and you pretty much always do need to reduce that with heavy guitars. Or, if you don't, then you've probably taken too much low end out of them at some point.

HiMMP

Absolutely. And guitars similarly panned hard left, hard right. Do you ever stereo-widen the bass a little bit? You looked at a little bit on the upper-frequency sort of like 900 Hz upwards spreading the bass? Is that something you'll ever do?

Adam Getgood

I have done it. It's not something I do by default; it's more when the client seems to want that sound. Or if you're going for a certain reference or a specific effect. I have done it when there's more of an isolated solo bass thing, like a cleaner tone; maybe it can be nice for it to occupy a little bit more of the frequency range, but not in this mix.

Orchestration

HiMMP

And can we briefly consider how the strings and brass section interacted with the bass and guitars?

Adam Getgood

Yeah. I've not done very much to them. It's about levelling; you've got quite nice level waveforms. Anyway, I'm sure these are out of a library, right?

HiMMP

Yeah, they were different libraries. I compressed them down when I created the stem.

Adam Getgood

So, even just looking at it visually, it's not going to need a huge amount of dynamic treatment. When you get live strings, it can be like a whisper quiet and then crazy loud. And you get into challenges of how to flatten that without it losing something. But it looks like what I've done here. There's this move that I love doing on additional production stuff, which is a mid-only

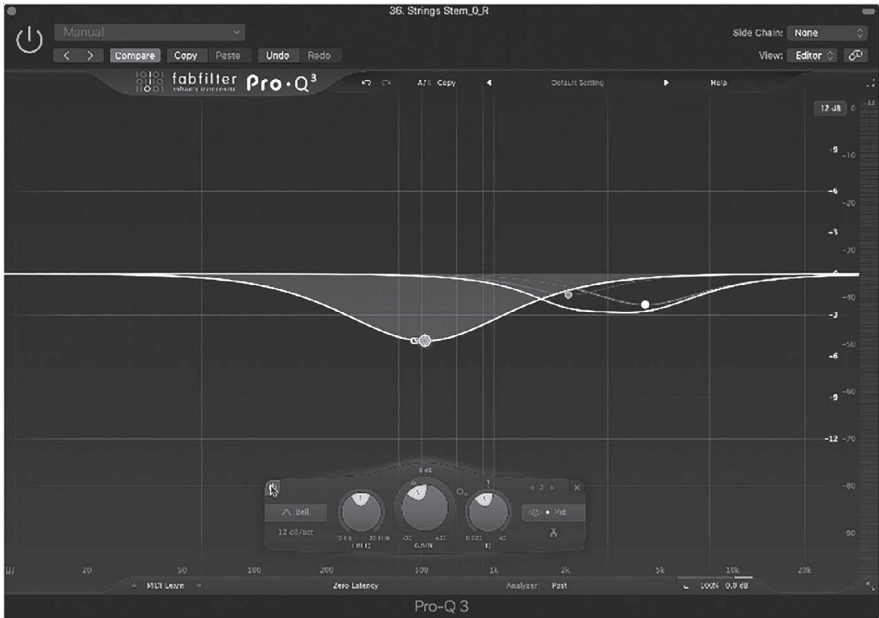


FIGURE 4.35 Mid/Side EQ on the strings cutting the mids in the centre for greater width.

cut around the 300 to 500 Hz area, somewhere in there (Figure 4.35). It instantly makes things wider. It looks like I'm also cutting a bit about; as you can see, I'm more of a subtractive EQ guy; maybe those frequencies were jumping out this like four and a bit and two and a bit Hz. But I want to show you what the string sounds like with and without that mid-only cut. So, without.

HiMMP

Yeah, it's a really heavy image shift.

Adam Getgood

Suddenly, it's so wide, and you still get the mids represented of the strings because they're on the sides. And that can play nicely with the guitars if you balance it well. But that mid stuff down the middle, if we've chugged as much mid as we have into the bass, you've got the kick and the snare trying to make themselves known down the middle. And then, most importantly, you got the vocal as well. I find that clearing that space down the mid makes such a big difference to the clarity of the mix.

HiMMP

So, the mid cut is only on the mid channel of the strings?

Adam Getgood

Yes.

HiMMP

Fascinating. And was there any similar treatment with the brass?

Adam Getgood

No, for whatever reason, I didn't find it necessary to do that. It's the piano and brass stem. And, having just said that, I'm more of a cutting, subtracting kind of guy; I have obviously boosted here [2 dB boost with high shelf starting at 6 kHz]. I think I felt like I wanted a bit more presence out of that. It does look like I actually separated the piano and the horns, though. So, there was a section here with the piano, which I've chopped and put onto a fresh track to be able to process it differently.

And here I've high-passed. But I've also used Spiff (Figure 4.36); it's a programme-dependent transient designer, basically, by the same people that make Soothe. So, I find it a much more transparent way of dealing with transients. And I probably wanted to reduce that hammer-like attack on the piano, which sounds really impressive in solo, but, in the mix, it's like, either you make that so it's the loudest thing in the mix to be able to hear what the piano is playing, or you don't hear the notes of the piano. And that's to allow it to be made loud.

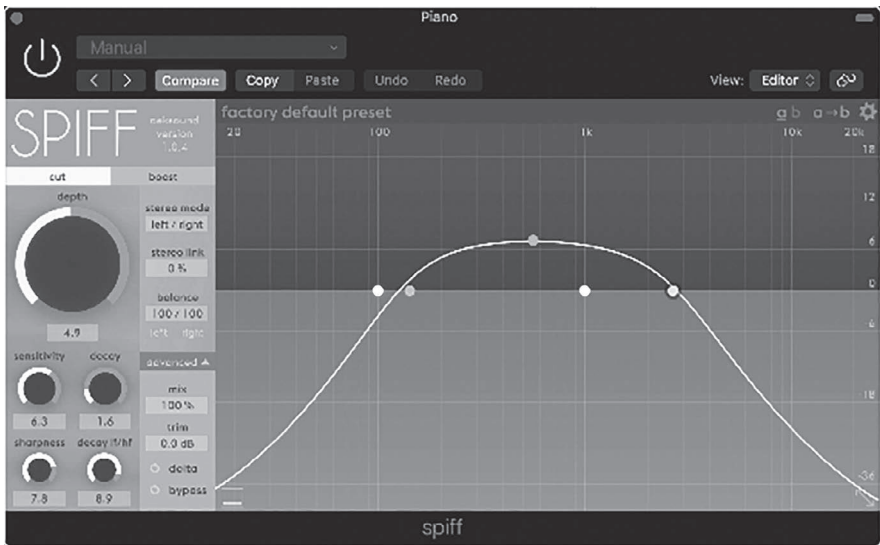


FIGURE 4.36 Dynamic transient designer reducing the hammer-like attack on the piano.

Actually, you did say if there was anything new or I wanted to add to the mix, I should go ahead and do it. So, in this particular section, when everything's kind of that little symphonic break or ballad moment, I added all sorts of little loops of shakers and stuff like that.

HiMMP

Awesome atmospherics, beautiful.

Adam Getgood

Tambourines sent through a big reverb for those individual hits. You've got these real played loops of a cabasa and a double shaker, and then there's obviously a big boom. I can find one of the biggest problems in mixing is when you're getting in and out of a huge shift in feels, going from heavy into really light and then back again, you can often end up feeling like the light section comes out of nowhere, and then oftentimes going back if you've made everything sound lovely and smooth and relaxing, the guitars come back in again, and your eardrums are being shredded, and you hate it, even if nothing's changed from how it sounded before. So, having that boom, for example, adds a little bit of extra atmosphere and connects the two, so it feels like the previous sections are just carrying a little bit.

HiMMP

Yep, that makes sense.

Adam Getgood

And then, without the shakers and stuff, it's such a big change and feel to this halftime. It felt a bit empty, so having something just giving it a bit more drive in a non-heavy way, plus, again, creating a bit of ambience on the snare hits with the tambourine. It's quite an '80s kind of thing; it's like Kate Bush or whatever, but it seems to work quite well just to give the section a bit more of an atmosphere to it. And then I've replicated that to the outro words.

Vocals

HiMMP

And moving on to the vocals.

Adam Getgood

Let's see what I'm doing. I've used the stems that you provided. I'm compressing them even though they're quite compressed. For me, you can never compress vocals enough. I think just compressing a vocal is so much of getting it over the finish line, getting it to be super flat because you're up against waveforms, like these guitars up here—they're just so rectangular—and a

distorted bass, and it's like, unless the vocal is really flattened out, you're going to struggle to find a level. You can do it with automation, but it's much too much, really, and I like that character of the colouration as well.

HiMMP

Absolutely.

Adam Getgood

I'm using this 1176. I really like this Purple Audio one from Plugin Alliance on voice (Figure 4.37). So, for the lead vocal, if I turn off everything I've got on the vocal, it sounds like this. In addition to already being quite flattened, I'm not afraid of that thing going way above the 10 dB reduction mark, but hearing it, there is quite a lot of mid-range radio frequency on his voice, which needs to be tamed for it to sit into the mix. Let's see if that's what I've done. I've obviously done quite a big and dynamic cut around 1 kHz. I'm cutting some high end dynamically.

Again, dynamic treatment for vocals is such a game changer because the voice is so naturally different in timbre as you go through the different ranges and different sections of the song that trying to do with EQ is just so frustrating. Using dynamic bands is huge for me. So, without, it sounds like this.

So, we've got that. That's sending directly to a delay. The lead tracks are all going to this Echoboy Jr. (Figure 4.38). I like this ambient setting on the Echoboy Jr. because it's a bit of a delay and verb in one feeling. I think it's only delay, but it's just got that spread. And it's really important to me that the vocal ambience doesn't have much high or low end. Because that will instantly start eating up more space than it should. It's about making the voice sound longer somehow.

And then that's going to a buss where all the vocals are going to where I'm trimming the level, using Soothe, which I love for just making the esses sound right (Figure 4.39). It gets rid of a lot of the more peaky stuff in there. The pronunciation sounds really good, and it sounds a lot less harsh. Reducing harshness again with this 4 kHz cut and boosting a bit of 12 kHz, as well as also some 400 Hz cut. All of this will be just trying to make it sound like it lives in the same space as the rest of the mix. For me, the big giveaway is if I can't find a level for the vocal, then it's not EQ'd right. So, once I get it to the point where it feels like the level is not so critical that I know that the EQs are in a good space, it should feel like there's a little bit of wiggle room there.

So, the doubles and stuff. I've actually done a big mid-cut on the mid-channel only on the vocal doubles (Figure 4.40), making some space in there, but that's following up what looks to be pretty much a duplicate of the same EQ that was on the lead vocal. And the same on the backing. So, I've duplicated that same processing across all vocals.



FIGURE 4.37 Analogue-style compression on the vocals for consistent volume (top) and dynamic EQ (bottom) and to achieve a consistent tone across pitch ranges and vocal styles.



FIGURE 4.38 Delay processor for the vocals with additional reverb and stereo spread.



FIGURE 4.39 Controlling vocal harshness with a dynamic processor (top) and manual EQ (bottom).

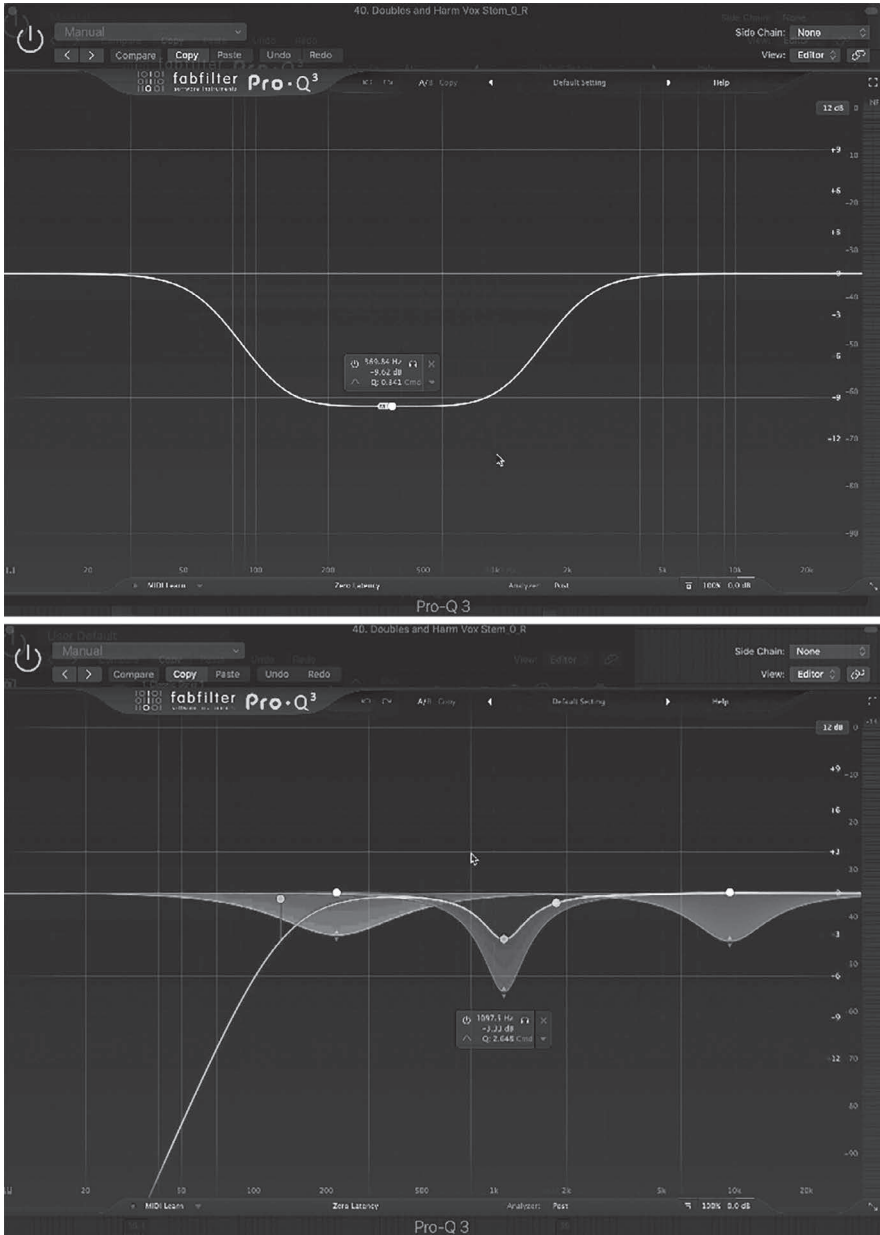


FIGURE 4.40 Backing vocal EQ cutting middle frequencies in the centre (Mid/Side EQ) for greater width (top), and dynamic EQ to attenuate rumble and achieve a consistent timbre (bottom).



FIGURE 4.41 Processing for guttural vocals, with a more scooped frequency spectrum for greater ‘raspiness’ (top) and image shifting (bottom).

Guttural vocals, I’ve treated them slightly differently. On the guttural vocals, I’ve increased the high end a little bit, maybe trying to make them sound a bit raspier, given them a little bit more low end as well (Figure 4.41). These sound slightly different. I’ve also micro-shifted them a little bit.

HiMMP

So, is it just the one delay line that you’ve used and no separate reverbs on that?

Adam Getgood

No, just that.

HiMMP

Fantastic.

Adam Getgood

But what I have done is create a couple of throws where I've got a channel here with a 100% wet, a limiter [Waves L1] going into a really crazy ambience preset. I just pull little sections from the vocal onto that channel to be able to have that happen so you get these moments. I've done that in a few places.

Mastering

HiMMP

Beautiful. And lastly, can we just briefly look at your master buss?

Adam Getgood

Yes, 100%. So, there are a few things. I should mention that the whole time we listened to the drums, they were going through the parallel compression from this Distressor-style thing. And then I was also EQing some five and a bit kHz into them and some 12 and a bit kHz and a little bit of low end as well (Figure 4.42).

HiMMP

Using the mix control?

Adam Getgood

On the compression? Yes, the mix control is set to 35%. The sidechain has got a high-pass and a mid-boost or band-pass filter engaged, so it's not getting triggered from the kick too much, which is key. And then, some brightening going on, on the buss there. So, even though you mostly saw me reducing frequencies, there was a boost further down the chain. And then that's going to an instrumental buss. This is everything apart from vocals. I've got a gain channel here that's knocking everything back 3 dB just to get into my compressor at a more usable volume.

I'm using the SSL-style compressor. These are my settings that I use on everything and have done for the best part of ten years. Fast attack, point three, on the SSL, fastest release, point one, ratio four [to one], and this has got the sidechain low-cuts, so the kick isn't driving the compression too hard, which would be a big issue with fast kicks where you'd have to have the kicks really quiet. So, it's specifically targeting the snare drum to have about 3 or 4 dB. What that's doing is, if I take it off, the snare drum is just too loud by 3 dB. But by having it work like this, where the scenario is too loud, I'm ducking. It's ducking the whole mix at that point. So, the snare's cutting through as though it was really loud, but actually, it's not as much of a jump on your ears. So, without it and with. I'm tucking it back, and it does give a nice little



FIGURE 4.42 Top: drum buss with parallel compression from Distressor, plus analogue EQ for enhanced low- and high end; bottom: mastering compressor on the instrumental buss.

envelope on the character as well. And then I'm doing this mix, like low mix, heavy compression on the whole mix as well, 100%. That's giving quite an aggressive pumping character, and I'm just blending in a little bit of it. So, without that one.

HiMMP

Is it a FET compressor?

Adam Getgood

It's based on a Focusrite Red. It's got a fairly slow attack, but I don't think the attack goes very slow on it. It's not like an 1176. But it's not super slow.

HiMMP

It's almost like parallel compression.

Adam Getgood

Yeah, it is a bit of parallel compression, just giving a bit of a glued feel. The whole mix then runs into my master buss, including the vocal stuff, and I'm using this plugin called Gullfoss. It's become a dedicated thing, which I always have in my mix. So, 20% recover, 20% tame is where I'm at. For me, it's like what buss compression is to levels, this is to EQ. It gives you that elasticity to be able to push and pull a little bit more. And as you go from one section to another, like I was talking about earlier, if you go into a soft section, it makes sure that the frequency range doesn't change so much that it becomes really jarring when you go between things. So obviously, there's no music playing, so it looks crazy. Let's see what it looks like when it's playing. It's not super noticeable. But it just really helps.

HiMMP

Yeah, subtly, really just even if you're getting 3% or 4% from it, it starts adding up all the three or four per cent, and it's significant. It's a lovely bit of processing.

Adam Getgood

I don't feel like it paints you into a corner, like it doesn't have a sound that completely changes your mix. And as you can see, I've just bracketed off the very top and bottom because sometimes I felt like it was making the cymbals too bright and flattening the character in a way that I didn't like. So, it's not doing anything above, or it's doing a reduced amount above 10 kHz and below 30 Hz.

HiMMP

And then you got a limiter last on the chain?

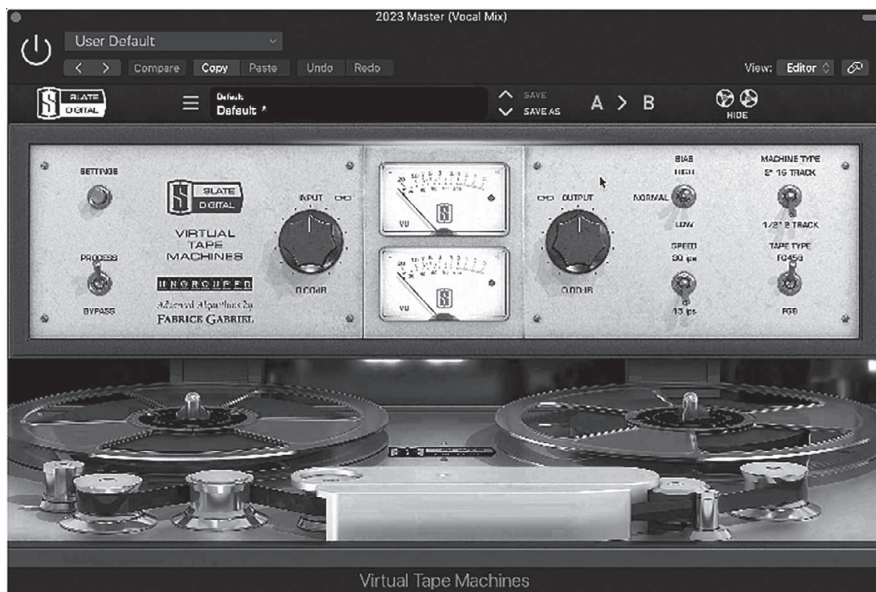


FIGURE 4.43 Tape saturation on the master buss to enhance the mids and the low end of the kick.

Adam Getgood

I've got some tape emulation (Figure 4.43), which I put after Gullfoss because it is a part of the sound of my mixes. It brings things a bit more mid-forwards and just a bit more complex-sounding, and it also has a bit of that low bump that works well on the kick. And then my limiter [FabFilter Pro L2], which I've got set fairly conservatively. You can see it's only really doing anything on the snares. If I were to look at what that's like for loudness on my mix, it's pretty respectable [-10.5 LUFS]. It's not quiet, but it's not winning the loudness war either, and that's generally what I'm aiming for. When I mix, I have the limiter on set around there. And then bypass and send to mastering.

HiMMP

Fantastic. It's been an absolute pleasure. Thank you so much for chatting with me today.

Adam Getgood

Likewise, I really enjoyed it. Thank you.

Note

1 www.getgooddrums.com/products/the-nolly-bass-library (accessed 11 March 2024).

Discography

- Animals as Leaders (2014): *The Joy of Motion*. Sumerian Records.
Architects (2017): *Doomsday*. Epitaph.
Architects (2018): *Holy Hell*. Epitaph.
Architects (2021): *For Those That Wish to Exist*. Epitaph.
Bleed from Within (2022): *Shrine*. Nuclear Blast.
Currents (2020): *The Way It Ends*. SharpTone.
Haken (2020): *Virus*. Inside Out Music.
Periphery (2010): *Periphery*. Sumerian Records.
Periphery (2012): *Periphery II: This Time It's Personal*. Sumerian Records.
Periphery (2016): *Periphery III: Select Difficulty*. Sumerian.
Periphery (2019): *Periphery IV: Hail Stan*. eOne.
Periphery (2023): *Periphery V: Djent Is Not a Genre*. 3 Dot Recordings.
Sikth (2017): *The Future in Whose Eyes?* Millennium Night.
Townsend, Devin (2019): *Empath*. Inside Out Music.
Townsend, Devin (2019): *Transcendence*. Inside Out Music.

5

JOSH MIDDLETON

5.1 Introduction

Josh Middleton (b. 1985) is a British metal guitarist, vocalist, and producer. He is best known as a founding member of Sylosis, where he has served as lead guitarist since 2000 and as lead vocalist since 2010. Sylosis have released six studio albums under Nuclear Blast: *Conclusion of an Age* (2008), *Edge of the Earth* (2011), *Monolith* (2012), *Dormant Heart* (2015), *Cycle of Suffering* (2020), and *A Sign of Things to Come* (2023). Middleton has been credited as co-producer starting with *Monolith* (2012) and as producer from *Cycle of Suffering* (2020) onwards.

In addition to his work with Sylosis, Middleton rose to prominence as the rhythm guitarist for the British metalcore band Architects from 2012 to 2017, later becoming their official lead guitarist until 2023. During his time with Architects, he earned co-producer credits on their albums *Holy Hell* (2018), *For Those That Wish to Exist* (2021), and *The Classic Symptoms of a Broken Spirit* (2022). Although primarily a musician, Middleton has also worked as an engineer with several emerging bands. Due to his growing reputation, he was invited to deliver a masterclass for Unstoppable Recording Machine's 'Nail the Mix' offering.

Having entered the world of music production relatively recently, Middleton works predominantly 'in the box' using Steinberg Cubase. Known for his high-quality guitar tones, he has developed a signature amplifier simulation plugin, STL Tones Tonality, which features his preferred pedals, amplifiers (two Peaveys and one Mesa Boogie), and cabinets. His modern production approach includes a strong preference for pre-made drum samples, which he often uses to replace recorded drum shells to align with his aesthetic

preferences and streamline his workflow. Reflecting this focus, Middleton recently launched 'Ultimate Heavy Drums', a drum sample library produced by his software company, MDL Tone.

Middleton takes an unconventional approach to engineering, openly disregarding traditional best practices in favour of visual audio tools within digital audio workstations. These tools allow him to shape tones and frequency balances visually, prioritizing precision over reliance on auditory judgement alone.

Heaviness

Josh Middleton identifies three principal forms that heaviness can take in music. The first form he associates with nu metal bands produced by Ross Robinson, particularly Korn and Slipknot. These bands eschewed overly produced recordings, resonating with Middleton through their raw and unprocessed performances. They conveyed authentic feelings of intensity, aggression, anger, and liveliness, creating music that was energetic and emotionally captivating. This form of heaviness contrasts with the second, which is more common in contemporary metal productions and is characterized by significant sonic weight and thickness. These productions achieve almost machine-like precision through heavily edited or quantized performances, creating density through layering, loudness, walls of sound, and extensive use of compression, distortion, and waveform clipping. The third form of heaviness contrasts with the polished, high-fidelity aesthetic of modern metal. It is characterized by the raw, unpolished, and abrasive qualities typical of low-fidelity black metal productions. Middleton considers all three forms of heaviness effective in different ways, explaining:

It's just more abrasive, like a chainsaw to the ear, as opposed to a freight train rolling over you or something like that. I guess it's like different ways of being killed in a horror film; it can still be heavy and aggressive but in a different way.

For Middleton, the heaviest music combines the intense, authentic performances of nu metal with the dense, modern productions associated with death metal. To achieve this balance, he strives to capture the best possible performances while minimizing editing and quantization, avoiding the artefacts and phase issues that can result from overproduction. He noted that it is often difficult for listeners to distinguish between performance quality and sound quality. In his experience, high-quality production can expose weak performances, which may explain why contemporary productions frequently rely on heavily edited takes. Conversely, strong performances allow for a more natural production aesthetic, enabling expressive performances to convey greater emotion.

Finally, Middleton rejects the notion that heaviness is confined to the metal genre. He cited punk, grindcore, jazz, and electronic dance music as examples of genres capable of conveying heaviness. In particular, he highlighted the dynamic progression in electronic music, specifically the build-up and drop, as a technique for influencing emotional response and intensity. For Middleton, similar dynamics are a critical component in metal, where they contribute to heaviness through effective songwriting.

In Solitude

Apart from the performances, which he did not control as he was not involved in the recording process, Middleton's mix of 'In Solitude' reflected his aesthetic preferences. For the guitar tone, Middleton re-amped the DI tracks using his signature Tonality plugin. Preferring the chorus-like quality of quad-tracked guitars, he used the same amplifier and pedal combination for all four tracks but selected different cabinets for two of them to achieve complementary tones with slightly varied frequency content. One pair of tracks was mixed at a lower level and panned less widely, contributing to a cohesive wall of sound. The processing was straightforward, involving EQ adjustments to boost the high end for vibrancy and energy, while attenuating the lower highs and higher mids to control abrasion and fizz. Multiband compression was applied to the lower frequencies to tame excessive low end and manage uneven frequency content during palm-muted sections.

Middleton took a similarly minimalistic approach to the bass tone and processing. Working exclusively with the DI track, he processed it through an amplifier to introduce a distorted tone, separating the clean low end from the distorted mid- and high end. Compression and limiting were applied to ensure an even level, while EQ adjustments focused on attenuating the low mids for improved clarity and boosting the low end to enhance sonic weight.

Middleton produced the drums for 'In Solitude' in a modern style, replacing all drum shells with samples and placing minimal emphasis on the recorded room tracks. The drum samples were tuned to match the pitch of the originally recorded drums as captured in the overheads. Although the samples were already pre-processed, Middleton further scooped the frequency spectrum to enhance low-end weight, presence, and clarity. Transient designers were used to shape sustain, while tape saturation and limiting managed gain reduction. Middleton highlighted the role of tape saturation in enhancing the low end of the drums, as well as the benefits of clipping, which allowed for precise transient control and greater perceived loudness. Parallel compression on the entire drum kit, particularly the shells, was central to achieving the desired 'vibe' and energy.

Rather than relying heavily on the recorded room tracks, Middleton used a triggered snare room sample, with most of the cymbals and metalwork

represented by the overhead mics. To ensure consistency in tone and pitch between the acoustic shells and samples, he attenuated dominant frequencies in the kick and snare using static EQ and frequency-dependent sidechain filtering. This approach minimized tuning issues and allowed for significant compression of the overheads without introducing audible pumping. Additionally, he applied saturation to the overheads to soften transient harshness and enhance cohesion between the sampled shells and cymbals.

Vocal production in ‘In Solitude’ was relatively straightforward. Most of the vocals were performed in a melodic, clean-singing style, which Middleton enhanced with reverb, complemented by delay and stereo widening. For the few growled vocals, he preferred a drier production with delay instead of reverb. To balance the vocal timbre, Middleton attenuated the mid-range frequencies emphasized by the microphone and applied compression and limiting to maintain an even level, ensuring the vocals remained prominent over the distorted instruments.

Middleton considered the orchestral strings and brass to be less central to the mix, applying only limited processing to them. To create space for the core instruments, he attenuated the mid-range frequencies and added a gentle high-end boost to enhance the orchestral’s presence.

For mastering, Middleton employed a ‘smile EQ’ by gently boosting the low end for weight and the high end for sheen. He complemented this processing with two separate limiters, each adding unique tonal characteristics. Buss compression and clipping were utilized to increase the song’s overall loudness.

5.2 Conceptual Interview on Heaviness

HiMMP

Fairly broad question, but how would you define the term heaviness?

Josh Middleton

That is quite a tricky one to answer. More recently, I’ve been going back to trying to capture the feeling of being a kid when I discovered heavy music, what excited me, and just what happened at that time. A lot of records were produced by Ross Robinson, who did a lot of the nu metal stuff, Korn (*Korn* 1994; *Life Is Peachy* 1996), and Slipknot (*Slipknot* 1999b; *Iowa* 2001b). And those records—there’s a real intensity, particularly in the vocal performances, the liveliness of those records, and the imperfections in the performances—that got lost to a degree over the years.

But there are other things that have added to heaviness in terms of the advances in technology and recording, and people’s processes, and you can still feel that heaviness come through in a very dense modern mix but in a

slightly different way. And there are two elements to it. There's the weight, thickness, and density of a really heavy metal mix. And then there's the performance side, which is about intensity in the emotion and getting a bit more like human elements to come through, as opposed to having to quantize or over-produce, but I think there's room for both. And recently, I find myself somewhere in the middle of those.

HiMMP

So, from that perspective, you're talking about the change from technology informing the production of heavy music. How would you say that that idea of heaviness has changed over time from those initial Sabbath albums through to more modern productions?

Josh Middleton

You can definitely pinpoint a few periods in heavy music, like the *Black Album* (Metallica 1991b), in particular, and the Pantera stuff. Maybe even . . . *And Justice For All* (Metallica 1988), that was the first really clicky kick drum. But that was definitely a turning point in production, where things started to sound a lot more mechanical and less like a vibey band. But I don't know; it's been a gradual process. And there are a few people like Andy Sneap and Colin Richardson, who, to me, in the '90s, took elements of maybe the *Black Album*, what Pantera were doing, and really refined it. And to me, those guys helped shape modern metal mixing to a degree and really focused on getting good timings but still capturing some vibe and that sort of thing.

HiMMP

So, there are obviously different forms that heaviness can take. Do you feel that there's perceptual heaviness in music genres other than metal?

Josh Middleton

Yeah, definitely. You can find heaviness in some really crusty punk from the '80s that it's not chug, chug, chug over blast beats or death metal vocals, but it's like, some of that early stuff that it was almost like part of the grindcore scene. It's still heavy in a different way. And I'm sure there's even jazz—the really modern stuff, where they're screeching away on a saxophone. That's heavy but in an ear-piercing, chaotic way.

And heaviness can take on so many different forms. And, to me, as a kid, when I was 13 getting into Slipknot, they were so heavy, and they got me into a lot of death metal stuff that they're name-dropping in interviews. But there's a heaviness to death metal that sometimes doesn't have the intensity and aggression that Slipknot had—who were lumped in with nu metal at the time. And there's something to be said for both. There's a heaviness to just being a death metal band, and everything's heavy. But sometimes it's not

captured with the intensity of the band like Slipknot, where it just sounds like they are genuinely angry.

HiMMP

Reflecting on you listening to metal when you were a kid, what was the psychology of that time? What was the effect the music had on you with these different bands? You know, we've talked about these different forms of heaviness. How does it impact you as a listener from an emotional perspective?

Josh Middleton

That's a huge thing. I had a really great childhood. But when you're a teenager, I don't know if it's just your emotions or an excited feeling. But I remember Slipknot, the first record in particular; I mean, the first two records were big for me, but also *The Great Southern Trendkill* (1996) by Pantera. There was a feeling of energy, and I wanted to trash my bedroom to it, not out of anger, just because I was pumped up by the music. And I still find that. And it's something that I kind of like.

More recently, I found that most people in bands these days sit at a computer writing music. I've started to try to stand up and play guitar to feel it a bit more than just focusing on that sort of thing. So, there is a physical element to heavy music, and you want to feel that excitement or reaction when writing it or performing it or how it was as a listener. It's fun when you get hairs on the back of the neck standing up because you can feel something heavy coming or something like that—dynamics.

HiMMP

It's really interesting. When we're chatting earlier about all these different aspects to heaviness, you can even go so far as to say that the album artwork and the logo or the band's image or your experience of live music can contribute to how you perceive the music as heavy. But for more of a mix perspective, what do you feel are the elements that contribute to this sense of heaviness?

Josh Middleton

Obviously, you don't want a bloated, uneven low end, but if you don't have enough weight in the mix . . . Let's not get too specific already. But like guitars recently, I found myself adding low end where I'd always thought you just high-pass-filter. But now I find myself putting in some lows, like 80 Hz, to make sure there's a density and a thickness to the guitars—and the same with kick drums and snares.

I mean, obviously, the faster the music and the more that is going on, the harder it's to balance that out. But that's where it is when you're trying to focus on something being heavy. And I find saturation is a huge part of it.

Even if you want a cleaner mix, I think things like clipping and saturating snare drums are useful, so they're perceivably louder, even though they're not completely sticking out over the mix and getting them sounding dense.

HiMMP

Yeah, that aspect of performance speed and tempi and the way that provides the space available can be a real challenge. And it's amazing, the albums that you listen to where there's actually not a lot of low end, but, like Behemoth's *Evangelion* (2009), which Colin [Richardson] mixed, there's very little low end in it. But because the music is so fast, it provides very little space for that low end and for reverb.

Josh Middleton

That makes them particular. It doesn't feel like a thin mix; they seem to balance it out in a way that works. Colin really found the balance for that. But I mean, there are some records I grew up with, like *Far Beyond Driven* (Pantera 1994), I still listen to and think it sounds good. But I've looked at the kick drum, like just taking a sample of the start from the songs, and the high end really outweighs the low end. Whereas in modern-day mixing, you can find a way to bring a bit more of that up. And it's more common now to have more low end on metal mixes. But it's hard. It's easy to go too far.

HiMMP

Very much. It's a bit of a pencil bouncing on a pane of glass, the kick drum on *Far Beyond Driven*, but, as you say, there are these albums that come out that really influence the way that metal music is produced and become almost like a trend within the mixing style, which is accepted from a commercial perspective for a while, which is quite interesting. But the aspect of speed, as you mentioned earlier about the different performance approaches with very fast subdivisions—you're talking about the balance earlier between bands like Korn and Slipknot, where there were almost those errors in the performance, that it wasn't all quantized. And then there are bands that are incredibly fast, and it's a lot of technological mediation to get those performances tight. Is that an area where when you're mixing, regardless of what the project is, you're trying to strike a balance between this performance accuracy and quantization and tightness? Because the standards of tightness have gone up and up, it's difficult to retain that natural, authentic fibre. Or is that not something that you ever really think about?

Josh Middleton

No, I do think about that. It depends on the musicians. I'll always try and push for the best possible performance, at least technically speaking, from

the musicians. And then vocals are slightly different; if a vocal performance just feels right, then that's its own thing. But let's say guitar tracking; I want it as tight as possible. But I can hear when records have been quantized; you can tell. So, you don't want to sound like that. And sometimes you have to not play a riff all the way through to get it where it needs to be. Or even the player can play it perfectly, but just the way the riff is, there's a noise when you move to this position, and it's like he can play it perfectly, or she, but let's avoid that noise and just add it in for that bit.

I think that sort of thing is fine, and it's quite common, but you can definitely go too far and have everything gridded 100% with the drums, which is too much because it sounds programmed. You can overdo the guitars; you can over-edit them. I always chase perfection, but to a limit when it sounds fake. And the difference is in playing with guitars left and right. If everything's perfect, you can get phase issues again.

HiMMP

When you're talking about that balance that you're trying to strike there, more broadly, what do you feel are the central challenges when you're mixing?

Josh Middleton

With regards to the performances, or generally?

HiMMP

Generally.

Josh Middleton

The less tight the performance is, the more I really need to push. A lot of people can't always tell the difference between performance versus sound, just as a listener and a fan. And there's a balance there. And if the performance isn't good enough, but the mix is perfect, it can highlight mistakes, or if the performance is amazingly tight, you can get away with more real drums, and the inconsistencies between the hits don't matter because it's so tight. So those are some issues. But I've actually forgotten the first part of the question.

HiMMP

Just about what the central challenge is that you're often trying to solve as you're putting a mix together, and you're trying to achieve this clarity and this sonic weight and the heaviness. And you've got all the performances, and we've obviously got potentially down-tuning and harmonic distortion. But generally speaking, and I'm sure it's different with each project, do you tend to find a common theme in the challenge you're trying to solve?

Josh Middleton

The most common challenge is that in heavy music, everything has to be the loudest thing in the mix. And as a guitarist, I like loud guitars, but the moment you feel like your kick and the snare are not loud enough . . . I mean, it's the same thing. You just want everything as loud as possible. And that's where things like saturating and clipping can come in to help with drums, or parallel compression, because I like really aggressive-sounding snares with a lot of attack. But that can turn into a little blip in the mix if there's not enough sustain to your snare sound. And just getting the kick and snare levels, snare in particular, because I listen to stuff I did a few years ago, and the snare is like taking my head off. It's too loud. And then, more recently, maybe I've been going a little bit too low with that. So, balancing everything out is the most common thing.

HiMMP

We chatted before about how technology and the ability to quantize and auto-tune, and all these technologies really facilitated metal music production. Do you see that journey continuing with technology? Obviously, we've got the ever-looming prospect of AI. I don't know if you've listened to any of the AI metal productions now, and they're not going to set the world on fire. But their lyrics are written, vocals performed, everything's done by AI and mixed and mastered by AI. But more from a perspective of the technology, like we've had profiling technology and quantization, expanded track counts, and solving latency problems within the DAW. Do you see that journey continuing, or do you feel we've reached a sort of peak with the technology?

Josh Middleton

I'm not too technologically minded, so I can't really say because it's not something I pay much attention to in terms of progression. I can't see how it could get much better. But I would assume that's how people felt ten, twenty years ago, and it's doubled, if not tripled, or more in terms of what's come along in recent years. I can't picture it, but I assume it will keep continuing.

But I imagine, not even from an AI point of view, but just to a degree, that there'll be advancements in things that make mixing a lot easier. This will almost get close to AI mixing it, but so many plugins are coming out now that are pre-mixing things for you. And I don't mean presets, just things that make life easy, like Soothe plugin on overheads or vocals. They've just solved all my problems.

HiMMP

More broadly, do you feel that low-fidelity production standards can be as heavy as high-fidelity production standards? What's your definition of lo-fi?

Because I always think of thin-sounding stuff like Darkthrone, usually more black metal productions that were lo-fi. So, comparing, say, Dimmu Borgir with more of the traditional stuff.

Josh Middleton

I am familiar with that. I always think of it as thin-sounding. But I don't know if that specifically means less polished. But yeah, I think it can be heavy, but it's just a different way. It's a more abrasive, like, chainsaw to the ear as opposed to a freight train rolling over you or something like that. I guess it's like different ways of being killed in a horror film; it can still be heavy and aggressive but in a different way. But to me, the heaviest mixes are the ones where everything's just thick and nasty.

HiMMP

Which metal albums have you produced that presented the most challenges to you? And how did they turn out?

Josh Middleton

To be honest, I don't have a lot outside of the bands I've been in. So, with Sylosis, I've got such a clear vision of what I want that I go on forever. And that's different to when I've worked with other artists, and it's someone else's music, and I can get there in a couple of days, where I could have spent months on *Cycle of Suffering* (2020) by Sylosis, constantly going back over it, like, 'I'm just going to change, I'm going to re-amp the guitars for the tenth time, it's not quite what I want'. So that's been a challenge.

But with Architects, the second record I did with them, *For Those That Wish To Exist* (2021), I didn't mix the record, but there is so much going on in terms of all the different synth layers, and I'd sort of pre-mix them and try and get everything balanced out before going off to be mixed because when you've got so many tracks, especially synths and overdubs and everything, it can really be a nightmare when you're mixing it to just about 'What am I supposed to do with this?' If I could pre-mix all of that stuff to a degree beforehand, then when it comes to mix revisions, it is like, 'Oh, can you just turn this up by a dB', as opposed to, 'Turn that up by 10 dB, this down by X amount'. So that was tricky. And with the synth stuff in particular, there'd be a lot of synths where the transient of a note would be way louder than the sustain. I'd use transient designers to take off all the attack and push the sustain or use the Soothe plugin to get rid of any whistly frequencies and some of the more harsh synth-sounding stuff. And then I don't know to what degree Zakk [Cervini] actually mixed the record. He may have done even more heavy-handed stuff, but just getting stuff all balanced out was tricky in that regard.

HiMMP

Perfect. So, we've got a really interesting area of discussion there where we're talking about authenticity of performance, and then the impact of technology, but also composition. You've also talked about when you were composing the Sylosis record and trying to capture the dynamics and that feeling of energy from the music that influenced you when you were young. How much do you feel that this idea of performance intensity is impacting how we perceive heaviness? For example, Andrew Scheps talked about the 'In Solitude' mix that he felt it's really in the midsection where there's the heaviness, where it's the slowest. Do you feel that there are different ways of composing and performing that all contribute to this sense of heaviness and expectations for sections that come before other sections?

Josh Middleton

Yeah, I think that makes a huge difference. I think it was one of the booking agents that worked with Architects that said—it's one of those guys years ago comparing like dance music to metal stuff, especially hardcore things where you have these breakdowns—it's like the build-up. In a lot of EDM dance music, you'll have a build-up, and then you get the drop where all kicks in. The equivalent in metal would be, I reference Slipknot, like 'Disasterpiece' (2001a); there's this midsection heavy riff that comes with a double kick pedal. If it just came in after the chorus, I'd be like, it's a cool riff, but it builds and builds and builds like a long snare roll. So, building tension in the composition is like one of the best ways to then lead up to something because if you have loads of great riffs and they just all come in, and there's not much dynamics to the songwriting, you get a bit numb to it.

HiMMP

Yeah, I think that perspective is really important; like a scream, you'd become numb to it. But if it comes after a whisper, like in 'Eyeless' (Slipknot 1999a), going back to Slipknot, you get this almost whispered line, and then Corey, just within a fraction of a second, goes into absolute foot. And then it sounds really loud. So, this idea of build-up and contrast really is impacting.

The other thing that's really interesting is this idea of heaviness becoming a moving target as well. Andrew Scheps was talking about when he heard AC/DC's 'Back In Black' (1980) for the first time. It was like, 'That is the heaviest thing that I've ever heard, and that's changed over time'. And bands like Malevolence, and obviously, Knocked Loose as well, they got this almost sludgy sense of heaviness, but it's the idea of what comes before and after certain parts and how it gets built up to, like in your Slipknot example, is a really important point.

Josh Middleton

Yeah, I think those two bands, Malevolence and Knocked Loose, do that as well. The way riffs are introduced really adds to the heaviness. You can't always expect an amazing riff to be perceived as amazing as you might think it is if you haven't introduced it in a way that it's going to be like . . . I mean, it's like 'Enter Sandman' (Metallica 1991a); just the whole intro to the song is a build-up. And then when the riff finally comes in, especially when you see them live, you've got a big pirate explosion. It's like, 'Oh, there's the riff'. Whereas if the song just started with the riff and it comes out of nowhere, it's not going to feel the same.

HiMMP

And we talked earlier about these landmark metal albums that really had quite a broad impact on how metal music is produced. Which do you feel, from this idea of perceptual heaviness, were the albums that you listened to where you really went that are so heavy?

Josh Middleton

It's different. I have loads of albums that stand out from my childhood. The *Black Album* (Metallica 1991b) is one that I think, like 'Sad But True' (Metallica 1991c), for the time, would have been one of the heaviest mixes in terms of not just the heaviness, but it sounds really good and still stands up to this date. But then *Iowa* (2001b) by Slipknot, which is an Andy Wallace mix, it's still so abrasive, but it's also thick, thicker than the first album was; you can almost say that it was a bit lo-fi by today's standards. So, it got the intensity for me and the overall grime and more of the imperfections in it that make it more real and visceral and abrasive. And then a record from my youth that I don't necessarily think is a record that would be unanimously agreed upon, but Cannibal Corpse's *Blood Thirst* (1999), which is the Colin Richardson mix, was one of the ones for me personally, I was like, this is great. And I still think that one holds up pretty well by today's standards. That was like '99, maybe.

HiMMP

It's interesting when you listen back to albums that you really were a fan of when you were young, and you don't listen to them for many years, and you go back to them, and they either really hold up or sometimes the opposite way. It's interesting; I was listening to some Forbidden albums, *Twisted Into Form* (1990) and *Eternal Nightmare* (1988) by Violence, some of the early thrash albums.

Josh Middleton

Yeah, all of those. For me in particular, I didn't grow up in that era. Getting into thrash and wanting to find all these albums, I love all the riffs; I wish

they hadn't put reverb on that guitar tone or mic'd it up from across the room, and all that stuff—the sort of nasally, honky guitar tones with reverb on. And the riffs are amazing. One record that stood out to me is the first Testament record I got, *First Strike Still Deadly* (2001). They're all classic stuff done by Andy Sneap. It's the perfect balance for me because I love the music. But the mixes are really great and dense.

HiMMP

Yeah. What sort of trade-offs and limitations with your processing approaches are you looking at? Again, we've been chatting about these different qualities that you're trying to get; you're saying about the drums coming through but getting the sustain of the snare and transient designers, too. But do you have trade-offs? Say, quad-tracked guitars that are really thick and dense tones cause more problems in the drums coming through. Or greater sample use makes it easier to mix, and they punch through the guitars more, but they tend to sound more processed. Again, I found it interesting you were talking about the Slipknot and Korn albums that had this performance authenticity. And then the more technologically mediated records, where it's all quantized, and you can hear it's all put together, and you're looking at a trade-off with those. Do you have a trade-off when you're processing guitars or drums?

Josh Middleton

Yeah, definitely. I think you can get the super heavy and ultra-tight performances without going to quantize. Like if you look at *The Gathering* (1999) by Testament, the rhythm playing, or even . . . *And Justice For All* (Metallica 1988), that's all done to tape, and the performances are as tight as they need to be. So, it can be done without going in. But the musicianship, particularly with younger bands, which are a lot younger or not as professional, you have to punch in just for that riff as opposed to half the song.

With regards to guitars, it's a trade-off trying to get the low end right. And it's quite a common trick to multiband-compress the low end for the palm mutes and that sort of thing. I found more recently that I've been carving out more low end, or lower mids around 120 Hz, where the palm mute build-ups normally are, and adding more in around 80 Hz to get more of the sub coming through. But I used to find that the more low- and high-pass filtering that I did, particularly high-pass filtering, getting rid of the low end . . . If you do it too much, you're only left with the muddy part of the low end. So, if you leave a bit more of the subby stuff, even if there's not much of it in there, and do a little carve, I found that it's something that helps my guitars feel a bit thicker but not too muddy.

I hate to say that I use my eyes quite a lot with the FabFilter EQ. But I think you can see where you're at in terms of where's the resonance of the low end on the kick drum, where is it on the snare; does it need to be there

in the guitars, is the snare poking through there, can afford to lose a bit of low end or low mids, where the snare low end is in my guitar tone or on the bass . . . You can visually see where this stuff is now. And that makes life a lot easier to know if your low end is building up in one place. But it's hard to strike that balance. So that's something I do all the time. I haven't done it in quite a while. But you can find when you've done a mix and listen to it in the car, and you're like, why is the whole mix boomy? And everything's in the same area.

HiMMP

Does the way you go about using distortion and parallel compression differ from mix to mix? Or do you tend to have a set approach that you'll default to first of all?

Josh Middleton

It really depends on the band and the type of music. If something's a bit more modern and maybe more hardcore influenced . . . I can't think of any examples. I mixed some Malevolence live tracks for their YouTube recently, and they're in a metal band, but it needs to sound really aggressive and stand up against a lot of the more, I think about that, like Knocked Loose, which is not quite as polished. Metal mixes like Andy Sneap or Colin Richardson, I would try and add a bit more like saturation to the drums and density and punch, and just focus on the heaviness.

Whereas if I was doing a band like Divine Chaos, a thrash band, I'd go more for a Sneapy kind of Richardson sort of not-quite-as-bloated mix that the emphasis isn't more on the heaviness; it's more on the metallic tones. So, my approach would be different. For example, clipping and saturating the drums a lot more for the more modern metalcore or hardcore-leaning stuff and not being quite as saturated or distorted with the more traditional metal stuff.

HiMMP

So, discussing that perspective where you'll vary your processing approach depending on the project, is that similar with the number of kick and snare samples you use, and do you tend to use drum samples taken from the kit used for tracking?

Josh Middleton

If I can, I'll use samples from the kit. It's something that I've tried to do, and in my head, it should work. I don't know why I've never had as much success with it as it should have in my head. But I'll take really hard snare samples from a session. I would have triggered the snare with all the hard hits and then spliced in to be natural, but I found that I was not doing that for the

consistency of the tone of the snare. I'm treating a real snare track like a real snare track. But they are not shy with using triggers. And especially today with, like, Slate Trigger and multi-samples, that if you pay attention to detail on fast snare rolls, and you might have to edit a certain hit on the audio to trigger, like, a louder or softer hit, that you can lean on samples a bit more and still have a natural feel.

Yeah, I like to try and use samples from the kit and as much real mics as possible, but when it comes to samples, I would always rather use one as opposed to blending them, and I would create my own blends of either one-shot samples or multi-samples. I've got about six or seven good hits from a kick drum from a session. If I want to make a sample of that and I want another sample blended in, then I'll make the samples with the blend that I like, so I'm not dealing with loads of different tracks. And especially when you're doing a record, I don't mix in the same session. I'd rather have fewer layers of samples in that regard. And I like to pre-make samples. If I'm going to blend sounds in, the whole TCI Slate Trigger file will have that blend done already.

HiMMP

And when you're creating the snare samples, and you have clean hits from the kit used for tracking, do you focus more on the room mics, the overheads, the spot mics, or a blend of them?

Josh Middleton

Just close mics. One thing that can really help performance, if you're using a lot more of the actual real snare track, is triggering the room mics. So, as a trick that I first heard about from Andy Wallace years ago, I think it was about a System of a Down mix he did. But if you get the consistency of the room mic sound, it can balance out the inconsistency of the close mic. And it doesn't obviously sound as sample-heavy because it's like an ambience that you're sampling as opposed to a close mic, which is really obvious to hear the fakeness.

HiMMP

From that perspective, you are not actually using the mic source itself as a room mic but a sample of that and triggering it every time.

Josh Middleton

Yeah, not always from the session. It depends. But even if I've got a really good room . . . For example, the most recent Sylosis record we tracked at Chapel Studios, and it's a great-sounding room. But I feel like one of the channels might have been a bit dodgy on the desk. And every now and then, it might dip a bit on one side, which I only discovered mixing it here. So, I have not been able to lean on those room mics as much. I like to trigger

a sample, and not necessarily one from that room. I don't think it always makes a huge difference when you've blended it in. I was still using the real room mics, but blending in a sample from an expansion pack, and it's got a nice-sounding room that just works. But even if I'm using samples on the snare, there's probably always a room mic sample in what I do.

HiMMP

And mentioning Andy Wallace, what I always found interesting about Andy Wallace is his use of snare and kick samples that don't actually feature in the mix directly but are sent pre-fade to reverb.

Josh Middleton

Yeah, that's a similar thing.

HiMMP

Is that something you'll often use? Or it depends on the plugin?

Josh Middleton

No, I've never done that. I guess it's a similar approach to just triggering a room sample. But obviously, it's a reverb as opposed to a room ambience.

HiMMP

Brilliant. That wraps up that section. Would it be okay to look at your mix?

Josh Middleton

Of course.

5.3 Mix of 'In Solitude'

HiMMP

When you first started the mix, I'm guessing you listened to all the different sources and to the song and how it all came together. Obviously, there are different performance sections with speed of subdivisions. Did that inform how you started the mix? In other words, how did you start the mixing? Was it with this perspective of the different speeds of performance?

Josh Middleton

If I'm honest, I didn't really consider that. I think the first thing that I went to, which isn't normal for me, is guitars. Normally, I'll start with drums and try to see where I'm at. But I was excited to try and dial in a tone that I thought worked with the riffs and the playing and the pick attack and everything. So, I went for just using the DIs and my own gear, which is now in a plugin form, but I know what I'm going to get with the various combinations. That

was my main focus, and then I brought everything up from there. But yeah, admittedly, it was more on the type of riffing that was there, and what I could get away with and find a balance between enough gain for it to sound heavy but not too much, though. There's clarity and the attack.

HiMMP

And what became a central or the main challenge that you were trying to solve with this mix?

Josh Middleton

I was quite happy with how it all seemed to work from section to section. I was expecting to do a bit more automating. And if I had a bit more time on it, it's probably the thing that I'd like obsessively getting into automating that. I really didn't think it needed that much.

Starting with guitars is not something I do that often at all. There were so many tracks of guitars; I was quite excited to see what they all sounded like. And as soon as I heard the riffs, I was like, I know what tone I want to hear. But yeah, as regards the whole song, I was lucky that it all just worked for my taste. I could go more, but it sounds good.

Guitars

HiMMP

Is it okay if we start with guitars? You went with quad-tracked guitars. In what circumstances would you opt for the quad-tracked guitars or double-tracked guitars? Do you tend to go towards double-tracked for much faster performances? Or do you always prefer quad-tracking?

Josh Middleton

I like the sound of quad-tracking. I think it's like a period of all my favourite albums when I grew up; a lot of my favourite guitar tones are quad-tracked. It's almost like an OCD thing. There's like it's got to be that, but it really depends on the performance, how good the player is. And Rich [Shaw] is obviously a great player, so there is no issue with that. But yeah, if something's really technical, if you're really venturing into like 230 BPM technical death metal, then yeah, just try and use two. And to be honest, I felt like it was somewhat of a crutch of thinking like four tones are going to sound thicker. But you can just turn two guitars up, and it's fine.

HiMMP

And if I'm right, you've got two guitars that are back down? And then can you talk us through how you panned those?

Josh Middleton

Yeah, the main two are panned left and right, and then the other two are in a little bit more 89% over, and they're almost 8 dB lower in volume. And it's the same guitar tone, the same amp and pedal, but a different cab, just adding something different than hopefully filling out some other areas that the other cab doesn't have.

HiMMP

So, this is your own [STL Tones] Tonality plugin (Figure 5.1)?

Josh Middleton

It is.

HiMMP

And you use the 5150?

Josh Middleton

Yeah, I've used, from the start, like an 808 pedal. This is pretty much my standard setting. I don't really need any driver; the 5150 doesn't need a boost to get any more gain out of the amp; the pedal was really doing some tightening up. These are the settings on the amp. I don't go too high on the high end because I'll always find the high end on these amps pushes a bit too much of what I call the cardboardy area of, like, the 1 to 2 kHz. And I'd get more



FIGURE 5.1 Guitar amplifier simulation of Josh Middleton's live rig.



FIGURE 5.2 Cabinet section of the amplifier simulation with two different microphones.

of the high end coming in from the presence. And then cab (Figure 5.2), I'm mostly leaning on a [Shure SM] 57 microphone on the first cab, and a little bit of [Sennheiser MD] 421 in there, but not much. It's actually down loads in volume on this side. Then, it's pretty much the same thing on the quiet tracks, but it's a different cab and a different speaker.

HiMMP

Okay. And how did you change the speaker on the other side? So, you had the ones that were taking the main amount of level with the same sound or with different sounds?

Josh Middleton

Same sounds. The guitars at the highest level are exactly the same. And then the next two, left and right, are different but exactly the same on each side. But more recently, I find going for different guitar tones left and right can sound great, but it's a bit more of a challenge EQing and balancing them. But what can work just as well, obviously, is if you've got two different guitarists. But more often than not, a lot of engineers will tell you to use the same guitarist, maybe if one is better than the other, and it's just tighter.

But using two different guitars, even if it's the same guitarist, so there's a left guitar and a right guitar, and I've got two of my signature model guitars. And they sound different enough from each other. They're just differentiated between each side, but I don't always do that. And in this case, I still think it

sounds really good just having the same sound left and right and then quieter ones left and right.

HiMMP

Yeah, it's really interesting; the albums that do have the same sound left and right, so At the Gates' *At War With Reality* (2014), but it still sounds super wide because some producers refer to it as 'big mono'. But in *At War With Reality*, you don't get that sense at all.

Josh Middleton

Yeah, I've seen the Pantera stuff; it's probably just the same tone as well. And I never thought it was particularly thin. I don't know how common it was back then to completely hard-pan the guitars. They used to pan them in a bit, Terry Date anyway. There's a lot to be said for exploring different tones and panning.

HiMMP

And on the second rhythm sound, each side, that's a lot lower down and panned slightly in, and you just used a different cabinet on that?

Josh Middleton

Yeah, just because there's almost not much point in using the same sound four times. I mean, sometimes there's an element of chorussiness that can come through, which I quite like, in layering up four tracks. But in this case, I think it was trial and error. Just having fun.

HiMMP

So, could we listen to the rhythm guitars? Beautiful, and at the stage, you'd put the guitars together and want to get that rhythm sound for the foundation of your mix. Did you start looking at EQ at that stage? Or, then, did you look at the rest of the mix to inform how the guitars needed to be EQ'd?

Josh Middleton

To be honest, I think I probably was listening to the riffs and the start of the riffs and then loading in some guitar tones that I've isolated from albums that I like that have a similar style, or I want to get in a similar ballpark. For example, the first thing that came to mind was a Killswitch Engage riff, which, musically as a whole song, I wouldn't say it's similar, but just in terms of some of the riffs. There's a similarity there, maybe in a similar tuning. So, just to try and dial in a tone from the source.

Before EQing it (Figure 5.3), using the amp and mic placement, getting a ballpark that feels right. I use reference stuff all the time. I'm not too shy about doing that. And so yeah, I did some referencing at various times. But

that was one example of somebody I listened to. I don't think I've started EQing them, but I'm obviously doing what I can within the rig. In this case, it's in a plugin, so mic placement and settings are on the app.

HiMMP

And you've not used any compression on the guitars?

Josh Middleton

No, I have tried limiting them. Sometimes, I'll throw an [Waves] L1 on them. L1 gets used everywhere, it seems. But for the most part, I stick to low-end compression. And when there's a time like this, it's not overly distorted. But relatively speaking, there's so much distortion that it looks like that. I mean, obviously, these are DIs, but if these were amp mic tones, they'd all be flat apart from where they're palm mutes. And then the multiband compression that I'm doing should hopefully attenuate those palm mutes, so it's quite a linear sausage shape.

Bass

HiMMP

Fantastic. And moving from the rhythm guitars towards the bass. Which sources did you choose for the bass sound?

Josh Middleton

There are some really great tones I really liked. There was a lot to choose from, but I had a go-to with bass DI and using the Parallax. I really liked the options of being able to compress the low end, distort the mid-range, or the high end separately, and I just know what I'm after with it. And it's quite quick; I can get my bass tone in. So, we can listen to the bass.

HiMMP

Let's look at the Parallax and the settings you used (Figure 5.3).

Josh Middleton

When I was doing the most recent Sylosis record [*A Sign of Things to Come*, 2023], I sent him [co-producer Scott Atkins] the bass DIs. I was like, what would you do with this? This isn't the exact setting, but it was definitely a starting point. And he's a good friend of mine; he has helped me a lot. So, a lot of what I've learned has come from it. This was based on . . . I can't tell you how much different it is from the preset it was initially, but yeah, I'm doing a lot of compression on the low end. It's not actually just the one; the mids are too much, or at all; at least there's no drive on it. And not a lot on



FIGURE 5.3 Bass amplifier simulation with low-end compression and distorted high end.

the high end, but it is pretty distorted. I guess it's just the amount of input going into it.

Before going into that, there's a little bit of compression just to try to glue it a bit more (Figure 5.4). There is a little bit of EQ before even going into the compressor. I don't know what bass was used for this, but I got rid of some of the murkier lower mids. Yep, as three instances of EQ. So EQing after Parallax. Obviously, this was probably an area that was whistling. As you can see, that's a very whistly frequency. This area is the usual build-up of low end that I always tend to cut out from bass because too much of that just sounds like a sine wave and can really ruin a mix if you've got too much around 90 to 110 Hz.

So that's the EQ I'm doing, and then I limit the bass to try and glue it together even more (Figure 5.5). I'm guessing like three dB at the most, and then sometimes limiting . . . If you're pretty light-handed with limiting, I don't think it changes the tone too much, but sometimes I find it does affect the mids and stuff if you start to slam the limiters.



FIGURE 5.4 Pre-compression EQ removing mud and adding low end and string sound (top), and analogue-style compression for more consistent volume (bottom) on the bass DI.

Then EQ again, just as my final check (Figure 5.6). It’s three instances of EQ, so a bit more of the low-end build-up there. And I think I did this this morning; the high end within the mix context was a bit too shiny, so I got rid of the bit there. That’s the bass.

HiMMP

Excellent. Can we listen to how the bass blends with the guitars?

Josh Middleton

Sure.



FIGURE 5.5 Subtractive EQ on the bass DI with low- and high-pass filters (top), and limiting for a more consistent level (bottom).

HiMMP

And on to the idea of stereo processing and the stereo width to your mix, is there no stereo processing on the bass that you applied at all?

Josh Middleton

I haven't, no.

HiMMP

And is there any stereo widening on the master buss of your mix?

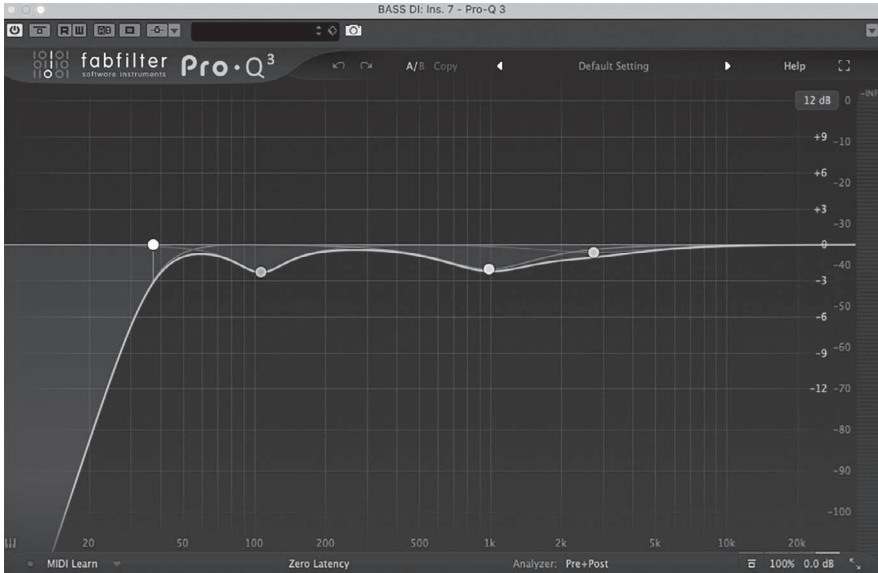


FIGURE 5.6 EQ on the bass DI to attenuate a frequency build-up in the low end.

Josh Middleton

No.

Low-End Management

HiMMP

Moving on to more of the low-end management. We were chatting earlier about how you've changed your approach with your high-pass filtering with guitars more recently in that you tend to be a little bit sort of frequency bracketing the low-pass and high-pass filter, but certainly, with the high-pass filter, you've tended to go a bit lower and get the 80 Hz in there. Was that an approach that you used with this mix, and what was your low-end management approach with the guitars, kick, and bass?

Josh Middleton

Well, I'll look at the guitars first. I'll show you what I've got on there. It's quite heavy-handed EQ-wise (Figure 5.7). I've certainly been allowing a lot more high end through and just boosting it and boosting it in an area, essentially 10 kHz, where there's just like . . . I think there's obviously no low-pass on that. And I think if you lose too much of this high end, especially with a Mesa Boogie cab, which is quite dark-sounding anyway, they're not very fizzy like a Marshall, the guitars can sound a bit lifeless, and it's not really

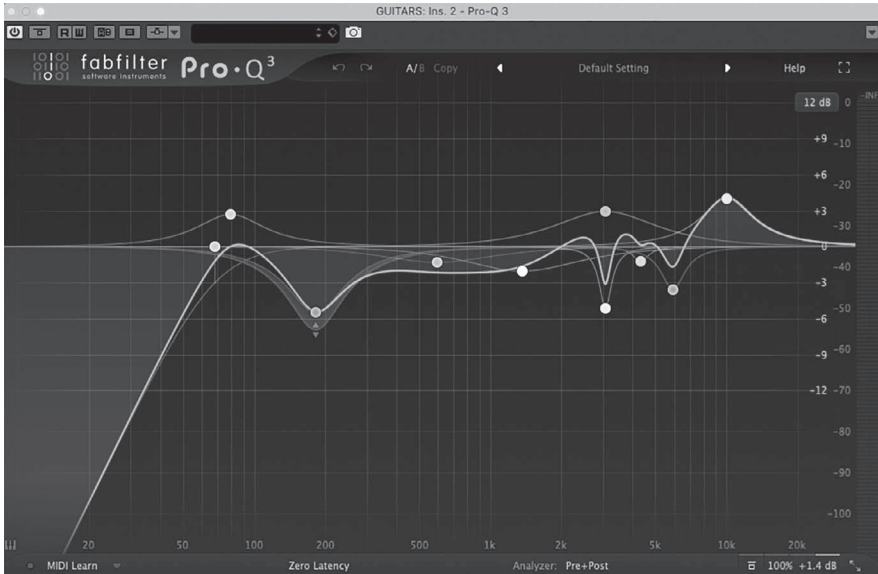


FIGURE 5.7 Guitar buss EQ adding brightness, taming resonances and low end, and dynamically attenuating low-mids for a more consistent tone.

adding too much fizz, which you start to hear more around like about 6 kHz. It's just adding some vibrance and energy.

That's something that I've done more recently. But I know a lot of the records that I grew up listening to probably got a bit of that cranked because of the amount of A/Bing I've done against tones from albums that I like. I might say, 'Oh yeah, they've definitely done it'. I remember a post that Colin Richardson made on Andy Sneap's forum back in the day. And he was like, I like to boost these frequencies for these reasons, so I boost 10 kHz a bit more. So, boosting 10 kHz as opposed to cutting . . . Growing up learning production, you always hear guitars low- and high-pass filtering. So yeah, I just started experimenting with it.

And similarly, another thing I've heard from Colin Richardson was like, 'Just turn 80 Hz up 12 dB'. And I was like, wow, that seems crazy. But I mean, maybe it wasn't there at the time. And again, I just run A/Bs against the guitar tones I've captured to get against records I like. And all these EQ matches threw up loads of light, as I don't have that in my tones. And I started experimenting with it. But this problem area here is usually the air that I'm already multiband compressing for the palm mutes with a [Waves] C4, which is only really tickling that area (Figure 5.8). And I've actually carved a lot of it out, but I'm retaining some lows below that area by only high-passing to about 70 Hz. And I've got a little bump there at 80 Hz.

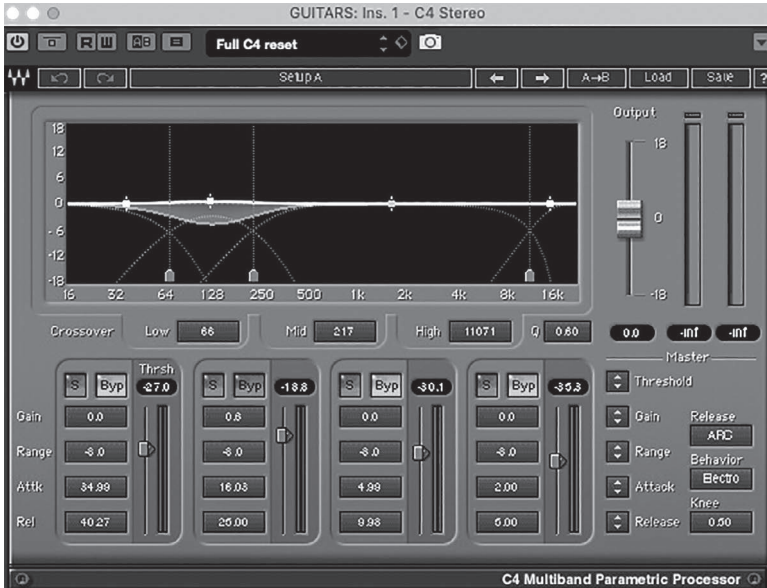


FIGURE 5.8 Multiband compressing the low end to control palm-muted notes.

And then you'll see here, these are some problem areas that a lot of engineers will be familiar with. I mean, 3 kHz is usually a really problematic whistle for heavy guitars. And this is an area of 6 kHz that my personal taste is I don't like a lot of it. But it's not necessarily a bad frequency; it adds a bit of that fizz. Something that's just personal preference.

HiMMP

Can we listen to the 9 kHz up there?

Josh Middleton

There's so little information up there that it's not doing much to the tone or the high end or the fizz, but it's definitely adding some life, and it jumps out the speaker a bit more.

HiMMP

Interesting, and am I right in saying that you've applied that guitar EQ on the sum, on the group?

Josh Middleton

Yes. I haven't EQ'd them individually, just the whole group of guitars and at the same volume that goes into the guitar buss. And then, the multiband compressor is stereo across the board. And then it's just that EQ.

HiMMP

And is that a particular approach that you'd use in that you've got the same rhythm sound left and right for this mix? Would you change that approach, EQing on the sum, on the group, if it had different sounds left and right?

Josh Middleton

Yeah, I've recently done a mix with two different guitar tones. It was the same type of amp and cab, but just different ones. Obviously, every cab is different, and every amp is slightly different. And I went in to try and EQ each one so they're in a similar ballpark. And I would still then do a stereo EQ on the whole group to fine-tune the mix.

HiMMP

Between the guitars and the bass, from a low-frequency perspective, what was your approach there?

Josh Middleton

A lot of the low end on the guitars is more in the low-mids, I guess like the 200-ish area or 180 Hz. And I carved a bit of that out, which is like the palm mute sort of muddy area. And my bass low end is a little bit lower than that, more towards peaking around like 190 Hz, this sort of area. So, my peak of the line is there, so the guitars' low end is more in this area, and the bass is more here. And then when we get to kick drum, the kick got a lot more sub-low end going on. So they will slide into place somewhat.

But in terms of thinking about how the low end is all going to work, it's mostly just listening to the mix and referencing against other mixes that I like and trying to hear problems. And if there isn't something that's standing out as a problem, then I don't analyse it too much. Usually, I'll find that I want to add more low end, especially on kicks, like, I'll start my mix. And towards the end, I'm like, now I need more low end.

Drums

HiMMP

Moving towards your kicks, can we listen to your bass and kick drum and then look at your processing kick-wise?

Josh Middleton

Sure, I mean, just before we get into it, I've done two examples. I've done a real kick, real snare, and I ended up sampling everything else for the main mix in terms of what I was looking for. It's a lot easier for me to get what I'm after using samples. I like to use natural ones, but for this, we'll use just the kick sample and the bass; you can listen to them together.

HiMMP

And the kick sample is not feeding reverb at all. Is there much EQ that you've used for that kick sample?

Josh Middleton

I'm doing some EQing to it and saturation. We've got a multi-sample; this is from the Colin Richardson [Toontrack] EZ Drummer expansion pack. I chopped up some audio from that and created my own [Slate Trigger] TCI (Figure 5.9). So, that's already been processed and EQ'd. And that's another one-shot sample. Actually, I've got two other samples in there that are pitched to be the same pitches as the real sounding because these are just one-shots, so you have a bit more dynamics or differences in each hit from that one. And then I'm making sure they're in phase. This one was out of phase. And I find that, particularly with snares, spending a while if I am blending in samples, fine-tuning the tuning of it, and making sure the rings are the same and the pitch. I try to get things sounding as out of phase as possible so that I know that I am in phase.

HiMMP

And what was your approach, snare drum-wise?

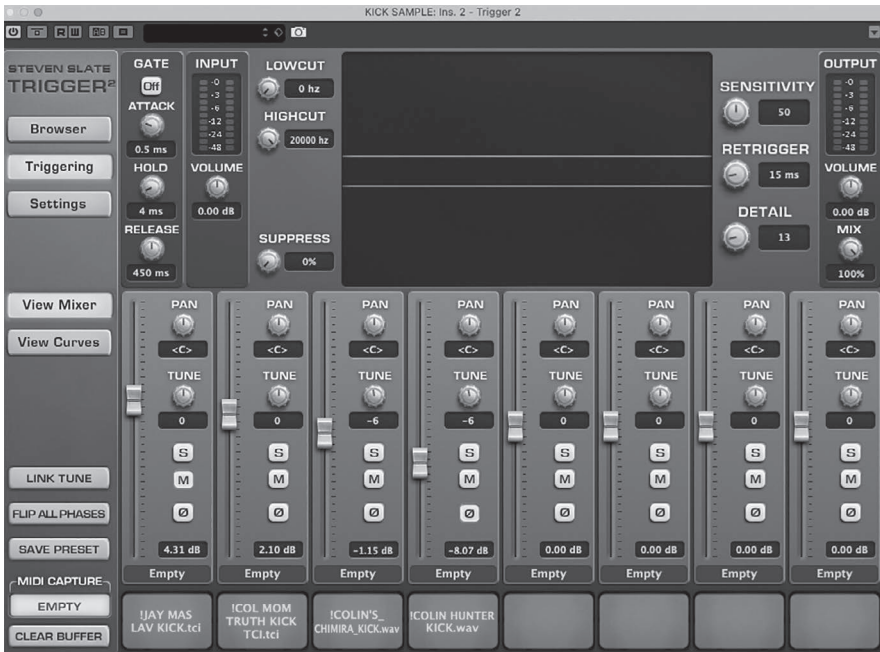


FIGURE 5.9 Four kick samples tuned to the same pitch and phase-aligned.

Josh Middleton

It's a similar thing in terms of the time constraints, as I know what I'm after; I'm going to use the sample that I like. I've only recently got the Colin Richardson drum library. And at the moment, those are some sounds I really like. I've always liked his snares; they have got a lot of sustain and ring to them. There's a Black Beauty sample that I've already summed; I think there are three or four mics. I've already pre-processed them when making a sample, and this was a sample of two of the GetGood drums; I made a blend of those (Figure 5.10). I really like those sounds as well, but I ended up with this one, which is a multi-sample.

And then I've done not a lot of EQing because it's already pre-EQ'd. This is something that I've been doing more recently, especially as I've got more into higher-tuned snares, which is boosting the low end where there's not really much low-end information on the snare (Figure 5.11). It very quickly tapers off, like after 150 Hz, but I still find it's doing something to the low end. I guess it's quite hard to hear that in context. Admittedly, I use my eyes a lot. I know a lot of mix engineers say not to do that, but I'm so used to looking at this [FabFilter] Pro Q3 EQ that I know what my snare should look like, and I can very quickly see if there's a problem.

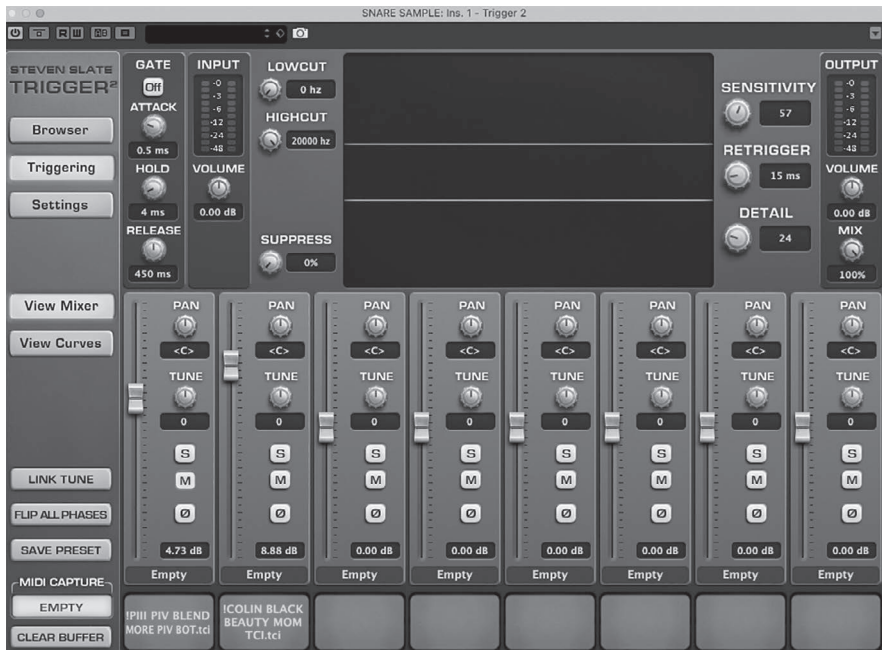


FIGURE 5.10 Two snare samples.

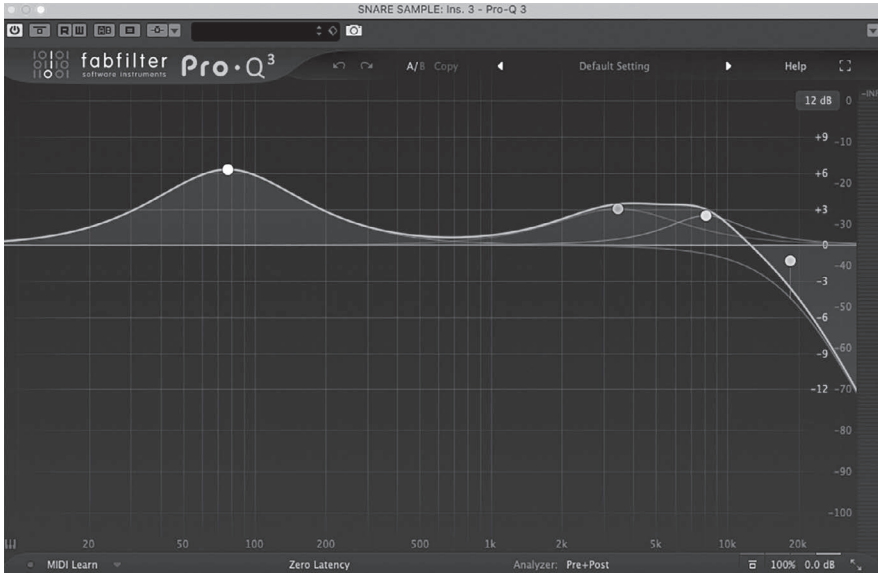


FIGURE 5.11 Snare sample EQ enhancing the low end and presence.

Usually, I'm going to look for the low end and the high end to be peaking at the same level, and it depends on the snare and where the attack is and everything, but typically, my snare doesn't have as much of that. I mean, you can see what your snare is doing there. Okay, we've got a bit more low end on this one, but it works in the mix. So, that's why I'm letting my eyes take a break and actually just use my ears, but typically, I go for that a bit of a scoop around 500 Hz to 1 kHz and a bit more high end coming from like 2 to 5 kHz. And depending on this, sometimes, like I know people like Chris Lord-Alge do a lot of boosting at 10 kHz as well, and if it needs it, I'll do that as well. I'll probably have done that on the samples as I was making them as well.

HiMMP

And you've used triggers for the toms. Have you used a lot of compression for those? Or did you feel that that wasn't needed? And do you have single-velocity tom samples or multi-velocity tom samples?

Josh Middleton

They're multi-velocity. All of the drums are going to parallel compression. They're getting parallel compression, but I'm not compressing the individual toms or even as a group. So, each tom, let's have a look; I think it's just going to be EQ'd. There's the trigger and then an EQ. The samples are raw. This is tom one (Figure 5.12). And the EQ will look gradually different as we go on. And this will be tom four, the floor tom. So, it's quite different. This was

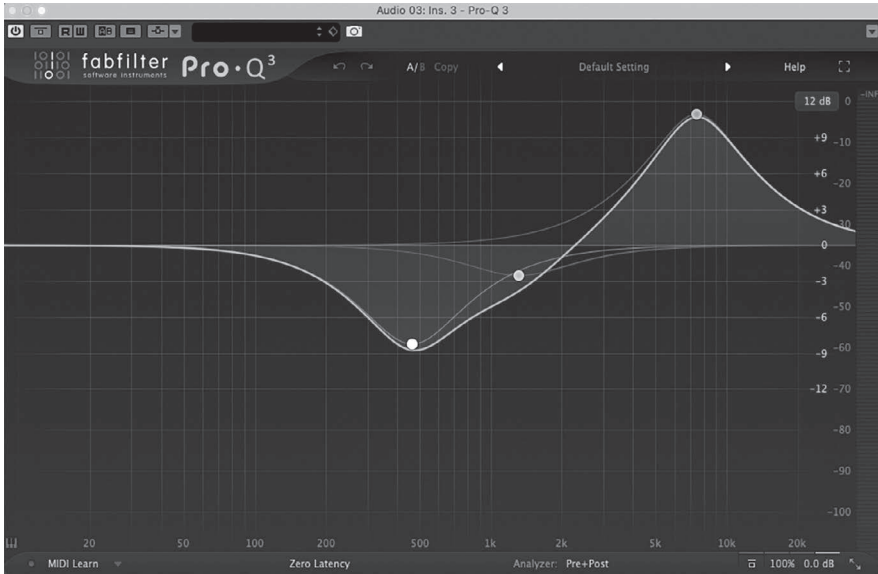


FIGURE 5.12 EQ of tom one, attenuating the mid-frequency mud and enhancing the stick attack and brightness.

a ring resonance that was annoying me. These EQs are so specific to the mic and the drum that it might look weird, or it might look different, depending on the kit you're using.

And then I've got a little bit of EQ across the board (Figure 5.13); I guess there's quite a subtle dip. I felt all the toms were a little bit too much mid-range there. I'm taking off a little bit of transient, adding a little bit more sustain. And tape saturation, which is common for all my drums, and then [Waves] L1 [limiter]. Again, they're probably only doing -2 dB of gain reduction to tame them.

HiMMP

What were the tom samples used?

Josh Middleton

They were from a friend of mine, Scott Atkins. It was a record he did for Onslaught, actually. And I love the way the tom sounded, just like it was; I haven't really used these in a mix. Let me throw it in and see how they sound, and they sound great. Scott Atkins is someone that I've worked with a lot with Sylosis stuff, and I love the way he changes drums. And he's a great engineer and mixer as well. They're all samples that are raw and need some EQ, but they're really well captured.

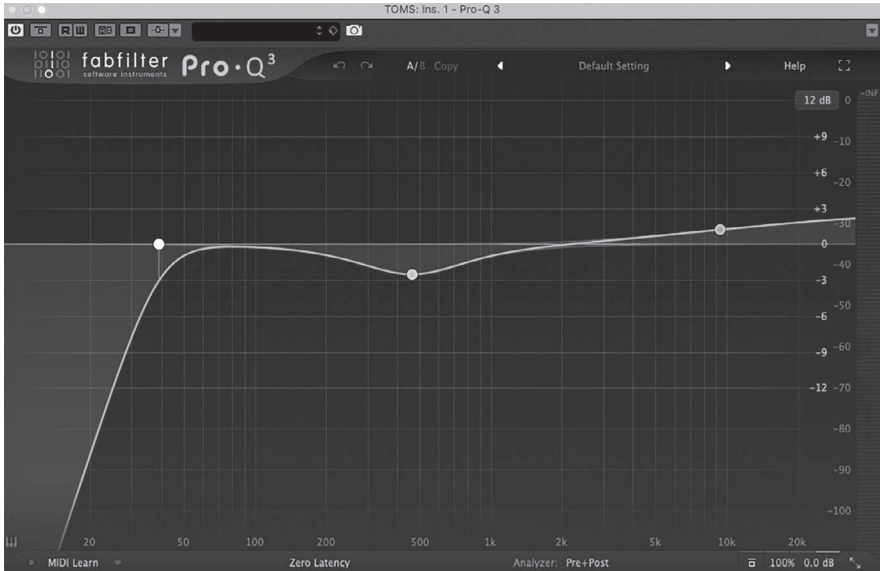


FIGURE 5.13 EQ on the tom buss, removing low-end rumble, attenuating mid-frequency mud, and adding presence.

HiMMP

Awesome. And you said you sent the whole kit to parallel compression?

Josh Middleton

Yeah, so every buss of the kit, so this is my tom group, and you've got parallel compression. I'm sending snare at zero and then everything else a bit less. The kick and toms are minus six, and then the room mics and overheads are minus fifteen, maybe. And that's obviously the reverb there on the toms.

HiMMP

And what parallel compressor are you using?

Josh Middleton

I think I'm using the [Waves] CLA-76 with slow attack, fast release, and I'm hitting maybe -10 dB (Figure 5.14). So, it's really smashing, but it's not super loud; it's adding a bit of vibe and stuff.

HiMMP

No EQ on the compression, just EQ.

Josh Middleton

Yeah.



FIGURE 5.14 Analogue-style parallel compressor on the drums for ‘vibe’.

HiMMP

Excellent. And so, it’s all you’re sending to the parallel compression from all your groups.

Josh Middleton

Yes.

HiMMP

Okay. The same with the reverb from the tom group, not the individual toms.

Josh Middleton

Yes.

HiMMP

Excellent. You’ve used limiters, but relatively subtly?

Josh Middleton

Yes [Waves L1].

HiMMP

Just to hold them in place as the last in your signal chain? We’ve looked at your use of limiters, which is relatively subtle throughout, and we’ve looked at some of your compression approaches, but what approach did you use saturation-wise and clipping-wise for this mix?

Josh Middleton

I’ll quickly touch upon my snare compressor. I used the Metric Halo, which is a tried and true plugin. And that one’s the one that I always reach for snares (Figure 5.15), and then the [Waves] CLA-76 one’s definitely a bit more vibey

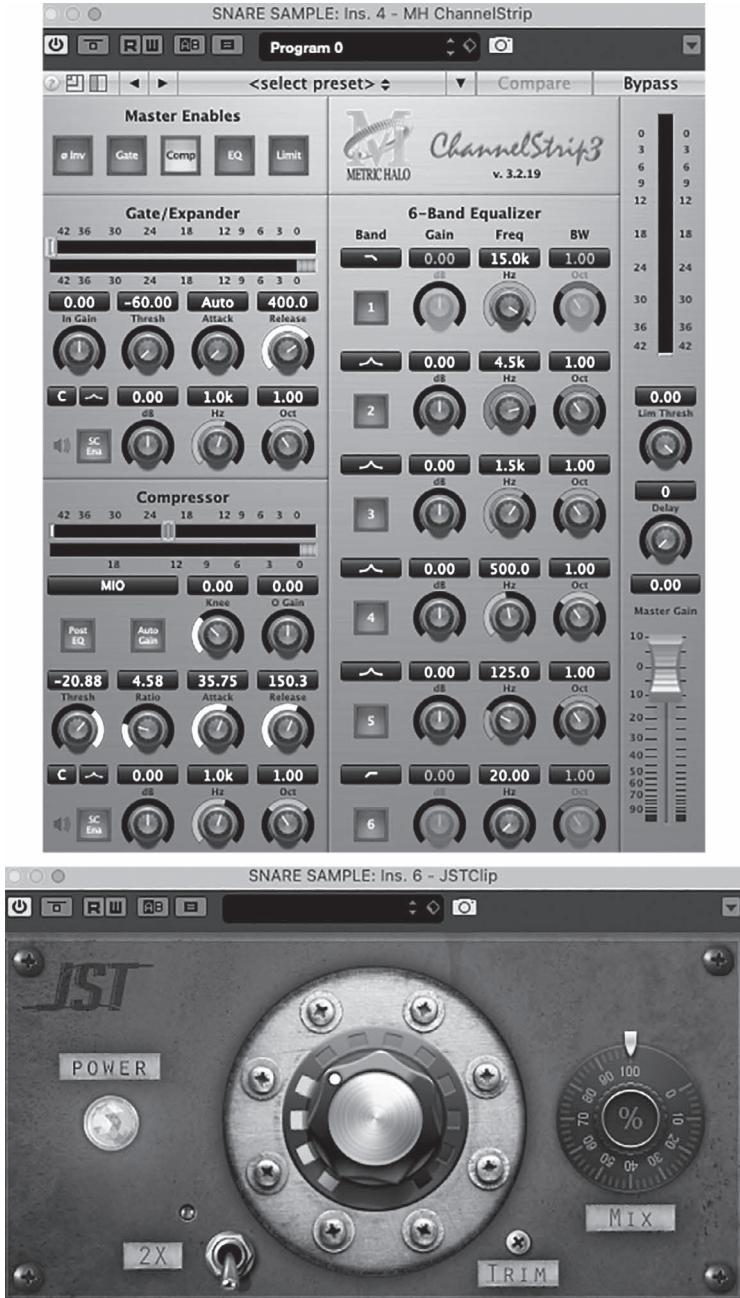


FIGURE 5.15 Snare sample processing; compression (top) and distortion to tame peaks for greater overall loudness (bottom).

and potentially trashy sounding. So, saturation is something that the snare usually always gets in some form. I've used a tape machine [Slate Virtual Tape Machine] and JST Clip, which is a very simple but really good clipper, and then the limiter. The limiter: if you over-limit snares, I think you lose a lot of the low end. You hear more of that bottom snare sound come through, spit. Whereas the tape machine, this one in particular anyway, has a slight bump of low end. And JST Clip, or any clipper, is going to tame the transient and allow you to crank it a bit louder in the mix without the transient taking your head off. That's on the snare and clipping. I don't think I'm clipping anything else in terms of the shelves like kick or toms, but they all get tape saturation, and they'll all get tickled with a limiter.

HiMMP

Can I listen to the snare without the virtual tape machines and the JST clip?

Josh Middleton

Yeah, hopefully, my gain staging's not going to be too bad in terms of the A/B, but let's listen. So maybe the clip has not trimmed it to even out the exact difference in volume; obviously, by losing a bit of the transient, you hear a bit more of the sustain, and just the body of the snare comes through, and you can push it a bit louder in the mix.

HiMMP

Make it a bit rounder.

HiMMP

And with your overheads, Josh, did you primarily look at the overheads and try to focus them on the cymbals that were captured in those microphones? Or did you want to get some kick out of it or some snare? Was there any particular focus there?

Josh Middleton

I go for trying to get cymbals as clear and clean as possible and as little kick and snare in there as possible. Snare, in particular. I think if you're using a sample and if you haven't gone to try and match the raw snare sound, if you've got a sample that doesn't jive with the overheads—I'm not saying that's the case—but I found that I like to compress the overheads; I get a bit of pumping. The more you do that, the more the snare comes through in them. I've tried to completely remove the snare from my overheads by using sidechain off a sample track. I used Big Beautiful Door for that (Figure 5.16). I can show you; I'll start with it off.

So, the Soothe plugin that I used to go in and notch whistly frequencies out might be on a crash cymbal, but it might just be on the right crash. And



FIGURE 5.16 Plugin allowing to attenuate the snare in the overheads.

you might be knocking stuff out that you don't need to notch out of the whole mix. I find that the Soothe plugin does that automatically. Now, looking at it, that's quite an extreme version of it, quite an extreme abuse of the plugin; I usually don't go quite as heavy-handed. And so you can hear. It's really taming anything that's going to poke its head out and whistle.

EQ-wise, I'll show you what [Boz Digital Labs] Big Beautiful Door's doing; it's doing something off the sidechain. I'm not removing a tonne of low end, but Big Beautiful Door's coming in to do that in a bit. So, there's a bit more body to the cymbals. I find that I used to high-pass a bit more up towards the 500 Hz area. And it's hard to get the cymbals to sit right when they're so bright, and you've taken out all that low end. So retaining a bit of body is important to me.

There's obviously something there that was whistling. I can't really hear it too much there. Adding a bit of brightness, the 3 kHz area is always a bit harsh for me, and your vocals cut through there as well (Figure 5.17). I'll try and tame that. This is EQing out where the snare is. And I'm compressing with the [GGD] Smash And Grab. I'm saturating quite a bit as well, actually, and I've not got the mix up all the way. But this brings up the snare a bit more. I've been trying to get rid of the snare again with [Waves] L2 [Ultra-maximizer]. And I like what L2 does to the sound of the snare as well; it takes



FIGURE 5.17 Adding brightness on the overheads (top) and limiting them to reduce the snare presence (bottom).

off the harshness of the transient; it doesn't just duck; it just smashes it a bit in a way that works for me for getting out of the mics. So, Big Beautiful Door was going to come in and sound a bit weird with overheads isolated, but this is what it's doing. I'll turn it on, and you can hear how the snare disappears.

HiMMP

Interesting.

Josh Middleton

This has been side-chained off of a trigger track that's only going to this plugin. And it comes in; obviously, it's only been triggered by the plugin. So, when the snare hits, it's high-passing more towards almost 600 Hz. It's

removing the low end, but only on the snare hits. And also just the overall threshold is going down nearly a dB. And there's a little bit of -2 dB at 1 kHz. So, every time the snare hits, it very quickly ducks, but only in that area of the EQ, not the whole overhead. You don't really hear any pumping within the mix. But it sounds very extreme when you're listening to it solo'd. I can show you what that might sound like in context as well, so you can see if you can hear the difference. It's not very easy to hear it in the mix, but it's doing a lot; it depends on the part. There's a part where there are no guitars and vocals, and there's a drum roll on its own; sometimes, the snare coming to some of the overheads can be really jarring or trashy sounding.

HiMMP

Yeah. And then, with your room mics, what was the approach there? Were they an important element of the mix?

Josh Middleton

They weren't in this instance. And it was just my taste in the room, I guess. And the fact that there are two different mics, but they're both mono, and I wasn't sure. I tried to get a bit of width by putting them off, but I didn't want to mess with it too much. But yes, I don't know the studio, but I guess it was something about the snare in there that wasn't what I wanted to hear from the room mics. They're in there. They're definitely adding some vibe. But I ended up using a snare room mic sample; it sounds like this. I think it might be the accompanying sample to the close mic of the Colin Richardson one. So, it's the same snare as the one being triggered on the close mic.

HiMMP

Interesting. Returning to the depth perspective of your mix, do you generally apply reverb to the kick and metal or potentially the rooms? Or do you tend to have more of a defined approach with your reverbs?

Josh Middleton

It's pretty much just snare and toms for me. And for kick, I'll try to get the kick out of the rooms as much as possible. And I wouldn't want any reverb on it unless it's exposed. There are bits, but not in this song. But if there's a bit in a song where you just got the kick going and the vocal or just one guitar, then I'd probably rather use an ambient sample, if not the room mic, to generate some ambience for the kick. But within the context of the heavy sections, I leave it dry.

HiMMP

And when you say you want to get the kick out of the room mic, do you want to attenuate it?

Josh Middleton

I usually just EQ it out (Figure 5.18). I'm usually high-passing to anywhere, sometimes up to like 200 Hz, usually a bit lower. But I usually want my room mics to be all about the snare and maybe the toms.

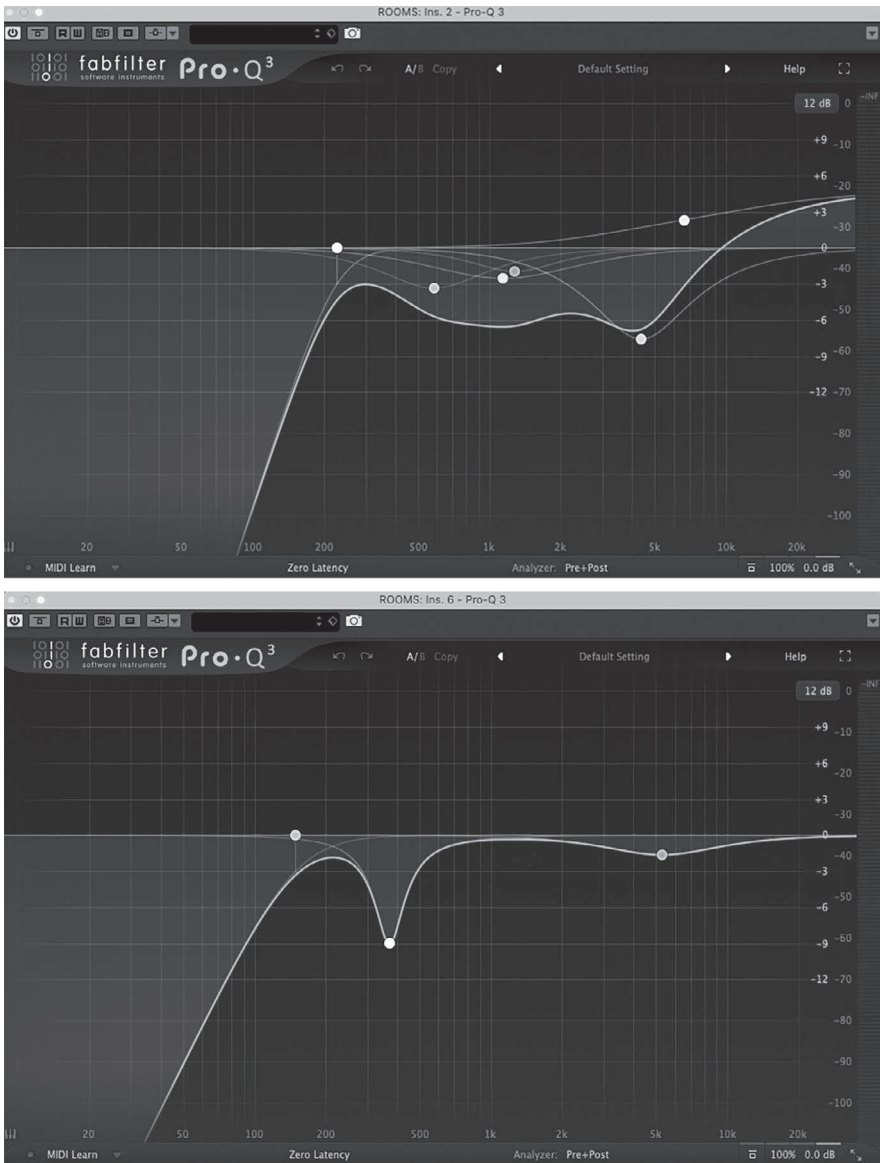


FIGURE 5.18 Two instances of EQ on the rooms to refocus their spectrum to the snare and toms.

HiMMP

Absolutely. And your sends to reverb, it's from the snare and the toms. Do you tend to look at the relationship between the snare top and bottom? Or the snare sample? Or do you send it from the snare?

Josh Middleton

Yes, snare group, and the same with the toms. So, snare top and bottom would usually go into the same group, and then a sample as well. But it's always just the reverb to the whole snare sound.

HiMMP

And with the drums because of these different performance sections. You got the faster blast beat drum sections and the slower times; you didn't change the reverb time on those, did you?

Josh Middleton

Static.

HiMMP

And do you use multiple reverbs on this mix? Do you use a plate or a room, or do you tend to just go with one verb?

Josh Middleton

I have a secret IR [impulse response] that someone sent me. I am not going to divulge what it is, but I use that for my drums. And yeah, for vocals, I use something different, obviously. And I think if you use the same reverb across your whole mix, like a drum kit, and then the same for vocals, obviously, that's not a very common reverb you'd want to share, but it can sound a bit weird.

HiMMP

And then you don't do any gating on your verbs or anything like that?

Josh Middleton

No, I have tried limiting them before. And sometimes EQing them, both the impulse response I use, which is off a reverb unit. It works as long as I don't touch it. It's just like loading the impulse response into my reverb and then turning it off.

HiMMP

Before, we talked a little bit about the stereo width of the guitars, which provides your primary focus to get your mix together with one hard left and one hard right. And then the other two panned in a little bit on each side. What

was your approach with the width of the drums, the cymbals, and the toms? And was it audience perspective?

Josh Middleton

I used to play a bit of drums. I've always wanted to draw perspective, even though I don't class myself as a drummer, but I used to enjoy bashing away when I could on a friend's kit. I always do drummer's perspective because that's what feels right to me. With the overheads, I've gone hard-panned left and right. And I mean, with most miking configurations with overheads, it's never too like . . . You know, they're both picking up so much of the same area that hard panning doesn't necessarily equate to that crash being only on that side of the mix. So that's quite standard for me. And toms, I'm starting to go a bit wider. But in this instance, maybe not. I think I'm starting with the first tom, which is only 22% to the left, and then the final floor tom is 45%. Some people go a bit wider. I think of it as like playing the kit. They're not that far apart. I know people like Chris Lord-Alge do like crazy, almost hard panning; it feels a bit weird to me.

Orchestration

HiMMP

Great. And as far as the orchestration in the mix, Josh, was that something that you looked at later on in the mix and fitted around the guitars and bass?

Josh Middleton

Yeah, that's definitely the last line between that and the vocals, which is one of the last things to look at. And I was pleasantly surprised that it's all quite well-balanced and didn't need much tweaking. I mean, it's the sort of thing that I didn't need to do on this mix. But I would use a plugin called Track Spacer for that sort of thing normally. And you'd sidechain it. So, for example, if you've got like a big, heavy chorus with loud guitars, but they're just playing chords, and you really want the strings to cut through with sidechain. Basically, the frequencies that the strings are occupying will be coming out of the guitars. I'm doing it live like the Soothe plugin, but it's doing it side-chained from the strings, so they're finding their place amongst all the distorted tones. And if it's like, for example, a place where it's just guitar chords, you're not getting the riff, you can afford for the strings to poke through the guitars and take a step back, that sort of thing.

But I didn't really need to do that. I did a little bit of EQ on the strings (Figure 5.19). I've got Soothe running, which is taming anything that's a bit pokey, I guess, like anything that might whistle frequency-wise. It's sort of live multiband compressing, I guess you could say. There is a bit of saturation, which is going to tame some frequencies as well, and the EQ. The great



FIGURE 5.19 String EQ attenuating low-end rumble and adding brightness.

thing about the Pro Q3 EQ is that you can use multiband, dynamic EQ. So that's really cool. And then limiting, which is just tickling them, if anything. There are probably very few parts where you'll actually see that kick in. You don't want to squash them too much. But yeah, they fit in really well.

HiMMP

Have you used dynamic EQ elsewhere on the mix? We've already looked at the multiband with the guitars.

Josh Middleton

I think I might have done it on the guitar EQ as well as already having the multiband. But I'll double-check if that's definitely the case. Yeah, it's still doing it on the EQ. I guess I was a little bit too tame with the C4 in this instance.

HiMMP

Do you have any general principles that you prefer to go with signal chain-wise, as far as EQ/compression or compression/EQ? What was interesting about your bass processing is that you've used multiple instances of EQ. But do you have any principles of what you prefer in the processing signal chain?

Josh Middleton

Usually, I'll be doing EQ before compression, especially for a snare or a kick. Usually, always EQ because the compressor's getting hit with where

you want it to get hit with, like, if you're cranking the low end up, like on a snare or something, you want that to be hitting the compressor in the right place, I guess.

HiMMP

Interesting. We briefly touched on the different performance sections, including the faster and slower sections. Was this something that you managed, either just to make sure that your settings worked across the sections? Or was there a lot of automation in your mix to make that work?

Josh Middleton

Currently, there is no automation. But had there been much faster double [kick] pedal, or longer periods of it, it's something that I would do. It's usually at the end of the mix. The last thing I do is automate a cut of low end on the kicks just for the really fast bits. But there was nothing here that sounded too overwhelming or built up too much. And sometimes, if it's just a little burst of fast kick, and maybe it jumps through a bit more, I'm fine with that.

Vocals

HiMMP

And moving to the vocals, can we look at your approach to EQ and compression and verbs, delays, etc., with the vocal? Do you tend to focus more on reverb or delay for Ralf's performance here?

Josh Middleton

I prefer delay. It's an interesting one because I don't tend to . . . Usually, a lot of the mixing that I've done in recent years is myself, my vocals, and, for the most part, it's screaming vocals. And this is a lot more melodic, and on screaming stuff, I like the vocal sounding a bit more dry; it feels a bit more abrasive and upfront. And maybe put in some delay or reverb when the vocal is exposed if it needs it. But in this instance, with more melodic vocals, I think a bit more delay and reverb sounds nicer; it just helps it.

One thing I really like is at the end of the chain; I like stereo enhancement on vocals, a spreader of some sort. Oh, I'm not using it. I think I'm getting some of it from [FabFilter] Timeless (Figure 5.20), the delay and the reverb. Because I was going to say I like to use the [Waves] CLA vocal plugin, where I will turn all this stuff off and just use this spread over the stereo widener, which I really like the chorusy effect of.

My assumption is, and I could be wrong, this has been compressed and maybe EQ'd as well. It's definitely quite bright sounding, more so than at least an [Shure] SM7B would sound. It sounded really good. I did a dip there on 1.5k-ish to get rid of some of the mids (Figure 5.21).

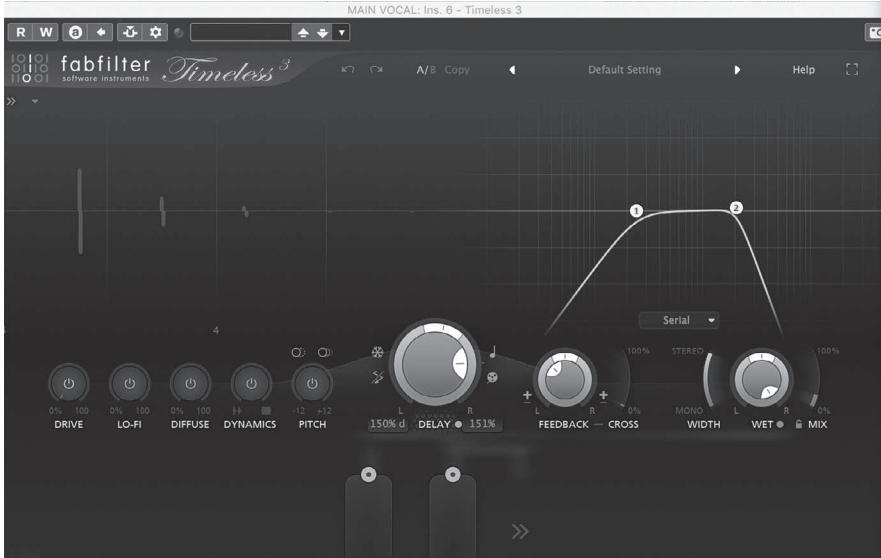


FIGURE 5.20 Vocal delay limited to the higher-mid frequencies to limit space occupied.



FIGURE 5.21 Lead vocal EQ removing rumble and attenuating excessive mids imprinted by the microphone.



FIGURE 5.22 Analogue-style compression on the lead vocals for more consistent volume.

Soothe is a great plugin that I predominantly use on vocals of any kind and overheads. And that gets rid of anything that's a bit too harsh in the vocal; it allows you to turn it up louder in the mix. [Waves] De-esser to tame some of the sibilance. You can see that's only really kicking in on basses or any sort of sibilance. [Waves L1] Limiter, I'd imagine that's not doing much. Sorry, I skipped over the CLA-76 (Figure 5.22); it's probably already been compressed on the way in, but I did a bit more, so probably -5 dB at the most, but it looks like it's averaging out at -3 dB.

For the delay here, it's the FabFilter one; it's already got a stereo spread happening that thickens things up. And you can see this has been EQ'd to be mostly on the mid-range. So, going from 250-ish to about 2 kHz. And it's just the tempo of the song. And reverb, the [FabFilter] Pro R (Figure 5.23). I looked through some of the presets and found one that I liked and tweaked a bit. Because I'm actually quite new to this EQ, I haven't used it that much. And I really like all the FabFilter plugins, and all the presets just sounded great. So, I blended in a little mix. But most of the ambience is coming from the delay.

HiMMP

And do you tend to use your effects as inserts rather than sends like this?

Josh Middleton

Yeah, I do. I know a lot of people would have a lot of their effects on sends for the vocals and just have their vocal sends. I don't know if it's laziness or just the control I have over it. Especially with a lot of these plugins now, they've got a mix control on, which, back in the day, a lot of plugins didn't have as much, like you weren't able to blend the mix of the effects in it as easily.



FIGURE 5.23 Vocal reverb focused on the mid-frequency range.

HiMMP

And did you take a very different approach with the backing vocals EQ compression-wise?

Josh Middleton

Yeah, I definitely usually find that backing vocals, no matter what, always sound muddy. Even if they're obviously tracked through the same gear and everything, you get a build-up of low-mids, so probably, they're obviously a lot quieter in the mix. And maybe I'm talking out of my backside, and they haven't had as much of a cut of low end, but that's something that I normally find I want to cut a lot more out of, and I think these ones, I guess I didn't balance that. I used the files provided that were pre-processed. I think, potentially, some of what I would do has already been done by the sound of things. So, I was just saying, 'Oh, I would have done this'. And I'm not going to autopilot do that. I will listen to it. And obviously, it didn't need it. But that is a problem area that I would expect. And I was pleasantly surprised not to find it.

Mastering

HiMMP

And lastly, can we look at your master buss processing signal chain?

Josh Middleton

There's quite a lot going on there. I'll always get the mix together without any master buss processing, and I'll make sure that I'm not clipping, but I'll get it gain-staged as loud as I can without any red light coming on. This, we're doing something. Sometimes, I have this just to see what's happening. And all of this will be added more towards the end. I'll still be working on the mix with this running for quite some time. But I'll try and get the mix as close to balanced and where I want it to be before getting mixing into it because I've had it in the past where you go a bit mix blind, and you turn your master buss processing off, and the snare's like 10 dB louder than it's meant to be.

So, I'll do a bit of a high-pass to that 40 Hz there (Figure 5.24). There is a little bit of a bump just before we cut it off, around 45 to 50 Hz; I mean, barely anything there in the low-mids and a bit of high end, which is pretty common in mastering to add a bit of a polished sheen to it.



FIGURE 5.24 Master buss EQ with a high-pass filter, a low-end boost, and enhances high-end sheen.

I always go to the SSL compressor (Figure 5.25). I'm usually only going to like -4 dB the most of gain reduction, and these are pretty much the things that I use: attack 30, release 0.1, but sometimes I'll use auto; it depends on the mix ratio too. That's standard for me.

Flatline is a plugin that, as soon as I got it, I was like, 'This is great, this is just what I need', because it's a clipper, and it's designed to be on your master buss, and it looks a bit like [FabFilter] Pro L. I probably haven't gain-staged it, so it's going to be a huge dip in volume. It's just knocking the head off the snare a bit. When I first got this, it was really easy to abuse it because you can still get great results like going down -6 dB, but I'll try and do my clipping and level stuff out within the mix, like the JST Clipper and limiter, on my individual tracks, as opposed to trying to obliterate it with this plugin.



FIGURE 5.25 SSL-style compression on the master buss.

But I really recommend it, and it's a really fun one, and it made a world of difference to my mixes.

HiMMP

And then following Flatline, you've got the [iZotope] Ozone processing?

Josh Middleton

Yep, I use Ozone, the Maximizer (Figure 5.26); these bits are off. It's just ticking the whole mix. The Flatline, I've already boosted the signal quite a lot, and it's clipping. But it's not clipping the stereo out, just to get a bit more volume from Ozone. And then I'm going into [FabFilter] Pro L2, which is almost unnecessary. It has a slightly different sound and different attack and release. And it's getting a bit more volume out of it. That's what I'm mixing into.

I'll be completely honest that mastering is something I like to get an outside ear on when I'm doing stuff that's going to be commercially released. If the budget permits, somebody who has fresh ears is what makes it always sound good. And it's something that I think a lot of mix engineers want to have all the control over. But I'd like to let go of control in various aspects of my musical career, and it's for the best.

I'm quite confident in the way this sounds. And I try to get it as loud as I can without ruining the mix. And I think I can get it to a volume that's comparable to all the other commercial metal releases. But having someone who's a dedicated mastering engineer, they'll find holes in your mix like, 'Oh, yeah, I've heard that I've gotten mixed blind,' and they've maybe not. This is something that makes a huge difference; I always recommend that.

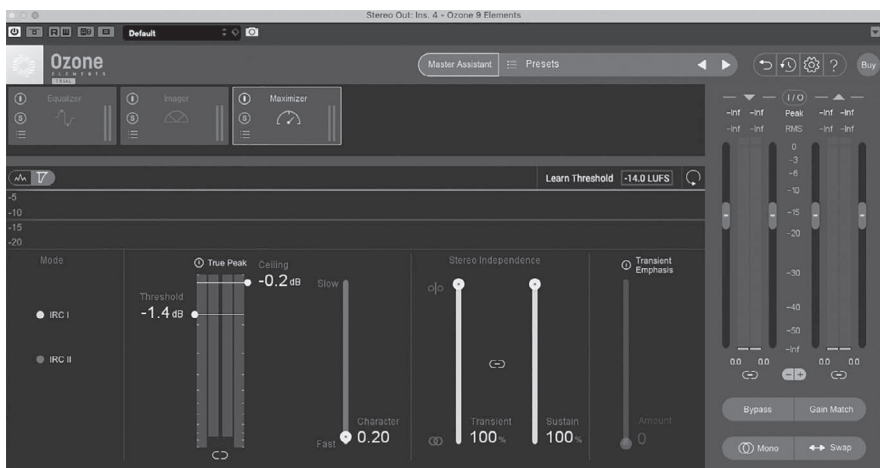


FIGURE 5.26 Master buss limiting.

HiMMP

Fantastic, thank you very much indeed.

Discography

- AC/DC (1980): *Back in Black*. Atlantic.
- Architects (2018): *Holy Hell*. Epitaph.
- Architects (2021): *For Those That Wish to Exist*. Epitaph.
- Architects (2022): *The Classic Symptoms of a Broken Spirit*. Epitaph.
- At the Gates (2014): *At War with Reality*. Century Media.
- Behemoth (2009): *Evangelion*. Nuclear Blast.
- Cannibal Corpse (1999): *Blood Thirst*. Metal Blade Records.
- Forbidden (1990): *Twisted into Form*. Combat.
- Korn (1994): *Korn*. Epic.
- Korn (1996): *Life Is Peachy*. Epic.
- Metallica (1988): *... and Justice for All*. Elektra.
- Metallica (1991a): 'Enter Sandman'. On *Metallica (Black Album)*. Elektra.
- Metallica (1991b): *Metallica (Black Album)*. Elektra.
- Metallica (1991c): Sad But True. On *Metallica (Black Album)*. Elektra.
- Pantera (1994): *Far Beyond Driven*. Elektra.
- Pantera (1996): *The Great Southern Trendkill*. Elektra.
- Slipknot (1999a): 'Eyeless'. On *Slipknot*. Roadrunner Records.
- Slipknot (1999b): *Slipknot*. Roadrunner Records.
- Slipknot (2001a): 'Disasterpiece'. On *Iowa*. Roadrunner Records.
- Slipknot (2001b): *Iowa*. Roadrunner Records.
- Sylosis (2008): *Conclusion of an Age*. Nuclear Blast.
- Sylosis (2012): *Monolith*. Nuclear Blast.
- Sylosis (2015): *Dormant Heart*. Nuclear Blast.
- Sylosis (2020): *Cycle of Suffering*. Nuclear Blast.
- Sylosis (2023): *A Sign of Things to Come*. Nuclear Blast.
- Testament (1999): *The Gathering*. Spitfire.
- Testament (2001): *First Strike Still Deadly*. Spitfire.
- Vio-lence (1988): *Eternal Nightmare*. Mechanic Records.

6

FREDRIK NORDSTRÖM

6.1 Introduction

Fredrik Nordström (b. 1967) is a Swedish metal producer and guitarist, best known for his work as a producer and, to a lesser extent, as the founding member and guitarist of the heavy/power metal band Dream Evil (since 1999). Nordström has produced all six of Dream Evil's studio albums, from their debut, *Dragonslayer* (2002), to their latest release, *Six* (2017).

Active in Gothenburg's music production scene since 1990, when he founded Studio Fredman, Nordström was a pivotal figure in the development of the Gothenburg Sound (see Dunn 2004; Ekeroth 2019; Hillier 2018). His background and taste in pop music had a significant influence on the death metal artists he worked with, including In Flames, At the Gates, Dark Tranquility, Arch Enemy, and Soilwork. Nordström served as producer and engineer for In Flames' first six genre-defining studio albums, from *Lunar Strain* (1994) to *Clayman* (2000). His work on At the Gates' seminal albums *Terminal Spirit Disease* (1994) and *Slaughter of the Soul* (1995)—taking over from Tomas Skogsberg, a key figure in Swedish death metal's earlier sound—further cemented his reputation. Nordström also played a significant role in shaping Dark Tranquility's sound, producing five of their albums, from *The Gallery* (1995) to *Damage Done* (2002). Similarly, he worked extensively with Arch Enemy, producing their first four albums, from *Black Earth* (1996) to *Wages of Sin* (2001), as well as several subsequent releases. His work with Soilwork includes their first five studio albums, from *Steel Bath Suicide* (1998) to *Figure Number Five* (2003).

Beyond Swedish death metal, Nordström has production credits with influential Swedish and German heavy/power metal bands. He produced the first

two releases of the Swedish band HammerFall, *Glory to the Brave* (1997) and *Legacy of Kings* (1998), as well as several later albums up to *Hammer of Dawn* (2022). Additionally, he produced three of the first four albums by the Swedish band The Haunted: *The Haunted* (1998), *One Kill Wonder* (2003), and *Revolver* (2004). His collaboration with the German power metal band Powerwolf is similarly extensive, covering most of their discography from *Lupus Dei* (2007) to *Interludium* (2023).

Although progressive metal occupies a smaller part of Nordström's portfolio, his notable collaborations with Sweden's Opeth include producing their acclaimed albums *Still Life* (1999), *Blackwater Park* (2001), and *Deliverance* (2002). Black metal is similarly less central to his work, yet he has collaborated with Rotting Christ on *Sanctus Diabolos* (2004) and worked extensively with Dimmu Borgir, producing many of their albums, such as *Puritanical Euphoric Misanthropy* (2001), *Death Cult Armageddon* (2003), and *Inspiratio Profanus* (2023). Nordström has also contributed to contemporary metal and metalcore bands, including Bring Me the Horizon (*Suicide Season*, 2008; *There Is a Hell Believe Me I've Seen It*, 2010) and Architects (*Lost Forever*, 2014; *All Our Gods Have Abandoned Us*, 2016). His broader production credits include collaborations with bands such as Sabaton, Samael, Septicflesh, Zyklon, Evergrey, Spiritual Beggars, Illdisposed, and Delain.

Nordström's philosophy is built on two key pillars. First, he prioritizes supporting the band's vision and capturing their personality, avoiding any deliberate imposition of his own sonic signature. Nonetheless, he acknowledges that his influences, particularly from pop music, inevitably shape his work, as evident in his productions for influential Swedish melodic death metal bands. Second, Nordström shows minimal interest in adopting the latest technologies. While he now works in the box using Avid Pro Tools, his production style largely replicates his earlier analogue workflow. Following the principle of 'less is more', Nordström uses only the necessary plugins, favouring an SSL channel strip emulation and stock Pro Tools plugins. In the early 1990s, he experimented with techniques such as multiband compression on the guitar's low end to control palm-muted sections, a technique that is now standard in metal production. Despite this innovation, Nordström avoids rigid methodologies, relying instead on critical listening and often employing minimal processing. He has participated in Unstoppable Recording Machine's 'Nail the Mix' series four times, ranking as the fourth most frequent contributor after Dave Otero, Buster Odeholm, and Jens Bogren. While some subscribers have expressed disappointment with his minimalist approach, Nordström takes pride in tailoring his methods to the specific needs of each band and recording, focusing on their performances rather than opulent productions.

One of Nordström's defining hallmarks is his guitar tone, achieved with his Fredman Technique, which he pioneered during the production of At

the Gates' *Slaughter of the Soul* (1995).¹ This method involves placing two microphones (typically Shure SM57s) close to the speaker, with one positioned on-axis to capture clarity and attack, and the other off-axis to add warmth and body. Meticulous positioning ensures phase alignment, a critical factor in achieving the desired tone. To assist with this technique, Nordström offers a custom microphone clamp through his company, Fredman Digital. Fredman Digital also provides an array of metal-focused audio tools, including the Fredhead guitar amplifier simulation plugin featuring eight cabinet/speaker impulse responses, preset packs for Axe FX II and Kemper Profiling Amplifier, and bass and drum sample libraries specifically designed for metal tones.

Heaviness

Nordström attributes the sensation of heaviness to a combination of sound and performance qualities. Sonically, low-end weight is fundamental and achieved through down-tuned guitars, supported by the bass, which serves more as a complementary element than a standalone instrument. This low-end foundation is crucial for eliciting a physical response to the music and can be further intensified by incorporating post-production samples, such as sub-drops and gongs. Another key factor is sonic density, often enhanced through compression, which creates a cohesive sound that Nordström likens to 'a big tank moving forward'. He also noted that heaviness is not exclusive to metal, as metal often shares a similar frequency curve with a classical symphony orchestra.

In terms of performance, aggression and anger are essential contributors to heaviness. Nordström argued that even low-fidelity productions can achieve a heavy sound if the performances themselves are intense and expressive. A strong interplay between bass and guitars is essential, forming the foundation of a heavy mix. Nordström emphasized that performance quality and synchronization must already be present in the recorded tracks, as he opposes excessive editing or quantization. In his view, these interventions often result in reduced heaviness, either by sounding artificial or diminishing the perceived size of the mix due to a lack of micro-rhythmic deviations. He acknowledged only a few exceptions to this rule. For instance, genres like metalcore or deathcore rely on extremely precise breakdowns, where precise editing and quantization are necessary to achieve their characteristic heavy effect.

In Solitude

In line with Nordström's 'less is more' production philosophy, his approach to mixing 'In Solitude' was relatively straightforward. For the guitars,

Nordström re-amped all four performances using two different guitar amplifiers, paired with two cabinets. He panned one pair of tracks fully wide and the other at 80%, explaining that this method enhanced both width and focus. Subsequent mixing was minimal, with distortion added to increase perceived loudness. EQ adjustments included boosting the high end for greater presence, attenuating certain mid frequencies for clarity, and enhancing the low end to add weight. To manage palm-muted sections, he applied multiband compression to the bottom end for more control and evenness.

Bass processing was straightforward, relying solely on the DI track. Nordström compressed the DI signal before routing it through an amplifier simulation, ensuring that the distortion generated by the amplifier was evenly distributed across the signal. The amplifier introduced overdrive across the entire frequency range, reflecting Nordström's preference for not applying separate processing to different frequency ranges within the bass signal. Further processing occurred at the buss level, beginning with EQ to limit the high end via a low-pass filter, increase presence, and attenuate mid frequencies to create space for the guitars and drums. Additional steps included de-essing to soften harsh string noise and compression to achieve a consistent level.

For the drums, Nordström supplemented the acoustic kick drum—retained to preserve a human feel—with a sample that provided a complementary tone. The snare was enhanced by blending two samples tuned to match the original pitch, resulting in a darker tone with increased low-end weight. Neither the kick nor the snare underwent significant processing or gating to manage cymbal bleed. A similar approach was applied to the toms, which combined recorded tracks with pitch-aligned samples, also without additional processing. All drum shells were subjected to parallel compression, with the balance between the direct and parallel-compressed signals set at approximately 50%. To prevent pumping, the overheads were high-pass-filtered before compression to exclude the kick. Although Nordström generally avoids drum room signals for fast metal music, he included them prominently in this mix to achieve a punchy and cohesive sound. These room signals were heavily compressed using two compressors before de-essing to tame harsh artefacts resulting from the compression. Notably, Nordström did not use automation, side-chaining, or dynamic EQs on the drums or other instruments, relying instead on an intelligent frequency processor to control abrasive elements. This straightforward approach exemplifies Nordström's less-is-more production philosophy.

Vocal processing was similarly minimal. Nordström used a single reverb and delay without modulation effects or artificial widening. EQ adjustments were limited to a high-cut filter and a presence boost, while moderate compression smoothed out dynamic inconsistencies and de-essing controlled harsh sibilance. The strings and brass were treated with equal simplicity; low-end reduction and mid-frequency cuts created space for the guitars.

Nordström emphasized the importance of evaluating material as it would sound in its final form, necessitating mastering during the mixing process. Mastering processing involved applying broadband and multiband compression to achieve cohesion and consistency across the mix, followed by stereo widening, which Nordström considered a defining feature of his sound. For the final steps, he used an intelligent frequency processor to address occasional abrasive elements and a limiter to enhance loudness.

6.2 Conceptual Interview on Heaviness

HiMMP

It's a difficult question, but how would you define what heaviness is within metal music production?

Fredrik Nordström

This is a hard question. For me, it's like down-tuning could be. Also, if you take, for example, Slayer's *Reign in Blood* (1986), that's a very angry album. But it's also heavy at the same time because there is aggression in the performance. The *Rain in Blood* album doesn't sound very good, but it's very aggressive. Sound-wise, it's not good, and performance-wise, it's not good. But it has a heart in there that brings heaviness. The heaviness is very hard to explain.

HiMMP

So, there are different forms that heaviness can take?

Fredrik Nordström

Yeah, but now, if we're not talking about metal music, if you take symphonic music, you find a lot of heaviness in there, also. It's pretty funny, actually. If you look at the frequency curve of a full orchestra and a metal band, they are the same.

HiMMP

Interesting. From recorded metal music, what would you say are the foundational elements that deliver this quality of heaviness to the listener?

Fredrik Nordström

It's all instruments. That's what I think you need to have, like, heavy-played drums, heavy played bass, heavy played guitars, and somebody who's killing it on vocals.

HiMMP

And with all of those instruments fighting for space, the approaches are different for different bands?

Fredrik Nordström

Yes, because they sound different, but everybody wants to be on top. Everybody wants to be the loudest. For example, compression is a very good tool to use there to get everybody heard, to be honest.

HiMMP

And staying with the subject of performance. Obviously, you've produced a very wide range of metal bands, from really fast, very aggressive stuff, all the way through to HammerFall and more classic metal. What are your observations and approaches for delivering these bands with different speeds of subdivisions?

Fredrik Nordström

It's mainly up to the drums. I think what kind of drum sound you can use, like a very ambient drum sound for a band like HammerFall is great. But if you have that stuff on, let's say Dimmu Borgir, it's not going to work.

HiMMP

So, do you need a shorter drum sound?

Fredrik Nordström

Yeah.

HiMMP

And from a low-end perspective?

Fredrik Nordström

Try to get as tight as possible, which means the bass player needs to play very clearly and cleanly and have a good bass. That can fuck it up and come and play on double strings and stuff like that. And I was just like, no, that's not going to work.

HiMMP

And staying with that idea about performance and everything being in sync and performance accuracy. Do you use a lot of Beat Detective and quantization? Is it something that you're trying to avoid? Or is it something that you use for most projects?

Fredrik Nordström

I try to avoid that. And if I do it, I never go 100%. It's very important that you keep some of the performance from the performer. And if everything is super tight, super synced, it's not going to be heavy. You need to have some errors in there. Human feel. And that's why when we are tracking guitars and bass, if it's not good, we re-record. I never edit stuff like that.

HiMMP

And what do you feel are the central challenges for mixing metal music compared to other genres?

Fredrik Nordström

There is so much information going on. That can be the hardest part. Actually, I've done some pop projects recently. And that's also because I've not been working so much for that. That's also been pretty hard, to be honest.

HiMMP

In which way was the pop project hard, and how does that differ from a metal production?

Fredrik Nordström

The playing is so different, and there's so much going on in metal. A blast beat is hard to get good. That's also when I do mixing; I always try to use as much of the acoustic drums as possible so you get some live feel in there. So, you don't just remove the bass drum totally and just put the trigger in there. That sounds like a typewriter.

HiMMP

And what again, with these challenges, we've got all of this information that you're talking about: very fast performances and down-tuned guitars, low frequencies with superfast performances. What do you feel are the main solutions to these challenges?

Fredrik Nordström

Normally, I try to get rid of bass in the rhythm guitars, that's just like the bass's own area. That's where it is together with the bass drum. And if they work together, you can hear the bass and also hear the bass drum and punch in the bass drum. What I normally do, like with the guitars, I started that actually early in the '90s. I took the compressor and let it work only in the bass frequencies. When the guitar goes, the compressor goes in and starts compressing only in the bass [frequencies]. That's a trick I have.

HiMMP

And so, from a frequency perspective, are there any general areas where you'd say, okay, well below this point is the bass, and above this point are the guitars?

Fredrik Nordström

It is not based on frequency because it also depends on the tuning. If somebody is tuning D or somebody's tuning B, there are different frequencies, so you have to listen.

HiMMP

Outside of drums, bass, guitars, and vocals, what textures have you worked with that enhance heaviness?

Fredrik Nordström

I actually use a lot of reverb. Compression, of course, in several stages, especially on drums. And, when I mix, I try to get the band to sound like one unit, which I never achieve. It's just like this should be like one big tank going forward.

HiMMP

On the subject of reverb: generally, how many different reverbs would you use on a drum kit?

Fredrik Nordström

Two.

HiMMP

Like a plate or a room?

Fredrik Nordström

That depends. Sometimes, I use a short plate. I use a Lexicon 480, like this medium stage hall thing that is classic for the drums, and another day, I may use an AMS 16; it's Phil Collins gated feel. And it can be a plate, but not for the long reverb. I try to mix it up; I very rarely use any presets.

HiMMP

And with those different reverbs, do you tend to automate them? Or just leave the reverb times the same throughout?

Fredrik Nordström

Yes. Normally, the same, unless somebody especially asks for that. And, of course, if it's a slow song, I'd make the reverb longer.

HiMMP

Over the past fifty years, technology has changed hugely. Obviously, you've seen that change in technology with Pro Tools, track counts, software, and amp emulations. Do you feel that the heaviness in metal music can be further enhanced? Do you see many technological changes moving forward? Or do you think we've reached a limit?

Fredrik Nordström

No, I don't think that. There was a guy in the 1800s in America who said that all inventions are made now, so we can stop. And, of course, this will

develop. It's like when the *Black Album* (Metallica 1991) came, and you hear that kick drum. I was like, wow, it's just like that. But that was what Flemming Rasmussen was getting started with that kick drum, and Bob Rock just took it to where it should be. And Pantera *Far Beyond Driven* (1994) also, there's like development, I think that's going to go on. I bought that album actually because of the bass drum because I wanted to nick it. And I did. And then I listened to the album, and it became my favourite album for many years.

HiMMP

Yeah, the kick is just like a pencil on a pane of glass, isn't it? But it's cool. It's a great sound. Moving onwards, do you feel that low-fidelity production standards can be as heavy as much clearer high-fidelity production standards? Like, if you listen to Norwegian black metal that's really badly produced. Do you feel that can be as heavy as high-quality production?

Fredrik Nordström

Absolutely, if the performance is right, that's what I think.

HiMMP

Do you think it's a different aesthetic that it's more about ambience than heaviness?

Fredrik Nordström

Yeah, maybe they're more like what you say ambient. I also remember that they put a lot of effort into making the toms sound good. Everything can sound shit, but the toms need to sound great and be big.

HiMMP

That's interesting. Have you produced bands that have wanted a more low-fidelity production aesthetic?

Fredrik Nordström

Sometimes people ask for that, but in the end, they want to go more modern.

HiMMP

When you look at the different bands that you've produced, from Dimmu Borgir to HammerFall, and the different aesthetics of these bands, what are the main elements that you're changing? We've discussed low-frequency content and how the way that you put the guitars and the bass together will depend on the level of down tuning, but is there anything apart from the level of down tuning and performance speed that affects how you go about producing them, the aesthetic of the mix?

Fredrik Nordström

They are so totally different bands. Like a guitar tone for Dimmu Borgir should absolutely never work with HammerFall. It's just a different approach. Dimmu have all this orchestral stuff.

HiMMP

And is there a difference in approach about how you go about the mid-range with these bands?

Fredrik Nordström

Yeah, like HammerFall, there should be mid-ranged guitars. With Dimmu Borgir, you need to have them scooped to leave space, but also because it sounds cool. And also you should have some space for the orchestra. If you listen to the recording and the end result by itself, it doesn't sound good. The orchestra in the mix, it sounds good.

HiMMP

And then, from that approach with the mid-range of the guitars with HammerFall, and the more scooped guitars for Dimmu, is there a general principle that you'll then look at the bass for getting the bass and guitars to work together?

Fredrik Nordström

I think for HammerFall, again, they're more like the guitars, they're more mid-ranged stuff like that, and bass for Dimmu is more scooped also to get more low end and to even get the picking up.

HiMMP

We mentioned before that when you mix a band, you're trying to make it sound like a cohesive unit like this big tank. What do you feel are the trade-offs in certain areas? Like, you want drum clarity, but with drum clarity, there's less cohesion and naturalness. And with the mix, if there's more low end, it can sound less controlled and less clear. What are the elements of the mix that you're trying to balance between the low frequencies and the energy? What's the main way that you're managing the frequency content of a mix to balance these different components?

Fredrik Nordström

Yeah, having this big clutch. I kind of dreamed that up with the Pro Tools system because the clearness in this digital recording is so good. So, it's hard to get there. But I know that bands also like to hear their instruments well, so I always try to find somewhere, like if the bass drum is in 80 Hz, maybe I'll go like 120 Hz on the bass, so they play in a different area.

HiMMP

Yeah. And your approaches to clarity at the other end of this. Obviously, it's a lot about brightness and managing the brightness of the guitars and the cymbals. But back to this idea of cohesion, do you use saturation plugins or distortion?

Fredrik Nordström

Yeah, I use some distortion on bass. That's a very good tool to get the bass out, so you can hear the bass because that brings heaviness to the guitars. If you have a very good lined-up bass player and guitar player, and they play well together, you get a very heavy foundation for a mix.

HiMMP

But you de-ess the bass?

Fredrik Nordström

Yes.

HiMMP

For the pick attack?

Fredrik Nordström

Yes.

HiMMP

Okay, fantastic. What's your approach with vocals when it comes to heaviness? And obviously, we were chatting with Ralf's vocals before about compression. Do you typically saturate vocals or distort vocals a lot?

Fredrik Nordström

Sometimes I do that, yes. Not too much, because it just makes it muddy. Compression is good, absolutely, but sometimes, if you get a mix from somebody and they have recorded it in a bad room, and then you start to compress it, you bring up all this bad room in there. And then you have to go different ways. Maybe sometimes, I use a little bit of compression and put a limiter on.

HiMMP

And on the subject of compression versus limiting, under what circumstances would you use a limiter in the mix?

Fredrik Nordström

I have done it a couple of times on a rhythm guitar, actually. Because I may have two tracks of main rhythm guitars, and then suddenly, on specific parts,

there are four tracks. And then, a specific part is six tracks. And how should you manage this? Okay, I can do a lot of automation and sit with it until I get grey hair. But the limiters today are so good, so they don't create any distortion. You can use the limiter to control the volumes of the guitars, so they don't jump in and out.

HiMMP

Do you use tape emulation?

Fredrik Nordström

Very rarely. I use the tape emulator in Pro Tools, it's called Heat.

HiMMP

It's addictive, though. You come back to a mix; oh, I've overcooked it. The brightness is critical, isn't it? Where are you at the brightness? I think it's the guy from Phoenix who made it.

Fredrik Nordström

Yeah, he made it. He made that as a rack unit that was super expensive, like €4,000 or something like that. It was sitting in a nice mastering studio. It's used on our first album with my band, actually.

HiMMP

Moving on to your approach with bussing. Do you tend to send all of your drums to a drum aux where you'll compress and the same with bass to a buss where it's all compressed? And do you use drums, like maybe kick drum and bass or the whole of the drums and bass, to sort of parallel compression?

Fredrik Nordström

Normally, I send them to a buss. Like here, we have several tracks on the bass drum. And then a snare drum, there was a trigger and stuff, send them to a buss. And toms to a buss, overheads to a buss, if there is ambience, if there is not just one stereo file, I send them to a buss. If they send a stereo mono file, I normally send it to a buss, and then I send the bass drum, snare drum, and toms to a parallel compression. Then I use this shitty compressor [Pro Tools BF-76]. I've tried so many different compressors, but this one is the best. And then I send all the drums into the reverb and everything to the master buss, where I put an EQ on and compressor, like slight compression.

HiMMP

Do you ever compress the kick drum and the bass together with parallel compression, or drums and bass together with parallel compression?

Fredrik Nordström

No! The thing is, why don't you try this out? Because with all the plugins, there is so much latency in the Pro Tools system, and I don't really trust that it works when you send stuff with the busses.

HiMMP

Sure. And with your master buss, are you mastering as you mix?

Fredrik Nordström

Yes, because when you use Heat, you put on Heat on the tube side or the transistor side, and then stuff happens with the mix. So, you have to compensate. Sometimes, the guitar is too loud, or maybe the cymbals get too screamy. Then you've mixed that out, and you do the mastering, and then you realize, the guitars get too loud, which is often the case, and then you have to go back to the mix. So, I started to do the mastering in the mix and also deliver it to the client. Here's what you get.

HiMMP

Sure. We were talking about parallel compression with your kick, snare, and toms to the Bomb Factory 76, and obviously, that brings up the ambience. How does that impact and inform how you use the room mics?

Fredrik Nordström

I'm not a big fan of room mics when it comes to this fast music because I tried to use them if people have recorded them. I'm, of course, going to try to use them, but that's something when I feel like I had the bass drum, snare drum, toms, and overheads working, and then I'm sitting and playing around. I normally also do compression on the rooms, and I also use de-essers there because the cymbals, when you start compressing, are totally very noisy cymbals, abrasive, so that's why I use the de-esser also.

HiMMP

So, will you use just very little of the rooms?

Fredrik Nordström

Yes, it depends on what it is, but like three albums back with HammerFall, I didn't use any reverb at all because the room was so good, with a good drummer. I used to put up the room, and we had a reverb, some compression on, and very little reverb plugin.

HiMMP

And what is your approach with taking drum samples from the kit used for recording, and how might you use those?

Fredrik Nordström

If I do that, I'm not going to use them again in the production; I use something different.

HiMMP

So, you just take them in case a drummer misses a hit?

Fredrik Nordström

Yeah.

HiMMP

Fantastic. Those are the broader questions. If it's okay, just going back to the idea that we were talking about, about the Swedish death metal sound, and the Boss HM2 with that old trick and how the likes of Pantera informed metal music production and the seminal albums that have really inspired different producers. What are the albums that you've produced yourself that you feel most proud of looking back?

Fredrik Nordström

The first two Dimmu Borgir albums. And actually, we did an album with Mike Amott's side project, Spiritual Beggars [*Mantra III*, 1998]; that was a great album, I think. *Slaughter of the Soul* (At the Gates 1995), of course.

HiMMP

They're just absolutely superb. But with the Spiritual Beggars album, for example, was there something that was very challenging about the production that you needed to overcome?

Fredrik Nordström

No. I remember the drummer, Ludwig [Witt]. He had a lovely drum kit. And it's just like we recorded analogue. It was just fun. I remember the album. I think we nailed the sound, and just like it was a fun recording with good songs.

HiMMP

And do you tend to find that it's always the albums where you push up the faders, and it mixes itself, that tend to be the best albums or ones where you really overcome certain challenges to get there that have the most original sound and the most powerful production?

Fredrik Nordström

That's a hard one. I really don't know how to answer that.

HiMMP

No problems. Over the years, your production approaches will have changed and developed. Where are the areas that you feel have most changed?

Fredrik Nordström

I recently remixed the first Dimmu Borgir album, the *Puritanical [Euphoric Misanthropy]*, 2001] album, and I realized how creative we were when we did the album. But also recently, actually, because it's just like, you know, mixing can be a very hard thing. You get anxious; you're mentally ill. And the last five, six years, it's just like, 'Okay, let's do mix, no problem'. We just do it, and I do it. Like this one I did for you here, this was one of the most challenging recently.

Also, the Dimmu remix because I know that many bands, when that album came out, were just amazed by the sound. But the band was never amazed. So, we took up that album and restored all the drums because Nick Barker's drumming, every single hit on the whole album, is 127 velocity. So, they are full velocity on every single hit on the whole album. I had recorded acoustic mics, also. We went back and restored the dynamics in the drums. And also, when I mixed, I find that back in those days, we did a lot of keyboards that we put very subtle in the background, and nobody heard, so it was just the time to bring that forward. Because we always did a lot of cool stuff. I probably get some shit from some fans for that remix. But as I say, you have to see it as a new painting.

HiMMP

And obviously, Dimmu have been very central in developing orchestral metal. And *Enthroned Darkness Triumphant* (Dimmu Borgir 1997) became very orchestral, and that was quite synth-heavy, if I remember rightly. But moving onwards. In the productions that you've done, do you feel it's more with your approach to dynamics or perhaps ambience or compression use that your mix approach has really changed the most?

Fredrik Nordström

Yes, I think I'm trying to work like it was in 1999 when I had an analogue tape recorder. I don't try to put on 200 plugins and four different EQs. And I have my SSL EQ, and I work with that. If there is something that is bugging me, I try to have the Pro Tools built-in seven-band EQ and try to find a frequency that's annoying, and I just cut because it is so sharp in the frequencies. So you can cut out annoying sounds.

HiMMP

So, it makes a really interesting case study that the mix sounds so powerful. And it sounds so great. But it's got quite a natural sound; it doesn't sound

super processed. And that's one of the strengths of your mix; it sounds quite natural. It's aggressive, but it's got quite a natural feel to it. And I would imagine that you tend to avoid really surgical EQ moves unless you need to.

Fredrik Nordström

Yeah, less is more. It's pretty basic. I did a thing for Nail the Mix. And I think most of the people who subscribe to that were pretty disappointed when they saw how few plugins I used because they are mix geeks and want to see super fancy tricks. I don't know.

HiMMP

But at the end of the day, it's how it sounds. If it sounds right, it is right. It doesn't matter how it gets there. And a critical mix skill is avoiding over-processing. That's absolutely critical. These producers go in, and they're just throwing lots of processing at things. And my students, as soon as you go into a session, and you see all the Pro Tools plugins, it's not going to be a good mix. You almost know because they're just throwing technology, hoping that it's going to help. And it's about using the right tool for the right job.

Fredrik Nordström

Yeah, we did a guest teacher thing at a high school for sound engineering in the northern part of Sweden, and it was the same there. We just opened up, and we saw Pro Tools built-in plugins. And the students there were just talking about this new plugin here and this new plugin there. And the teacher is so good that he's showing that you are using various simple tools.

HiMMP

Fantastic. And do you have any thoughts about how heaviness, a metal music production, might go from here with the changes in technology? It's a difficult question. We've got all these dynamic EQs, amp modelling, IRs, and incredible triggering units. Do you see a trend of where metal music production might be going towards?

Fredrik Nordström

Less editing, maybe? That's what I try to do when I record stuff. When it's recorded, that's what's going to be tried to do that. Sometimes, of course, you need to do some editing of the drums, but I stay away from doing this 100% thing. You can hear that on the latest Metallica song we talked about before, where you got 100% quantized. I think that's something, actually.

HiMMP

Yeah. Bands think they can go in the studio, and no matter how bad their performance, Pro Tools' Beat Detective can sort it out.

Fredrik Nordström

I can see that the younger generation is actually more skilled than they were back in the day because they also have YouTube and all that stuff. And you can see them, you want to learn stuff. So mainly—it's not always, of course—there is some bad performance.

HiMMP

Yeah. And have you heard about artificial intelligence? They're building programmes to mix music for us. Have you got into any of those discussions?

Fredrik Nordström

No.

HiMMP

It'll be interesting to see. So, from this perspective of performance as being gridded and everything being heavily quantized, why do you feel it's not as heavy when it's really heavily quantized?

Fredrik Nordström

If you've got metalcore, for example, when you do these breakdowns, that will be a bit sloppy if you don't help the band, if they're not super tight. So, in a certain part of music, you need to do the editing and line it up better. But if everything hits at the same time, if you have a little space in between, then it gets bigger.

HiMMP

It's about size.

Fredrik Nordström

Yeah. But if it's too much, then it's going to be sloppy. But it's a proper human performance. We did the Bring Me the Horizon album [*Suicide Season*, 2008] here. And there was a producer on the internet, a pretty famous one. And he said, when he heard the guitars on that album we did, that they were the 'best-edited guitars I've heard in my whole life; I'm going to go back and re-edit the guitars on the album I'm doing now'. We haven't touched one note; it was all performance.

HiMMP

Getting it right at source. So, from this perspective of lo-fi performances still being heavy, what is it about the performances that gives it that heavy feel?

Fredrik Nordström

If they're well played, aggression, that's if you have a certain feel. When you do something, it joins into the music in some magical way.

HiMMP

From this perspective of taking drum samples, clean hits from the kit used for recording, would you use them in case, for example, a drummer misses a tom, and you would fly it in from the samples, but you wouldn't use them in the actual mix? Why is that, Fredrik?

Fredrik Nordström

We have done. Sometimes, if the best drum microphone breaks for one minute of recording, then you can replace the acoustic. But no, it's just the same. It's the same instrument, and when you cut up the samples, it has to be perfect. Otherwise, you get phase problems. It can do, but it also makes it more—if darkness is heaviness, if you understand what I mean. Yeah, so it brings in an atmosphere, absolutely. But it can also be; it's depending on what part it is in the music.

HiMMP

Okay. So, it's mainly about phase problems—that makes sense. From the perspective of orchestral elements, when you've been mixing Dimmu Borgir, and you're talking about the remix that you did recently and the orchestral elements that originally were a lot quieter, and you've brought them out in the remix, is it about the ambience? Or do they contribute to the heaviness?

Fredrik Nordström

Darkness.

HiMMP

That makes sense, actually.

Fredrik Nordström

But it's like the intro of what we did on *Puritanical* [*Euphonic Misanthropy*, 2001]. And it is very dark. We were there for three weeks; we were recording water drops in the kitchen to get the right drop. It's actually from my former kitchen. And we just adjusted it all. I know—it's too fast. It's too slow. I don't like it. The sound went bad, and so on. So, in week three, we managed to get them right, me and the keyboard player.

HiMMP

It's an incredible album, *Puritanical*. It must have been very challenging to carve up all of those frequencies and to get all of that instrumentation, very fast performances, with all the orchestral elements into stereo, retaining clarity and heaviness.

Fredrik Nordström

Yes, and the album after that [*Death Cult Armageddon*, Dimmu Borgir 2003], we had a full symphonic orchestra. We went down to Prague and recorded there.

HiMMP

Yeah, it's a lot about frequency management. The more there is, the more everything needs to become smaller. It's got its own individual place.

Fredrik Nordström

You still need to have the band—bass, drums, and guitars—heavy. I remember on that album, there was a lot of editing we had to do on the orchestra because, in an orchestra, it is not like 1, 2, 3, 4 start. They don't start like that. And that's what we didn't want. I spent a week cutting all this orchestra stuff, and then I, if I remember, in the mix, there was multiband compression on the orchestra. There was EQ. There was some other shit there, also.

HiMMP

How long was the album mixed? How long do you take the mix?

Fredrik Nordström

Was it two weeks? I think. That's a long time.

HiMMP

For an album that's that complicated? Because of the amount of editing, do you tend to do all your edits and clean-up first, and then you go to the actual mix?

Fredrik Nordström

Yeah, absolutely. On the first record, I didn't do any editing while recording. I hate that; that's the worst thing to do. Sometimes, you have to do a little of that. Mainly recording. And then you do the editing.

HiMMP

Yeah, and all the clean-up. On that front, do you always go with waveform-edited toms?

Fredrik Nordström

When I record here . . . I have been chasing drummers for 25 years to manage to get them to play hard, but recently, I realized it's better they play even. It's much better because you can bring their power in the drums out anyway if they don't play super soft. But get them to play more even, for sure. And

then, like, in this room here, you just put the noise gate on, that's fine. And sometimes you get stuff. It's like 65 minutes of music. If I cannot see what the toms are in the tom mics, and then I'll go to Rob [his assistant].

HiMMP

Take care of this. Fantastic. Staying with this idea of classical and orchestral music and its relationship to metal music, does it have to do with darkness, emotions, textures, or similar frequency content? Or does it have some similarities to what electric guitars are doing?

Fredrik Nordström

I think it's coming to composition, actually. Because you have kind of the same frequency areas in heavy music, and you also have a lot of heavy instruments in symphonic orchestra music. Like, we were in Prague recording this Dimmu Borgir album, and we had this gong. It's like 50 metres up in the roof. And you played on that gong—when you smashed it really hard, your whole body was shivering. That's what's heavy.

HiMMP

On this mix ['In Solitude'], we've got horns that we were listening to, a brass section, and that was surprisingly heavy. You could really almost feel it, but it was very difficult to get those frequencies into the mix. On the Bring Me the Horizon album (*Suicide Season*, 2008), certain elements have been introduced to the mix, such as sub-bass hits and some additional percussion elements. Are these hits meant to create more dynamics or to create increased heaviness?

Fredrik Nordström

Yeah, I think it's a way of increasing heaviness. It's like when you go into a breakdown, and this sound is taken from hip-hop music, actually, so, like the band Bring Me, they are always into non-metal music. If you understand what I mean, like the second album, we did have all this dance music stuff, and these sub drops.

HiMMP

Brilliant. Let's move towards the Pro Tools mix session and have a look at the processing approaches to the mix that you did of 'In Solitude'.

6.3 Mix of 'In Solitude'

HiMMP

So, what did you feel were the central challenges of the mix?

Fredrik Nordström

The main challenge was that there were so many different kinds of music styles—sweet melodic stuff, heavy stuff, and really fast stuff. That was a bit challenging, actually.

HiMMP

Getting the dynamics right.

Fredrik Nordström

Yeah.

HiMMP

And after listening to the multi-track and hearing the song, what was your primary focus? Was it getting a lot of weight? Or was it about the stereo width or the energy? Was there an initial sort of blueprint, focus-wise?

Fredrik Nordström

Not really. What I normally try to do when I start a mix is start with the drums, which is the beat. Then, depending on what's going on with the drums, I'm trying to find tones. What fits the drumming? Then, I build the bass and then the guitars. And then, normally, I go back again to the drums and then to the vocals. And this case also has some keyboard stuff.

Guitars

HiMMP

And with the guitars, you decided to re-amp them. What was the main reason for re-amping?

Fredrik Nordström

It's just like . . . They have been like this several times when I do mix with people who have recorded their own guitar, and they are never really happy. And they put the finger on what it is, and I'm like, let's try to re-amp that. And then, 'Yeah, there we go'. I just went straight for re-amping; then, I also know what guitar track I have. It is way less than what was recorded originally.

I always go for less is more, even if Yngwie Malmsteen says more is more, which is also correct. So, because I think that song was really tricky to mix, I also went back and re-did it with the original guitars because I didn't feel satisfied. And then I went back and listened to what I re-amped, and then I'll go back to the original guitars and so on. But I liked my re-amped guitars best. I checked with my colleague Rob also, and he was more into the re-amped guitars.

HiMMP

And when you re-amp the guitars, was there a level of drive or a frequency emphasis that you wanted different? Was it more mids or less mids or less gain or more gain?

Fredrik Nordström

The original guitar felt a bit loose; it's hard to explain. I wanted it to be more focused.

HiMMP

And then your approach with the re-amping, did you opt to quad-track?

Fredrik Nordström

Yes.

HiMMP

And am I right in saying you had a [Peavey] Mark 3 5150 on one side and the Engl Savage 120 on the other?

Fredrik Nordström

Yeah, that's the easy way, on full 100% pan left or right. I have an [Peavey] EVH Mark 3 and an EVH, the block letter. They are running two cabinets; one is the Engl, and that one is the old Marshall Vintage. Then I mix these two sounds into one track, not four tracks, because I use four mics, but I go straight into one track—no regrets.

HiMMP

If I understand you correctly, one rhythm guitar re-amping, you're sending your split into two different outs?

Fredrik Nordström

No, I go into the preamp of the EVH and put that to the Engl speaker, and then there is a preamp out on that EVH, and I go into the return of the 5150, so I'm only using the power amplifier of the 5150.

HiMMP

And then take the speaker output of the 5150 to a different speaker amp?

Fredrik Nordström

To a different speaker, a Marshall.

HiMMP

Four microphones all mixed down to one?

Fredrik Nordström

Yes.

HiMMP

And that's from one rhythm take.

Fredrik Nordström

That's from one rhythm take for left or right. And then I went to Engl Savage 120 Mark 2; I just did the guitar tone there. They fill in the blank of the other guitar tone because these two amplifiers are very different in character. An easy way to say this is that the EVH is American sounding; the Engl is German sounding. And if you play it on a Savage, you understand what I mean.

HiMMP

And with the Engls, you talked about the sub-mix EVH and the original block letter 5010 100% left and right. Did you have the Engl slightly in?

Fredrik Nordström

Yes, they are 80/80.

HiMMP

And why do you quad-track rather than double-tracked guitars?

Fredrik Nordström

There were four tracks of rhythm guitars, that's why I did it. The thing with the EVH and Mark 3 and the block letter from the beginning was that I recorded the EVH on one track and the 5150 on another track. And then I did this panning 80/100. That's to make the guitars wider, actually, by doing them a little bit more mono. This sounds weird, but maybe a little bit more focused. So that's what I did back in the days when people didn't want to do quad-track because it's time-consuming and boring. Then I did that so I could have this fake quad-tracking thing.

HiMMP

Sure. Can we listen to the outer two with the sub-mixed Mark 3 and the 5150s? Just the two hard right and hard left. And then just the Engl.

Fredrik Nordström

They help each other. But there's also a lot of distortion. I use this Lo-Fi thing and put distortion on (Figure 6.1).

HiMMP

On the guitar aux?



FIGURE 6.1 Distortion on guitar buss for greater perceived loudness.

Fredrik Nordström

Yes. I don't know if this does a lot. It is just a little bit. It makes it louder. It's hard to say if you do something with the sound, but it feels like it does something. I don't know, but it's getting louder. It doesn't actually add anything.

And then I have this [SSL E channel strip], it's a lot of treble up, maybe a little bit too much (Figure 6.2). I take off a little bit here around 800 Hz; more bass on, and then, here, I find some annoying frequencies. You can hear them. And then this: everybody uses this plugin [Soothe] because it's brilliant if you don't use it too much. Also, clean up a little bit.

Then, there is a new multiband favourite plugin from Softube [Drawmer 1973]. The guitars get heavier without it, but it cleans this up, so you get the bass (Figure 6.3).

HiMMP

So that's compressing just the low end?

Fredrik Nordström

Yes, I use it for overhead also.

HiMMP

It's a FET compressor.

Fredrik Nordström

It's an English one from the beginning. But the only compression on the guitar here is multiband, a little bit of compression in the bass region.



FIGURE 6.2 SSL channel strip on guitar buss for EQ, adding low-end weight and highs and attenuating some mids.

HiMMP

What frequency range is that over on the guitars?

Fredrik Nordström

It's everything under 200 Hz. It's not much. But you can see them as big bumps when the bass is coming. So, two or three dBs.

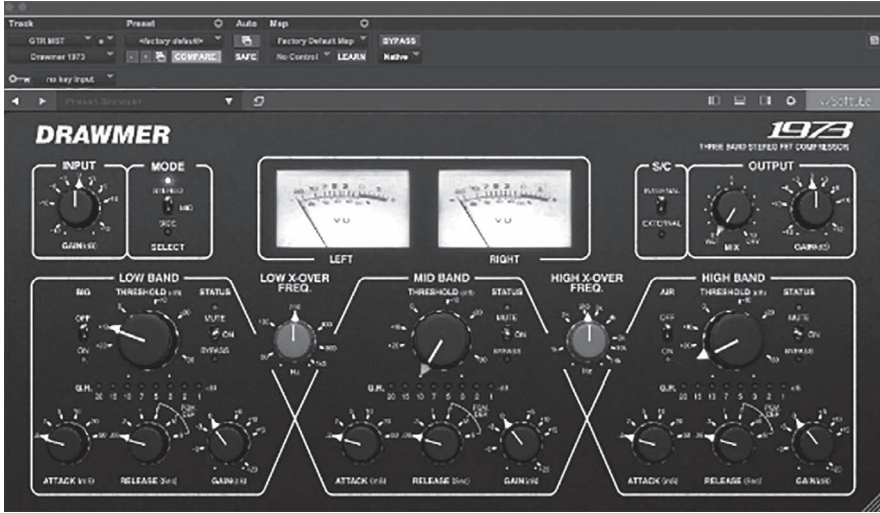


FIGURE 6.3 Multiband compressor on the guitar buss for consistent level in the low end during palm-muted notes.

HiMMP

Have you ever used stereo widening on your rhythm guitars?

Fredrik Nordström

Probably, but not recently.

Bass

HiMMP

Moving on to the bass, am I right in saying you haven't used any stereo-widening principles?

Fredrik Nordström

No. I actually have a buss for the bass also. I have first made the sound that I think fits what you recorded, which sounds really good, and made this tone. It is pretty similar. Good bass player. And I played them together. It makes a little bit more balls on them.

HiMMP

And you do a little bit of de-essing (Figure 6.4).

Fredrik Nordström

There's an EQ to bring up the presence of the bass (Figure 6.5).



FIGURE 6.4 De-esser on bass buss taming harshness of string and playing noise.

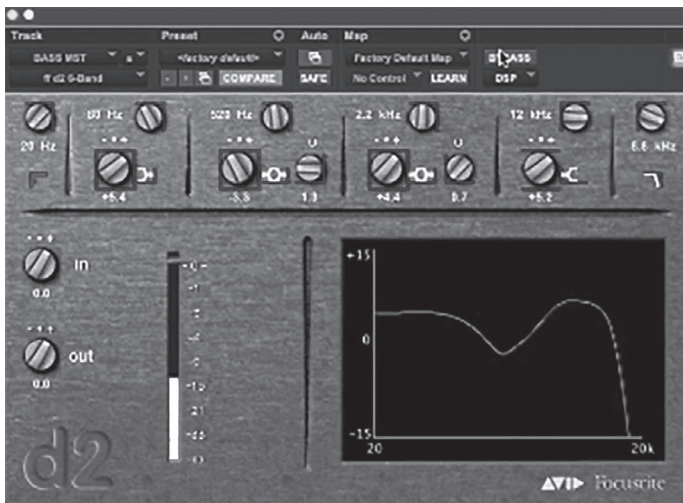


FIGURE 6.5 Analogue-style EQ on bass buss adding presence.

HiMMP

So, is that 520 Hz that you've attenuated?

Fredrik Nordström

Yeah. This was the case this time. I use this UAD 4K to take away that pick-ing sound.

HiMMP

But you've also got a de-esser on the DI as well?

Fredrik Nordström

No, that's a compressor (Figure 6.6). I start from an SVT preset and tweak from there because that sounds really pretty good from the beginning.

HiMMP

What is the initial plugin on the DI?

Fredrik Nordström

That's a compressor (Figure 6.7), so I get a more even distortion from the plugin.

HiMMP

Would you consider this much less compression than you'd normally use on bass?

Fredrik Nordström

It depends on the bass player. Like, it's very normal; they play the bass, and then they go from E to A, for example, and then the E notes are ringing; then you shouldn't go too heavy with the compression because then you will just bring that noise up and everything gets noisy.

HiMMP

And on bass, do you ever use frequency bracketing?



FIGURE 6.6 SSL-style compression on bass buss for consistent volume.

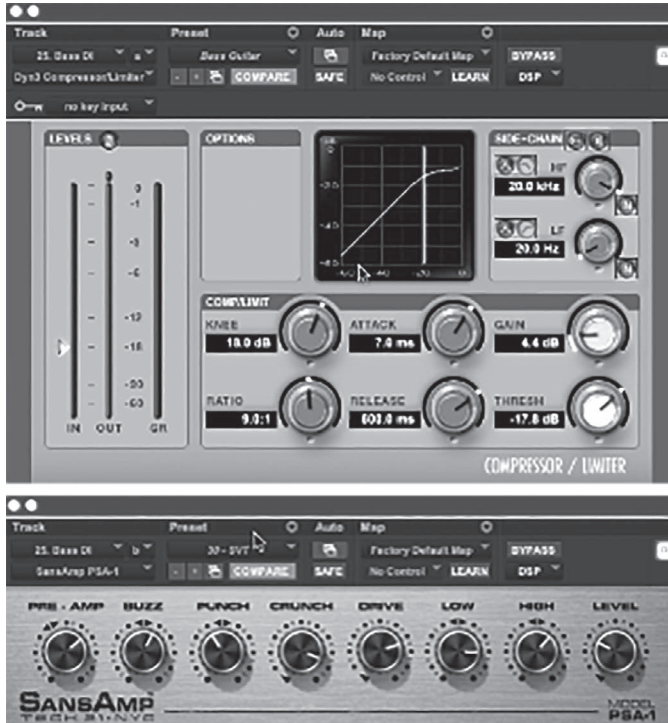


FIGURE 6.7 Compressor (top) and amplifier simulation (bottom) on the bass DI to produce a saturated tone.

Fredrik Nordström

I don't even know what that is, so I probably don't use it.

HiMMP

It is where you have one channel for just the lows.

Fredrik Nordström

That's happened.

HiMMP

And then one clean amp for the lows and a more distorted amp for the mids.

Fredrik Nordström

Yeah, but I don't want to talk shit about it, but there is some—what are they called—this bass, Darkglass. And they can make the distortion on top of the bass, which I don't like. This bass sound suits me so much better. I want the bass to be a tractor. The bass distortion should be inside the bass.

Drums

HiMMP

Moving onwards, do you generally apply reverb to the kick, and have you done it on this mix?

Fredrik Nordström

Sometimes, I put a little bit of it. I always put the sends on. And sometimes I just put a little bit on a kick drum, a small room. I have a small room and a large room with drums (Figure 6.8). The bass drum is here. Oh, I took out



FIGURE 6.8 Pro Tools stock reverb for drums.

this one because of that bass from this one, and this one, and this one didn't play so well together. When I was mixing, I just muted it and found out that the bass drum was cleaner.

HiMMP

And is the sample you've used more of an ambient or a drier kick sample?

Fredrik Nordström

There's a lot of triggering here, actually. This is the acoustic part. I tried to keep it because it just brings natural [qualities]. If I use this [sample only], it is just boring. If you compare that, you're getting some human feeling.

HiMMP

Yeah. And the Brighton, that's one of your own samples (Figure 6.9)?

Fredrik Nordström

Yes.

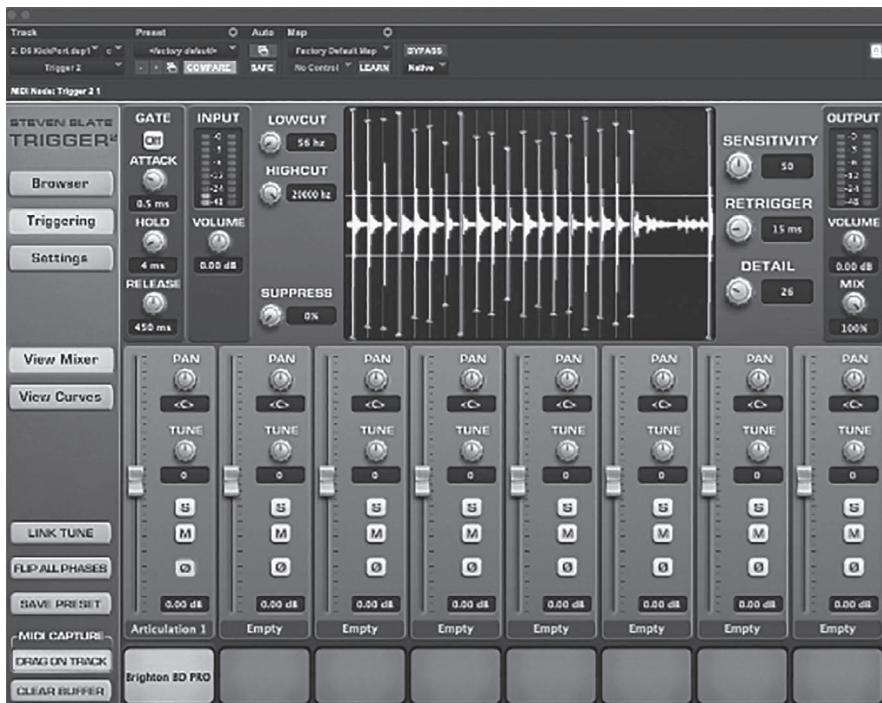


FIGURE 6.9 One kick sample blended with the acoustic kick.

HiMMP

Okay. And have you got any sends to reverb from your metalwork? Are you keeping your cymbals dry?

Fredrik Nordström

Yeah, dry.

HiMMP

And the room mics; I know you use the room mics very little. Did you keep those fairly dry as well?

Fredrik Nordström

Indeed. Let's see what I did with the room mics. They are pretty fairly used, actually. What did I do here? This one is also from Softube (Figure 6.10), a Germanium compressor that just brings balls to it. And you can go way further with this.

And I use this shitty compressor [BF76] that you get with Pro Tools (Figure 6.11).



FIGURE 6.10 Broadband compression on room tracks for power and energy.



FIGURE 6.11 Analogue-style compression on rooms for energy.

HiMMP

And then you're using the Soothe to attenuate the cymbal abrasion?

Fredrik Nordström

Yeah, exactly. I use the Soothe to get rid of that harshness again (Figure 6.12).

HiMMP

Does that work alongside your parallel compression?

Fredrik Nordström

Yes.

HiMMP

Which you've got, if I remember rightly, from your kick, snare, and toms. And obviously it depends on the quality of the room, but do you generally use both together? Or do you prefer parallel compression rather than room mics?

Fredrik Nordström

It depends. It's so hard to say. It's just like when you have your bass drum, snare drum, and the drum kit up and running. As you think it is good, and I'm sitting trying, and like which sounds best, is the room mic good? Sometimes you have, like, I recently remixed *Crimson Thunder* (2002) with HammerFall, and this room was beautiful. It's fantastic. It puts so much aliveness to the drums, and so I caught up with Oscar [Dronjak] and talked about it. And he said, 'Yeah, I'm glad you liked it because we spent a lot of money on that studio for the recording,' but it was really good.

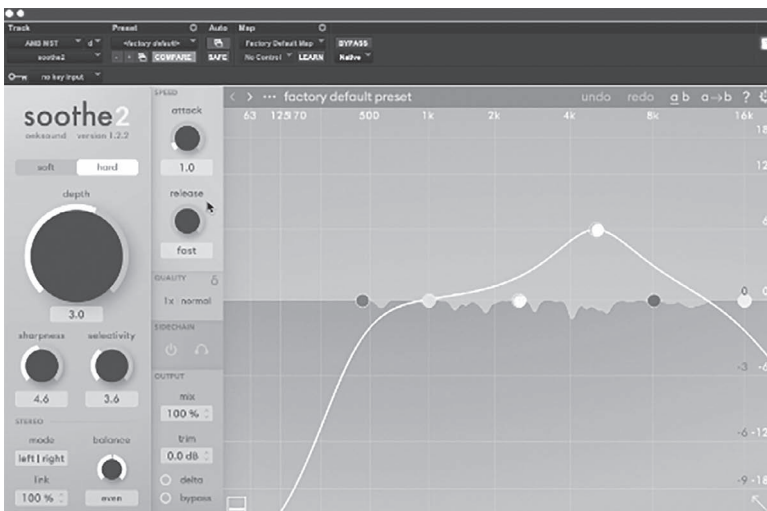


FIGURE 6.12 Dynamic frequency control taming harshness in the rooms.

HiMMP

So, you haven't frequency-bracketed those room mics, but you've just taken the cymbal abrasion down?

Fredrik Nordström

Yes.

HiMMP

But is there no high-pass filtering or low-pass filter?

Fredrik Nordström

No. Sometimes I do that, but sometimes I don't, depending on how it sounds.

HiMMP

Do you ever take sends from the channels rather than the auxes to reverb? Am I right in saying that you took sends from all your individual kick tracks?

Fredrik Nordström

Yeah, that's an individual kick channel, snare, and toms, and I send to what we call 'Doctor Comp'. And Doctor Comp is the same shitty compressor [Pro Tools BF76], but it works for what we are doing in here (Figure 6.13). It gets some punch into the drums. And it's easy to use too much.

And what did I use this time? Oh, EMT 140 short reverb, one second (Figure 6.14). And for the long reverb, I had this unit back in the day, and this is the best emulation you can get; it's a medium stage hall. And I think I use it when I go on with triggering stuff; normally, it is pretty loud.

HiMMP

For what reason are you taking the sends to the parallel compression from the individual channels rather than the aux?



FIGURE 6.13 Analogue-style parallel compression on the drums to enhance punch.



FIGURE 6.14 Another reverb for the drums.

Fredrik Nordström

Because if I have it from here . . . I don't know, actually, but I think it's like then I know I get the right amount.

HiMMP

Fantastic. And continuing with this idea of the width of the mix, do you have your overheads hard left and hard right?

Fredrik Nordström

Yes. And then a place out of the ride approximately where I think it should be; the hi-hat also. And the snare, that one I put in the middle. And here also, again, I use this Drawmer; this does a fantastic job.

HiMMP

So, you got that compressing the lows and the highs?

Fredrik Nordström

Yeah, and it's leaving the cymbal so long. I know other people like sidechains, compression, and stuff like that, but this works.

HiMMP

And the other cymbals are high-pass-filtered before that?

Fredrik Nordström

Yes, then the compressor doesn't have to work so much (Figure 6.15). And I normally try to just leave the cymbals as they are. Now, these days, maybe it's like we go something like this instead: take down the highs, which was not normal back in the day.

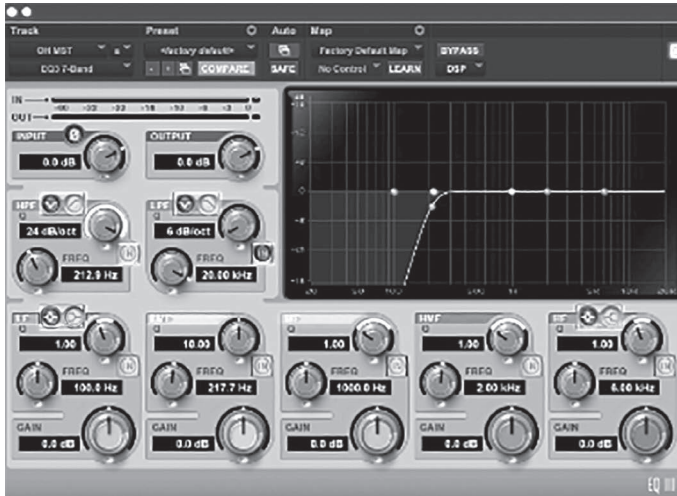


FIGURE 6.15 EQ on the overheads removing low-end rumble and some kick.

HiMMP

So, on the first two areas we've looked at, the guitars and the cymbals, you've got the processing on the sum rather than on the individual channels. Does that change with the project?

Fredrik Nordström

Yes absolutely. Sometimes, you need to have separate EQs on the guitars so you can get them to match together. But when I do re-amping here, normally, I do two tracks. And I'm taking a new amp if I'm quad-tracking. And I try to fill in the blanks of one of the sounds, so they play together.

HiMMP

But then, when they're all playing together, you'll look at EQ as a whole.

Fredrik Nordström

Yes.

HiMMP

And that's the same with the cymbals there. You've got them all, and then go on from there.

HiMMP

And then on to the rooms. The way that you've got the room mics processed here with the Bomb Factory 76. What is the role of the room mics within the mix? Is it making the drums more cohesive? Or is it ambience?

Fredrik Nordström

I thought that room was nice, that's why I used it. It's not much. Sometimes, I think the room mics can glue stuff together, cymbals, and stuff like that.

HiMMP

A bit more sustained.

HiMMP

Fantastic. Could we play the acoustic snare without the sample?

Fredrik Nordström

Notice it is a little bit loud, the bottom one, because this one has to compensate for . . . And this is a sample by itself (Figure 6.16). I tried to get a darker-ish snare drum to put in some bottom.

HiMMP

And with your sends, you've not sent more from the snare trigger, for example, than the others. It's just according to the volume of the channel, is it? Are you mainly using this as a send source compared to the others?



FIGURE 6.16 Two snare samples to complement the acoustic snare.

Fredrik Nordström

Do you mean the parallel compression? They have the same volume as they have in the mix. Now I'm feeling like this is okay. Then, I put the sends on so that I can pre-send them off.

HiMMP

And then you've got the sends to reverb from the aux.

Fredrik Nordström

Yes, otherwise, if I haven't got it from the channel, and I decide to lower the volume of the whole snare drum, it's going to be more reverberated.

HiMMP

And with the toms, did you make the decision to use the waveform-edited toms rather than the unedited ones?

Fredrik Nordström

Yeah, they were there, so why don't you use them?

HiMMP

Do you prefer them? Do you ever use the spill on the tom mics as a cohesive element?

Fredrik Nordström

Yes, maybe. But when I put gates on toms and snare, I'd never go all in. Like this time, I didn't even use a gate for the snare drums.

HiMMP

So, the snare is not gated?

Fredrik Nordström

Nope.

HiMMP

Fascinating. Am I right in saying that you haven't used any phase alignment for this mix?

Fredrik Nordström

No. It's like this. We have done phase alignments for a couple of albums, absolutely. But in the end, when the mix is done, and you press the phase alignment in and out, I'll check if that makes any bigger difference. And also, there is a part with phase alignment that I like and don't like. I think the drums get more scooped when you don't use phase alignment.

HiMMP

Yeah, there's something about it. I've chatted with Nick Raskulinecz, and he said as soon as you start phase aligning, it's game over. It's like you lose all the naturalness. You want the room mics.

Fredrik Nordström

Room mics you should never phase-align, then you've screwed it up. But you get a better presence of the snare drum; I noticed that.

HiMMP

Yeah. I used them.

Fredrik Nordström

But it's, for example, like when you have two overhead mics, and you have the snare drum there. You always get the louder snare drum on the left or right, whatever. When you do the phase alignment, the snare drum just moves into the middle, for example. The snare drum gets more present. I think it's mainly the snare drum that is affected by this phase alignment.

HiMMP

Yeah, it has some sense of air sometimes. I use that AutoAlign by SoundRaidix. Have you seen that plugin?

Fredrik Nordström

I have that, and I noticed this when I used it.

HiMMP

What fascinates me is that you manage to get all of these different sections to work from these contrasts without needing automation, and you manage to get processing approaches that just stay effective throughout. Was that one of the most significant challenges of mixing this track?

Fredrik Nordström

Absolutely. With these different kinds of music styles, it's like, what kind of snare drum are you going to use for triggering? Are you going to try the acoustic one he had? No, I think you're going to need a trigger on here. And they also have to play together with this snare drum. I normally try to tune . . . I also use triggers on the toms. I think we've managed to have a really good sound.

HiMMP

They're just blended with the toms?

Fredrik Nordström

Yeah, I tuned them here. They should fit better with the acoustic snare drum.

HiMMP

Fantastic. Those are the toms you've recorded yourself?

Fredrik Nordström

Yeah, the Daniel one.

Low-End Management

HiMMP

Fantastic. Moving on to the low end of the mix. Are there any general principles that you look at as to how you manage the low end of a mix between the bass, the kick drum, and the guitar?

Fredrik Nordström

I try, like with that multiband compression on the guitar, to reduce the amount of bass so we don't get this resonance. Like back in the '90s when we were recording these early death metal albums, there was bass on full, mids on zero, and treble on full. I had a Marshall cabinet, and they are for heavy music guitar recording. They sound good, but they don't manage when they get this amount of bass; they go like boom, boom. That's when I started compressing bass on the guitars, and it turned out so much better.

HiMMP

Do you generally have an emphasis on the bass being lower than the guitars in the frequency spectrum?

Fredrik Nordström

Of course, because they are one octave down, but I try to get them at the same level. But you hear the guitar much more because they are higher in frequency. If you want to be heard in a metal band, play guitar or drums.

HiMMP

And with the kick drum and the bass, do you have any low-end management principles where you try and get the bass locked with the kick? Or is it just trial and error?

Fredrik Nordström

I try to get the kick in a little bit lower than the bass so they don't play in the same space. But sometimes it's hard to manage that.

HiMMP

And when you're trying to get this clarity between the bass, the guitars, and the kick drum, do you have any anti-masking principles to get the clarity between them? Are there any principles that you're trying to look at to get them in their own space? And then, could you just play the guitars to the kick and bass?

Fredrik Nordström

For the bass, for example, they're like, I think, 8.8 kHz, which is pretty high. I'm normally down here somewhere with the bass, so you just keep it away from . . . You can still feel there is some low end in the bass drums, and some very good bass playing also. You can also see that he plays softer on this spot on the bass part. Some people make it a little bit less dynamic and go all bananas; it's just like machine guns there. I wanted to follow the acoustic bass drums. There probably could be a bit more bass on the bass drum.

Miscellaneous

HiMMP

Sounds great. Moving onwards, are there any sidechain techniques you've used for this mix?

Fredrik Nordström

No.

HiMMP

Okay. And the multiband—we've looked at the guitars, and you've used a little bit of multiband.

Fredrik Nordström

Yeah, to reduce the bass when it's boomy.

HiMMP

And also the metalwork, the room mics, and cymbals?

Fredrik Nordström

Yes.

HiMMP

A little bit in the lows and mids to . . .

Fredrik Nordström

Yeah, that's pretty much the case. I think maybe it's like, when you get older, you get less distortion on your guitar; it's the same way you have less

compression. Back in the day, I recorded vocals with 30 dB compression, and then I used to compress 30 dB again.

HiMMP

Just a sausage. Do you use dynamic EQ?

Fredrik Nordström

No, not really. But the Soothe is some kind of dynamic compression.

HiMMP

Sure. And am I right in saying you didn't automate your reverb times throughout?

Fredrik Nordström

No, we have the same tempo, more or less, in the song.

HiMMP

Okay. We chatted about the various performance speeds, from a slow groove to blast beats. But you looked for settings and processing approaches that stayed effective for the whole song to avoid lots of automation?

Fredrik Nordström

Yes.

HiMMP

And is there any automation on this mix that you've used?

Fredrik Nordström

I don't think so, to be honest. Probably, there was something that I was planning to do, but it never happened; I think it is here. I was back and forth with that with this vocal. At the same time, it's cool when it's back in the mix. So, I did some. Let's see if I did something. I don't think it's ending up. Nope, no automation.

Vocals

HiMMP

Okay, so just lastly, back to the vocal. How many verbs do you have on the vocals?

Fredrik Nordström

I have only one, and I use the same (Figure 6.17).



FIGURE 6.17 The only vocal reverb in the mix.

HiMMP

So, it's just one reverb and one delay on the vocal.

Fredrik Nordström

Yes.

HiMMP

Okay.

Fredrik Nordström

I normally have like this; I didn't use a long reverb. And I didn't use any chorus on this.

HiMMP

Do you generally go for more reverbs or more of an approach with delay lines for vocals?

Fredrik Nordström

It depends. Normally, with my clients, the first thing they are picking on is that there's too much reverb on the vocals. So, I try to do an equal mix.

HiMMP

Why did you use any kind of processing on the vocals for stereo widening?

Fredrik Nordström

I did not use any stereo widening on vocals. There is reverb, and there is echo, and they are in stereo so that you get the stereo.

I use reverb. And this reverb is as it comes; it just sounds good on everything. I've been sitting and doing my own presets for this for days and trying to get back the 480 sound, but then some updates came, and it was just like, you open it up, and it works, and it's perfect each time—the perfect sound.

HiMMP

And is that the only reverb you've got on Ralf?

Fredrik Nordström

Yes. And I just bought a new plugin. It's very rare for me to buy a new plugin, but I bought this echo from Brainworx (Figure 6.18), and I love it. It sounds really cool.



FIGURE 6.18 Vocal delay, with only the modulation section activated.

HiMMP

And could you play the vocal with the delay, without the reverb?

Fredrik Nordström

Well, I did some EQ, just took away some low end and put it up with the presence (Figure 6.19). As you can see, it's pretty much compressed already; there is very slight compression here. Ratio 8:1, and not that fast. This is a very fast attack time on this compression, so it's not the full attack time. There was something that was annoying me that I took away. Yeah, 2.85 kHz [removed narrow band with a stock Pro Tools EQ]; there was something that probably didn't bug me from the beginning. But there was something, so I was sitting: there's sharpness, so down a bit with it. And then it's a simple de-esser [Massey DeEsser, set at around 7 kHz, 100% wet].

HiMMP

Do you tend to place the de-esser last in the signal chain, or does it depend?

Fredrik Nordström

That's normally what I do, the last thing.



FIGURE 6.19 Vocal EQ enhancing presence (top) and analogue-style compression for more consistent volume (bottom).

Orchestration

HiMMP

Then we haven't talked about the orchestration part at all, which is, of course, taking up so much frequency space, so it's a challenge.

Fredrik Nordström

I have probably taken out the low end and a little bit of the treble and cut around 1 kHz because we have the guitar there. And probably some compression (Figure 6.20). A little bit of compression with a high ratio, so when it gets too loud, compression goes in. And there was reverb on the track.



FIGURE 6.20 SSL channel strip on strings for compression and EQ to attenuate frequencies overlapping with the guitars and enhance brightness.

Mastering

HiMMP

And just moving now to your master buss processing, if we may. You've got a little bit of compression on the master buss.

Fredrik Nordström

Yes. We did a mix back in the day, and everything was so stressful. And they needed to get the file, and we were not really done with the mix. Then it was like, we need to have stuff now, and then we started mastering it. And that chain glued the whole mix together, so, 'No, it sounds good'. I kept that chain, and I rebuilt it a little bit. I used to zero everything out, and then I started from the beginning. So, it's like this [SSL] 4K buss compression. This C4 from Waves, a cheap plugin (Figure 6.21).

Here, I have an EQ; this is mainly used to search for an annoying frequency and reduce it a little bit [one narrow band cut at 3 kHz]. This one [SPL Vitalizer]: I have a hard time using it, but it does something; it adds some spice to it (Figure 6.22).

This is a new one in the mastering chain. This EQ I have from Kontakt, the Native Instruments (Figure 6.23), and I find that it just adds that extra . . . Because we're sitting here testing EQ, and what I do is zero everything out, and then I start tweaking. The only thing is that they stopped supporting this.

HiMMP

Yeah, with the [SSL] 4K buss compressor, do you generally have a 30-millisecond attack time? Or is that something that you tend to change?

Fredrik Nordström

Not really, to be honest. It's just the threshold varies slightly, just a couple of dBs.

HiMMP

And then you've got some stereo widening?

Fredrik Nordström

I use a built-in Pro Tools plugin, like a stereo widener, for the whole mix (Figure 6.24). I've always been a big fan of this.

HiMMP

That's the processing; is it within Pro Tools?

Fredrik Nordström

Yeah, this is the master buss. I do the mastering in the mix. This one is built-in with Pro Tools; it makes it a little bit wider.

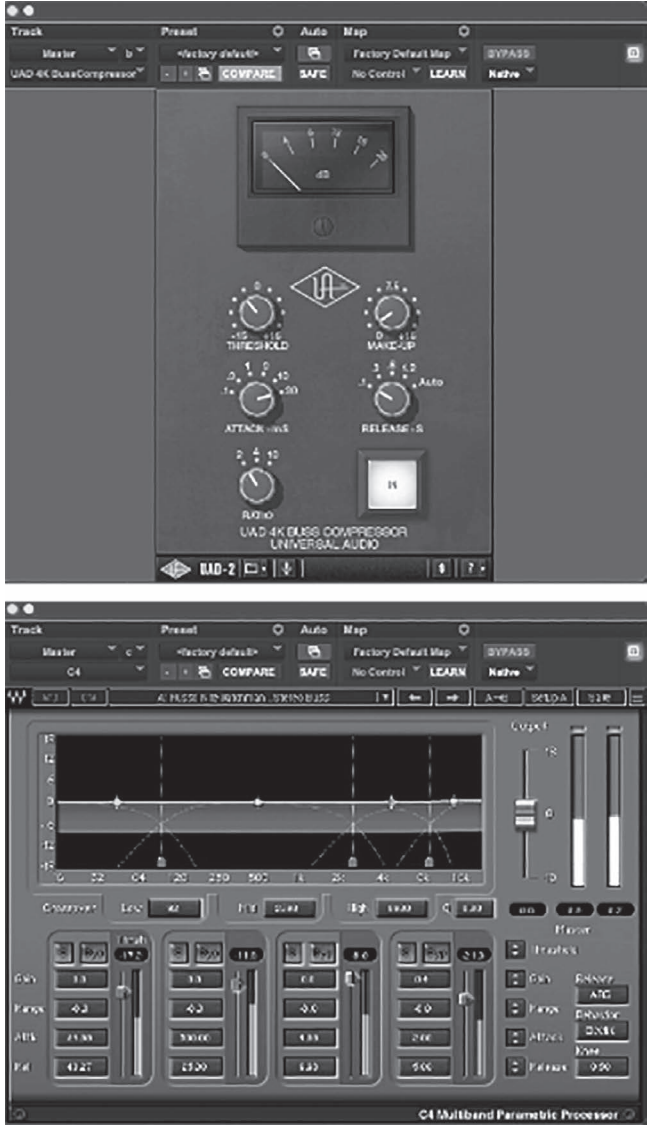


FIGURE 6.21 SSL-style compression on the master buss (top) and multiband compression (bottom) for a more consistent frequency spectrum.



FIGURE 6.22 Vitalizer on the master buss adding ‘spice’.



FIGURE 6.23 Mastering EQ for small frequency adjustments.



FIGURE 6.24 Stereo widening on the master buss.

HiMMP

And that's just in the higher frequencies, is it?

Fredrik Nordström

It depends. Today, I didn't decide. Normally, I take this down a little bit in the low end to keep it more focused. I normally try to go the old way when it comes to bass, which is that you have the bass in the centre. No stereo widening.

Then, I've got a little bit of Soothe (Figure 6.25), not too much. And sometimes it screws it up actually for the mastering. So, that's why you have to be very careful with Soothe for mastering.

And then I just have this limiter here, not too much because you don't want to have a sausage. You still have a sausage, but not a sausage sausage.

HiMMP

How much dB of gain reduction have we got there?



FIGURE 6.25 Dynamic frequency processing on the master buss.



FIGURE 6.26 Limiter on the master buss.

Fredrik Nordström

Here is nothing, more or less. So that still reaches somewhere between minus four and six LUFS. It will be lowered when it's coming to Spotify or YouTube.

HiMMP

Do you know what the inherent loudness is?

Fredrik Nordström

I don't have a loudness meter. I don't know why I don't have one. Maybe there's a new operating system, and it stopped working or something. But every time I checked with the LUFS meter, it was always between minus four and six.

HiMMP

So, it's really quite hard.

Fredrik Nordström

Yeah, but if you compare it to what we did at the beginning of 2000 and 2010, this is not loud.

HiMMP

Sure. The last thing that we haven't talked about is your use of Heat on this mix.

Fredrik Nordström

I think it's a lot. I normally actually take it out of the cymbals, but I don't think I did it here. No. Very often, when you have Heat on, then you put it on, and the cymbals get very sharp and loud. Normally, I bypass that on cymbals, but not this time. But I remember that I was thinking about it and felt like it wasn't necessary.

HiMMP

Fredrik, thank you so much. That was an absolutely fascinating.

Note

- 1 www.forward-audio.com/tutorials/electric-guitar-recording-tutorials/mastering-fredman-technique-guitar-recording, and www.youtube.com/watch?v=3C9ir7GK9hQ (accessed 26 February 2024).

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7

BUSTER ODEHOLM

7.1 Introduction

Buster Odeholm (b. 1992) is a Swedish producer specializing in extreme metal. Based in Stockholm, he owns Odeholm Audio, a production studio and sound library company. A talented multi-instrumentalist, Odeholm performs drums, guitar, bass, and vocals, and he actively contributes to both the songwriting and production aspects of his bands, including Humanity's Last Breath, Vildhjarta, and Allt. For Vildhjarta (est. 2005)—a progressive metal band inspired by Meshuggah but with their own take on the djent genre, referred to as 'thall'—Odeholm produced their recent albums, *Måsstaden Under Vatten* (2021) and *Thousands of Evils* (2022). Humanity's Last Breath, founded by Odeholm in 2009, blends elements of progressive deathcore and death metal, creating a distinctive sound that has significantly impacted the modern metal scene. Odeholm has produced their self-titled debut album (2013) as well as subsequent releases, including *Abyssal* (2019), *Välde* (2021), and *Ashen* (2023), alongside various EPs.

Beyond his work with his own bands, Odeholm has produced for a range of extreme metal artists signed to established labels such as Nuclear Blast, Massacre, and Sumerian Records since 2013. Notable collaborations include Darkane (*The Sinister Supremacy*, 2013), Born of Osiris (*Soul Sphere*, 2015), Oceano (*Revelation*, 2017), and Follow the Cipher (*Follow the Cipher*, 2018).

Odeholm's innovative production techniques and distinctive sound have quickly established him as a leading figure in the international metal production community. His popularity is evident in his frequent appearances on Unstoppable Recording Machine's 'Nail the Mix' platform, where he is the

second most-featured producer, having hosted seven masterclasses, surpassing even established names like Jens Bogren and Fredrik Nordström.

Unlike many other metal producers (Herbst and Mynett 2021), Odeholm is known for his ‘larger-than-life’ signature sound, which he promotes through his tone creation, mixing, and mastering services, lessons, and products. Odeholm Audio offers a variety of tools that reflect his style, including the ‘Impact Drums’ drum libraries and three bass tone libraries featuring separate controls for sub-bass, clean, and ‘grit’ channels. He also provides guitar cabinet impulse responses inspired by tones from Born of Osiris, Humanity’s Last Breath, and Oceano, as well as two Kemper Profiling Amplifier packs tailored for the distorted tones typical of heavily down-tuned guitars in modern metal productions.

Heaviness

With a clear vision of what constitutes heaviness, Odeholm strives for maximum impact in his productions, particularly with his band Humanity’s Last Breath. Unlike producers such as Jens Bogren or Mike Exeter, Odeholm considers production indispensable to creating a heavy aesthetic. He argued that production can enhance the heaviness of riffs beyond their structural qualities. For Odeholm, high production quality is crucial, rendering low-fidelity productions inherently unsuitable for achieving true heaviness. While genres like black metal effectively create atmospheres that align with their emotional themes, Odeholm maintains that they cannot compete with other extreme metal genres, such as death metal and deathcore, in terms of sheer sonic weight and heaviness.

Odeholm acknowledged that heaviness is not confined to extreme metal, citing electronic dance music and dubstep, in particular, as examples of heavy genres due to their emphasis on low frequencies, subsonic drops, and full-frequency instruments and sounds. He embraces ‘overproduction’ as a hallmark of his sonic signature, viewing it as a way to maximize every sound detail at every level. This approach allows his music to compete with the precision, intensity, and impactful low-end weight of electronic music. Reflecting his fondness for the sound of programmed drums, Odeholm often retains samples from programmed demos during drum re-recording sessions. This strategy blends the consistency and sonic weight of samples with the organic dynamics of live performances. Odeholm’s dual roles as a producer and artist further reinforce his belief that production serves as a guiding force for songwriting, influencing decisions on tempo and arrangement.

For Odeholm, heaviness is defined by three key characteristics: sonic weight, slow tempo, and rhythmic impact. Sonic weight sets most metal apart from genres like rock or blues and is primarily achieved through down-tuned instruments, augmented by programmed sub-bass and subsonic drops

common in electronic music. Odeholm has developed a low-end hierarchy to optimize sonic weight, with the kick drum at the apex due to its rhythmic drive and rich low-end quality. While the bass and guitars are also low-end-heavy, they are sustained rather than percussive, providing less punch but contributing significantly to the overall weight.

A slow tempo is the second pillar of heaviness because it allows low frequencies to resonate fully. Odeholm argues that faster performances diminish heaviness and advocates for slow tempos to achieve the heaviest sound and expression due to maximum sonic weight. The third characteristic, rhythmic impact, results from the interplay of weight and slow tempo. For Odeholm, impact is achieved when ‘certain frequencies are hit in certain ways’, which requires perfect phase alignment across all sound components. This alignment produces a physical sensation he described as a ‘fist in your ear’. Achieving such impact involves advanced techniques, including frequency-specific phase alignment, precise editing and quantization, and drum sample reinforcement, increasing punch while maintaining clarity in low-end-heavy instruments.

Odeholm viewed vocals as secondary to the creation of heaviness, given that they neither benefit from nor contribute significantly to low-end impact. In some cases, he argued, vocals can even detract from this effect. Instead, he saw their importance in other areas, such as enhancing live performances, broadening general appeal, and supporting a band’s commercial success.

In Solitude

Odeholm’s signature tones and distinctive mixing approaches were a prominent theme throughout his interview, where he elaborated on his understanding of heaviness and his mix of ‘In Solitude’. Among the eight producers, Odeholm stood out as one of the most unconventional and original, with a style closely aligned with contemporary extreme metal genres like deathcore.

Odeholm’s mixing workflow is based on a meticulously designed template that features preconfigured routing and extensive use of tone-matching EQs to craft his sonic signature. Interestingly, he shapes the sound of individual instruments almost entirely out of context, diverging from traditional engineering best practices. His goal is to refine tones to his personal preference without compromise, though he acknowledged the inevitable trade-offs required to accommodate the limited frequency space in a mix. A hallmark of his approach is the heavy use of saturation, overdrive, and distortion to shape tone and dynamic waveshape, rather than relying predominantly on compression. This method results in a thick, dense, loud, and full wall of sound that remains clear, impactful, and heavy.

Odeholm’s drum processing prominently featured sample enhancement and replacement. For the kick, he retained the acoustic track to preserve its

dynamics but layered it with a one-shot sample for consistent low end and volume. The high-frequency variation of the acoustic kick was maintained for a somewhat natural texture. To achieve his intended processed sound, Odeholm employed multiple instances of tone-matching EQs and multi-effects processors. All other instruments, including the bass, guitars, orchestration, vocals, and additional drum components, were side-chained to the kick to ensure its consistent presence. However, to avoid a pumping effect, he limited the sidechain processing to ducking only the low-end portions of the other instruments.

The snare was even more heavily processed, with Odeholm replacing the acoustic drum entirely with a combination of direct and ambient samples to achieve a more hard-hitting tone. He applied substantial distortion to enhance the body and thickness while reducing transients yet preserving the attack. Tape saturation was used to further refine the attack characteristics and create a processed aesthetic. The toms were a hybrid of acoustic recordings and samples, blending the natural timbre of the recorded toms with the hyper-processed, transient-rich tone of the samples.

Odeholm sculpted the overheads using static EQ to remove undesirable qualities, such as snare honk, while emphasizing high-end energy. Dynamic EQ provided a more balanced tonal consistency. Distortion added thickness and complexity to the high end, with Odeholm highlighting its role in achieving cohesion, particularly when combined with EQ adjustments. The room tracks were tailored to focus on the kick and snare, processed with tone-matching EQ and heavy compression to enhance sustain.

His drum buss processing is particularly noteworthy, with three separate busses receiving varying degrees of signal from all the drum shells. The first buss delivered the dry signal, the second controlled ‘attack’ qualities through compression and limiting, and the third emphasized sustain with distorted mid-range tones. Odeholm also automated various instrument and drum busses to accentuate performance highlights and amplify the impact of downbeats at the beginning of certain sections, enhancing the overall dynamism and intensity of the mix.

In line with Odeholm’s distinctive system, the bass tone was crafted entirely from the DI signal. The DI track was gated and tone-matched, scooped to enhance low-end presence and highlight the higher-frequency string sound, before being routed to three separate busses: sub-bass, grit, and stereo. Unconventionally, Odeholm applied distortion to the bass’s low end rather than the mid- or high end and spread the bass across the stereo field for greater width and to ensure audibility and integration with the guitars. The sub-bass channel was fully distorted and band-pass-filtered around 80 Hz, isolating it from the two higher-frequency bass busses. For the ‘grit’ channel, the mids were attenuated before heavy distortion was applied. The signal was then routed through the same amplifier cabinet as the guitars to create a cohesive sonic unit

between the bass and guitar. Multiband compression was used to even out tonal inconsistencies across different pitches. The third buss, 'stereo' width, duplicated the 'grit' channel but used a stereo cabinet to impart a sense of space, blending the bass more closely with the guitars. All three channels were processed with a final tone-matching EQ at the buss level, and the low end was dynamically ducked via side-chaining from the kick drum. Odeholm followed his established low-end hierarchy, where the kick, bass, and guitars form the foundation of a heavy, contemporary metal mix.

The guitar tone was sculpted from scratch using amplifier simulation and extensive processing. Odeholm was the only producer to use three guitar tracks: left, right, and centre. To achieve the tightness associated with overdrive pedals without sacrificing low-end weight, he applied a boosting pedal before the amplifier but at only 40% intensity. EQ adjustments focused on boosting the low and high ends, while multiband compression was used to tame harshness and control bloom during palm-muted sections. Compression added attack to percussive, palm-muted riffs, and tone-matching ensured the guitars adhered to Odeholm's sonic signature. Stereo widening and tape saturation were applied as final touches, reducing harshness and adding size to the overall tone.

Consistent with Odeholm's philosophy that vocals play a secondary role in extreme metal, the vocal processing followed a more conventional approach. De-essing and EQ were used to remove harshness and resonances, while broadband compression maintained consistent levels, and multiband compression ensured an even tonal balance. Delay and reverb were band-pass-filtered between 500 Hz and 3 kHz to limit occupied space. A dynamic vocal rider kept the vocals audible above the mix without overpowering it. Orchestration processing was similarly straightforward, primarily attenuating frequencies to create space for the more important bass and guitars.

A key element of Odeholm's approach was the implementation of a phase interaction mixer on all instruments to maximize low-end impact. This processor enabled dynamic phase alignment, ensuring that the low end responded optimally to each note and riff, a technique Odeholm deemed central to his mixing methodology.

Odeholm's mastering chain was as innovative as his mixing techniques. It consisted of separate busses summed into a final stereo buss. The first buss, designated for vocals and synthesizers/orchestration, remained unprocessed. The second buss, encompassing all instruments and post-production elements, underwent significant 'destruction' through heavy compression and distortion. This radical processing, combined with tape saturation, enhanced cohesion, brightness, loudness, and low-end presence, particularly affecting the kick drum. These busses were then summed into the stereo buss, where tone-matching EQ provided additional refinement before final limiting for

loudness, ensuring the mix retained its clarity, punch, and distinct sonic weight.

7.2 Conceptual Interview on Heaviness

HiMMP

What are your takes on heaviness? And do you feel it's restricted to the metal genre?

Buster Odeholm

It's not restricted to the metal genre, for sure. There are a lot of other genres that are heavy, but for me, it has a lot to do with the frequency spectrum and the frequencies that the music produces, and maybe deeper bass that is louder than a rock song or a blues song or whatever, that's not heavy in comparison. So, the production has a lot to do with it, for me at least.

HiMMP

And there are obviously different forms that heaviness can take. Different performance speeds are huge; we might go back to Black Sabbath all the way through to Lorna Shore. And then levels of down-tuning, obviously, with Humanity's Last Breath being significantly down-tuned. What are your observations about what you, as a listener, perceive as really heavy?

Buster Odeholm

I think it's the combination of groove or rhythm. It is not necessarily groove, but the rhythm in combination with the tempo and, like I said, the frequencies that the music is producing. For me, at least, there are some frequencies and certain instruments that are not heavy compared to other frequencies. It's super nerdy for me. But that's the only way I can describe it. There's the impact of the music, hitting certain frequencies in a certain way, that makes stuff heavy for me.

HiMMP

And over time, as metal has existed as a genre, how do you feel that that heaviness has changed, factoring in technology and performance changes?

Buster Odeholm

It's changed a lot because now you hinge more on production than the music. Sometimes, that can hinder music, but sometimes, if you write music with that type of production and this super detailed and super compressed sound, you can get new, unique forms of music. Instead of making your not-so-heavy riff sound heavier with the production, you can actually use the production

to go even further. And that's what we see now with a lot of bands. And that's what I try to do as well.

HiMMP

As far as taking heaviness further, where do you think it can go from here? Can heaviness continue to progress?

Buster Odeholm

The thing for me that is lacking right now is the physical feel of maybe, like, when you go to a concert, there's a physical feel of the music, like feeling it actually hitting your chest and feeling the impact of the sound. Because it's actually an impact that's happening in the real world. If you could somehow transfer that to music, that's the next level, as far as I'm concerned.

HiMMP

And in what form would it be? Because there are those jackets you can wear that give you tactile transduction.

Buster Odeholm

Maybe that could be, but that still has to be combined with the actual production, or the actual mix has to convey that sense of impact. And you can only go so far with sounds and a stereo field. You need that tactile kind of real-world feeling of being at the place or whatever.

HiMMP

Do you think production can deliver that?

Buster Odeholm

I hope so or, at least, we can come closer than we are now. Maybe that's the right way to say it.

HiMMP

And do you see metal music developing without electric guitars?

Buster Odeholm

I feel like electronic genres, maybe dubstep or whatever; you can say that that is metal without guitars already. But, for some reason, I still need that band context because I like that. And that's what I'm used to. And that's what you compare it to all the time because you're used to hearing a band a certain way, like, maybe a rock band sounding a certain way. But then you take those same instruments and go as far as you can with metal, and you compare it to a down-tuned guitar. It's not going to be down-tuned unless

there's an up-tuned band or whatever. There has to be a difference between up-tuned and down-tuned.

HiMMP

Yeah, sort of context. Do you think it can go any lower tuned, or do you think it can go any faster?

Buster Odeholm

I feel what's more relevant . . . The reason you're tuning down is because you want to produce lower frequencies. And there might be other ways to do that than actually tuning down. And that might be the next step, like that tuning down doesn't necessarily have to be the only way to generate these super low frequencies. That's my take.

HiMMP

When you listen to metal music, or you are exposed to it either from a production or recording perspective, what are the bands and the genres and the styles that you find really exciting compared to metal music that's more cathartic and make you respond to differently emotionally?

Buster Odeholm

I feel like the new . . . I'm just saying that because I'm part of it. But at the same time, I'm part of it because I love it. Like all the 'thall'-type bands, just like this new wave of down-tuned technical music, I feel like they're combining the right elements. They have clean guitars with a lot of reverb that has that emotion to it. And, at the same time, you have the super down-tuned, super ignorant, almost atonal guitars on top of that. So, you have these two things working with and against each other. And that gives me the entire emotional palette I want to hear at the same time.

HiMMP

That's interesting; that's something we'll come back to because I think, from listening to your production work, the depth dimension is very important to you, certainly listening to Humanity's Last Breath. And there's a lot of reverb and long reverbs on the guitars that give that that reels. Have you listened much to Sleep Token?

Buster Odeholm

I haven't. They're one of the newer bands. It is hard to get into newer music, and those guys are more like pop. I come from death metal, and I like the more extreme stuff. When you start making these pop choruses and stuff, I lose interest really fast. Because that's not why I do . . . I do metal because, I'm not opposed to pop, but it's kind of a rebellion somehow, like you've

grown up listening to conventional music all your life. And then you hear metal, and metal is like ‘aaah’ to all the other music. So, I feel that way in some sense. I want to create extreme stuff.

HiMMP

So, for you, heaviness also has to do with nihilism, rebellion, and darkness.

Buster Odeholm

Yeah, I like music in general that has that vibe.

HiMMP

Fascinating. When you are listening to metal music, or when you’re mixing metal music, what do you feel are the foundational components that deliver heaviness to the listener?

Buster Odeholm

In the genre I’m operating in, most of the time, I feel like impact is the one. I actually named my studio Impact. I had to change it. But Impact Studios, yeah, impact is for me. And that’s a very specific sort of impact, where everything is in phase with each other, and nothing is taking away from the other instrument, that everything is just like getting that fist in your ear, basically, from everything just impacting at the same time.

HiMMP

But with everything impacting at the same time, with much faster subdivisions or much slower subdivisions, where you got so much more space for the bass frequencies, what are your observations there about how it impacts how we perceive heaviness?

Buster Odeholm

I feel the slower stuff gives . . . I mean, impact and heaviness have a lot to do with the low end. If you’re doing slower music, it’ll have more time for you to actually hear those low frequencies, and they can ring and stuff. If you play really fast, I feel like you’re really losing heaviness. But it’s not necessarily bad. It’s just that this is not heavier; it’s just faster. And if you want to be faster, that’s fine. But you have to control the low end to be able to have these really fast parts, of course.

But if you’re talking about being as heavy as possible, then slower is definitely the way to go. But it’s just a mix engineer having to do that to make the mix work. Because it has to work when it’s super . . . It can’t fall apart; all of a sudden, they’re stuck to playing fast. So, it has to be that way. There are ways, of course, to maintain low frequencies and faster tempos, but I don’t feel . . . It’s still going to be heavier if you’re just doing it slower.

HiMMP

It's interesting, isn't it? Because when you start thinking, there's energy that can then create heaviness as well, and there's a huge amount of energy going on. But then you got less of those low frequencies we perceive with heaviness. And you listen to Behemoth's *Evangelion* (2009) album. There is so little low-frequency content; there's very little below 90 Hz. It's really fascinating.

And with the faster performances, what are your thoughts and observations on the way that technology is informing all of that—you know, the Beat Detective, quantization, edits—and arguably creating performances that you could consider as hyperreal, or it's a lot tighter than in reality? What are your thoughts about that whole debate?

Buster Odeholm

I feel like it's always up to the band and the engineer, and no one is forcing anyone to do anything. I've come this far because I deliver a product that people want. And that product happened to have this super tightly edited sound and these hyper-realistic things in the mix. And that's what people expect from me. And that's also what I want to hear. That has to do with me growing up listening to bands that have a lot of triggered drums, like Morbid Angel and Dimmu Borgir. That's where I'm coming from, and that's what I want to hear.

But at the same time, if you want to do a more organic, like loose-tempo type song, I can do that as well. There just has to be a conversation about it. But what I hear from bands is never like, 'Can we make this less tight?'. Because that also has to do with getting that impact I'm talking about; then, all the transients have to be at the same point. The guitar, bass, and kick drum have to hit exactly at the same time and be in phase, which is like samples of timing difference. So, to get that impact, it basically has to be edited.

HiMMP

Moving on from that challenge about impact and aligning the transients so you get that impact. What would you say are the main challenges when mixing metal music, be it fast, slow, or down-tuned? Mixing metal music compared to mixing other genres, what are the central challenges that you need to overcome?

Buster Odeholm

Well, I have been mixing metal most of the time. I don't know if I have a big reference for other genres that way. I don't really know, maybe, but I feel like mixing metal is one of the most complex, if not the most complex, genres because of the aggressiveness and the loudness and fitting of all these elements; there are always so many elements at the same time. Like, a pop song is constructed in a way where you don't really have to mix because they're

producing the tracks so that the vocal is front and centre, and all the production is going to be around that. In metal, it's like everything at the same time, all the time. So, that's the main challenge. It is hard to get this clarity and all the elements heard.

HiMMP

Would you say that the central challenge with all of those textures and those dense tonalities and performances is getting the clarity?

Buster Odeholm

Yeah, getting everything heard, all elements heard. That's basically it.

HiMMP

Outside of drums, bass, guitar, and vocals, what textures have you worked with that significantly enhance our perception of heaviness?

Buster Odeholm

It may be sub-frequency sub-effects. That's the low end—maybe sub-drops or effects that can really add that impact to maybe a start of a song or a start and a breakdown or whatever, where you can get that extra low-end oomph into a part. That really helps with the heaviness.

HiMMP

More on the technology side of things, I'm aware that you like employing plugins like Sound Radix's AutoAlign to get that phase coherence. Where do you feel technology can go to solve some of these challenges that we're talking about—that can make music heavier, clearer, denser, or more cohesive?

Buster Odeholm

I feel like there's a way where you can probably have tracks listen to each other. Let's say the guitars are listening to the bass, drums, and vocals, and doing active EQ moves to let through some other frequencies that are clashing. That could be a thing that DAWs could add as a feature that maybe could be called 'separation'. And if you click 'separation', the tracks will be listening to each other and make changes, depending on what . . . Maybe the kick drum hits extra hard there, and then the bass frequencies will duck fast, and they can listen to each other. In that way, everything will make space for each other. And at the same time, you can get more clarity.

HiMMP

And from that perspective, what are your thoughts on the way AI is able to deliver those qualities and moving forwards?

Buster Odeholm

I don't have a lot of experience with AI mixing at all. I feel like people are interested in the human taste. The reason I am where I am is basically because of my taste. And the rest is like me just trying to get to a place where I can imply or get my taste on the music. I'm just using all these techniques to make sure the music is to my taste. That's the end goal. And I feel without taste, it's hard to get anything unique that can resonate with another human. But at the same time, I don't know what's going to happen with AI. It's scary, of course. But I mean, what can you do?

HiMMP

Absolutely. We talked about your love of death metal music, and Dimmu Borgir and Morbid Angel. With some of the bands, and particularly Scandinavian bands, that have rejected what both of us consider high production standards and gone towards lo-fi productions . . . And as you know, Dark-throne is just one example. Do you think those productions can be considered as heavy as high-fidelity productions?

Buster Odeholm

I don't know if it's heavy, but it's certainly good. I listen to black metal; that's where the production is bad. But it's not bad. It's just totally aligned with the feeling they're trying to convey. And I really like that stuff. I like all sorts of stuff that's not high production. I listen to hip-hop, where I can hear that the palate is like, 'We're not going to try hard to make this super perfect production'. Because that has a certain feeling to it. It might sound more like they don't have any experience in production. But the feeling they're creating is what it's supposed to sound like, and it's all about the feeling. So, I'm good at creating that heavy feeling, the really good production, but there are other feelings you can create that might not necessarily be heavy, but it's still good, like black metal.

HiMMP

Yeah. And so, it's like texture and atmosphere.

Buster Odeholm

Atmosphere, I would say yeah.

HiMMP

Interesting. And what album have you produced that you feel presented the most challenges? How did it turn out production standard-wise?

Buster Odeholm

Probably some of the Humanity's Last Breath stuff, like the latest HLB record, *Ashen* (2023). I was just trying to cram in as much low end as possible on

all of the instruments, which is super hard when it's so down-tuned, and all the instruments are fighting amongst each other in the same frequency range, which is hard to get that clarity that we talked about. So that was super hard. And on top of that, you have sub-heavy synths and other types of production that are also interfering.

So, I had to come up with a bunch of techniques to make a low-end hierarchy somehow. The kick is going to be number one. And maybe bass is number two, guitars number three, and blah, blah, blah. It's like there's a hierarchy to that, where all of the low-end instruments interact in a way to get that clarity, but it was really hard to make that happen for sure.

HiMMP

When you say a hierarchy, did you have a hierarchy of frequency ranges within the sort like sub-120 Hz region where you were trying to put them into different brackets?

Buster Odeholm

No, my way of working is that I make the instrument sound the way I want it by itself. And then, when I combine everything, I hear what problems might occur. Then, I try to work around that and try to maintain the tone or the drum sound or whatever I made that I thought sounded good by itself. I try to maintain that as much as possible so as not to compromise. But you have to compromise, of course, because when you're introducing all the other instruments, there are going to be clashes, and it's going to be hard to make it all work.

HiMMP

And conversely, albums that presented the least challenges—how did they turn out?

Buster Odeholm

I feel like the least challenging is when the instruments are tuned regularly because they're designed to occupy a certain frequency range, and everything just falls into place automatically when it's not down-tuned. So, that's the easier stuff; when it's just maybe like drop C and up, everything just falls into place because it's already occupying the frequency ranges that it's meant to occupy. It's just easier.

HiMMP

That's interesting. Do you feel that metal albums can be overproduced?

Buster Odeholm

Yeah, all of mine are. I mean, it is what it is, like, it's just a sound. And people want that sound, which is great for me because that's the sound I'm doing.

I mean, if you like the amount of detail I put into all the instruments, and I maximize every detail on every level, that is the definition of overproducing, I think. But I've said this before: I'm over the sound of a band—a guitar, bass, drums, vocals—that's boring. I want to maximize everything to make it sound new, make it sound different, or make it compete with maybe electronic styles that have that full frequency range. They sound huge, and I want the band sound to be that huge as well.

HiMMP

And along the way to answering that, what would you say are the heaviest albums you've produced and the heaviest albums you've not produced?

Buster Odeholm

I mean, me and my buddy Calle from the Vildhjarta, we always say that the heaviest album ever is *Everywhere at the End of Time* (2016) by The Caretaker, but that is a six-and-a-half-hour art project, which is like deteriorating music that is meant to portray dementia; it does it in such a horrible and real way that you really feel it feel bad. But that's heavy, emotionally. It really affects you. After you listen to it, you really get that sense of losing your contact with the world. And that's so heavy, I don't want to listen to it. I don't want to hear it because I don't feel good when I listen to it.

HiMMP

Interesting. Emotionally heavy, it's kind of like subject matter. Would you pick up on those emotions if you didn't know what the context was?

Buster Odeholm

I don't know. I would probably get some sort of eerie feeling from it. But reading about it first, of course, puts it in that context. But it also helps you appreciate it fully.

The heaviest album I've worked on—that's also hard. I mean, since I'm in a band that's trying to be as heavy as possible. And that's like, I put everything into making HLB as heavy as possible. That just has to be it because that's the one thing I'm trying to do with HLB. So, it has to be that.

HiMMP

Moving towards mixing but staying with the broad concepts. You were talking before about getting the instruments—the drums, the bass, the guitars—to sound as you want them to in isolation, in solo, and then taking it into the context of the mix to see what the trade-offs are. What do you feel are the trade-offs and limitations when you're looking at that? In other words, with greater guitar density, the drums are less likely to punch through. What are the sort of trade-offs that you're looking at?

Buster Odeholm

It's always the low end. It's like the guitarist takes over the kick, or the bass takes over the kick. It's always that. That's why kick has to be number one. And kick always has to be because that's what's driving the rhythm. And that's what's moving the track forward. And having that impact because guitars and bass don't have that impact—they have long, droning notes more than actual, like, the impact of transients—so that they just have to be like a carpet of low end that the kick punches through. So, getting the kick to punch through all of that—guitars and bass—is the hardest thing, for sure.

HiMMP

Fascinating. And moving to the vocals. How does that impact the heavy aesthetic? Before, you were talking about down-tuning, which is fascinating, to have down-tuning, you've got to have a 440 tuning. So, with vocals—if we've got very heavy throat vocals, very aggressive, either death metal or black metal screams—how is heaviness impacted by variation? Or different contexts with vocals?

Buster Odeholm

Yeah, it's not for me. I'm not a huge vocal guy, even though I make music that has vocals on it. For me, it's more like, 'Okay, how are we going to put vocals on this?' Trying to weave it in in a way that it doesn't disrupt the heaviness. That's more my view of it. I mean, of course, maybe a heavier part or a breakdown. If you do a scream on top of that, they can come across more heavy. But I personally don't necessarily think so.

But, I mean, we are a band, we have a vocalist, and we want to play live and have a vocalist. That's the reason we put vocals on the music, but with the technical nature of our music and the dense production, it's not easy to put vocals on top of everything. And it's more like a challenge to not make it less heavy. That's more of a challenge for me with vocals.

HiMMP

Interesting. From watching you do your mix sessions previously, I know you're regularly using saturation and analogue emulations. Do you have a typical approach with the mix? I know that you'll often use saturation on your kick and bass and on vocals, and obviously, parallel distortion sometimes. But would you have anything that you would consider a typical approach where you go, 'Alright, I want more distortion with the vocals to make it more cohesive with the guitars,' or is there anything you consider typical about your approach?

Buster Odeholm

It's like anything with mixing: when you listen to a sound, you hear what you want to do with it. So, this sound might need more high frequencies,

and it might need distortion, it might need compression. It's like anything in mixing; you listen to the sound and judge off of that. But, of course, since everything needs to fit in this huge production with all of these loud and full-range, frequency-wise instruments: if you have to fit something in there, you might have to compress and distort it to make it consistent enough to shine through the other instruments.

With any instrument, I can decide the frequency response I want as far as the profile of the sound. After that, all I'm doing is making sure that the frequency profile is maintained. And that is like slamming it with compression and distortion to maintain that, so I don't have that much dynamics in my mixes. But for a snare, for instance, I want the snare to have this amount of low end, this amount of mids, and this amount of highs, and I want it to stay that way through all the hits. And that's like—compression, and distortion helps me to get to that point.

HiMMP

Interesting. We've chatted a lot, and you've referenced impact, and these transients and the impact of the drums, and it all hitting together and being super tight, but a lot of your production approaches actually don't exactly go against that, but you often use drum samples that are made from the room mics, and that seems potentially more about sustain and ambience than transients. Are you looking for different qualities from different drum samples?

Buster Odeholm

Yeah, for sure. Some samples are meant to create a sense of space, like this drum is recorded in a room or space. And that, in the human brain, connects to where we're used to hearing room sound in anything; like now, when we're talking, we're used to hearing the sound bouncing off of the walls. And if it was just dry and nothing, you don't get that sense of space. And I feel like in heavy production, you need that sense of impact, the sense of size. And the sense of space adds to that size perspective. As you said, the long reverbs sound like you're in space, or a huge room, or like a mountain range that's echoing. All that creates that sense of space that the human mind connects to.

HiMMP

And when you've recorded your drums yourself, do you usually record clean hits from the track you could use for tracking?

Buster Odeholm

I could have done that for sure, and it would probably work. But for me, with a lot of what I record, I've already made the song fully with programmed drums. And I'm used to these programmed drums. I want the real drums to sound as close to that as possible, so I end up blending in the samples I used

for the demo and to make the meeting of two worlds. The consistency and heaviness of the samples I used for the demo, combined with the organic dynamics I get from the real drum performance, and I try to combine those.

HiMMP

Obviously, it will vary from project to project. But when we're talking about these different roles, you've got the punch and the transient attack, and then you've got the more ambience and the more sustain-based samples. Does that get reflected in how many different kick samples and snare samples you'll use?

Buster Odeholm

I feel like when I use a lot of samples, it is usually not the room sound or whatever. I usually use just one room sound, and I'm happy with that. I usually use multiple, maybe five or six, snare samples to get the impact and the transient the way I want it to sound. So, that's like using multiple samples, which usually has to do more with the impact than the fast click, like the transient, to get that to impact in a way that I feel sounds good. The room sound I usually just set and forget.

HiMMP

And there's a balance between the snare samples and the acoustic snare. Do you have any balance preferences in the contribution from the samples collectively and the acoustic?

Buster Odeholm

I don't have a set rule; I just listen. Maybe I'll play a fast roll on snare, and all of a sudden, you can hear that robotic quality of the samples, and maybe I'll turn them down for that. And the real snare can often be too dynamic. It's really hard to play and have consistent good snare hits because a good snare hit is like millimetres. If you're a millimetre off, it can sound way different and bad. But maybe you kept the take because it sounded good when you did it. And then when you listen to the mix, it's like, 'Oh, that snare hit's totally off'. So, I don't want the bad snare hits to be audible. I blend in the samples enough to where that masks it. And you get that consistency I want, but at the same time, you get the dynamics and the different types of hits from the real snare, but you still get that impact.

HiMMP

And do you ever paste up the best hits from the acoustic snare?

Buster Odeholm

Sometimes, I go through the really bad ones and copy in a good one.

HiMMP

Fascinating. Do you have a given approach with your room samples and then the different samples that you use for different qualities? I mean, how many kick samples would you usually use?

Buster Odeholm

It's different, but I feel like I whittle it down to one or two, or one more dynamic, real-sounding kick sample or kick. And then, like a one-shot with just one perfect, fully mixed, really nice kick drum. And I blend those together to get the dynamics and the variation from the real one and the consistency. Usually, most of the low end will be a one-shot because that's super consistent. And your ear doesn't recognize the fakeness in low end. If the low end is super robotic, but the high end might be more dynamic and real, then you're still going to register it as a real drum or have enough dynamics to not react to like a super robotic one-shot.

HiMMP

But do you still keep a little bit of the acoustic kick in there?

Buster Odeholm

Yeah, of course. But I usually want to use the high end of the acoustic kick because that's where I want that variation of the high end. But I want the consistency of the low end from the one shot.

HiMMP

And then what's your approach, if you have one, of your aux sends to reverbs? We've got these room sound samples, and I've seen that you'll often send those to reverb as well. And then you have different feeds to a different reverb from your drum samples.

Buster Odeholm

Yeah, it's just to create a fake drum room, a perfect fake drum room, so all the kick close mic and the snare close mic and toms and rooms and blah, blah, blah. I send those to the reverb but in a different mix. I might send more of the room to the reverbs. And all of that combines into a little drum mix of its own, which places the drums in the same space instead of having a room sample that's recorded in that studio, and that room sample is recorded in that studio. That makes everything cohesive; that's why I do that. No, just one reverb and just sending all this stuff there, but in a different mix than how it is going out to the master buss.

HiMMP

Got you. And then, will it be the snare acoustic with the samples onto a buss and then send it from the buss?

Buster Odeholm

Yeah, like you say, from the buss.

HiMMP

Okay. On a different note, about your involvement as a creative within the metal music industry. Obviously, with Humanity's Last Breath, you have that vision of the band and songwriting and putting the albums together. How do you see songwriting fitting into heaviness?

Buster Odeholm

Yeah, it's really, really important, of course. I mean, combining the production and the low tuning and all of it—if I would make like a Lorna Shore song with that type of production, it's not going to sound very good or very heavy. I definitely tailor my writing to complement the production. That's why all my songs are like 90 to 100 bpm, so super slow to make everything breathe, so you can hear all the sense of space and size, and also using negative space a lot, like silence, to make the impact super hard. That's extremely important, like the silence part, especially in my riffs and production, and tailoring it so that everything gets its place. Maybe there's a riff where the kick comes in by itself, and after the kick hits, the riff and the bass come in. So, like the kind of trade-off, and yeah, I'm just trying to make it as effective as possible for the production.

HiMMP

Fascinating. Is it okay if we now move on to looking at your mix of 'In Solitude'?

Buster Odeholm

Of course.

7.3 Mix of 'In Solitude'

HiMMP

So, with your mix of 'In Solitude', when you initially got the multi-track, did you listen to all the sounds and performances first?

Buster Odeholm

Yeah, since these are real drums, it's really important to know what I'm doing because this song has both these faster parts and these slower parts, which is something you have to consider when you go into the mixing process.

HiMMP

And from that point there, did you import session templates like your master buss?

Buster Odeholm

I've been, for years, updating my template to give me a good starting point with most genres or most types of metal. So, I have a full routing going for drums, guitars, bass, and everything. And how I have it set up with my instrument buss is, I have my drums here, bass guitar—they go to my instruments buss here. And that, in turn, goes to my master buss. And then all the other stuff like leads and synths and vocals that are on top of the instruments, they go to a separate buss with nothing on it, that then goes to my master buss. That way, I can compress my instruments super hard together and distort them, and the other stuff is not touched. And that's going to be floating on top of the instruments, instead of being baked into the compression.

Drums*HiMMP*

Fascinating. And then, from there, did you initially start with polarity summing your drums? Or did you go straight in to select samples?

Buster Odeholm

I usually just listen to kick and snare first—probably kick first—and then come listening to how dynamic the playing is and how much I have to do to get a consistent kick sound. And in this case—in most cases, to be fair—I do go for something like this: Drum Leveller (Figure 7.1). And that's exactly

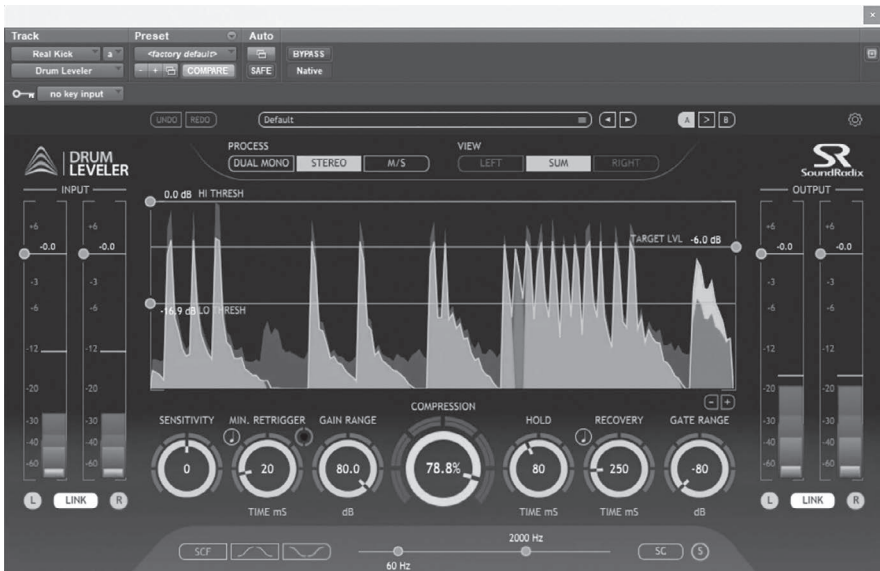


FIGURE 7.1 Achieving a more balanced volume on the acoustic kick track.

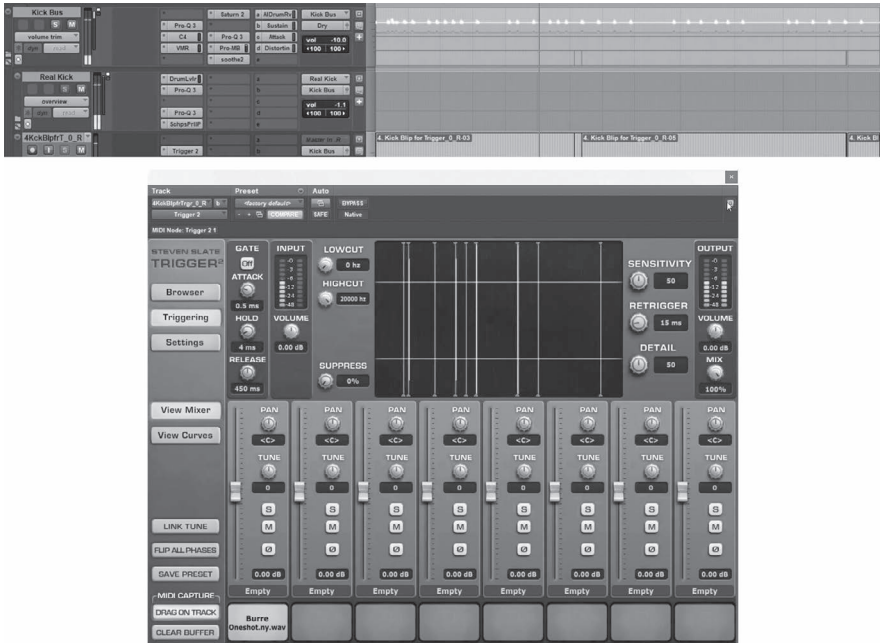


FIGURE 7.2 Top: automation on the kick buss; bottom: the only kick sample used.

what it's doing; it's eliminating some of the dynamics I don't want. And it's also making the kick a lot shorter. And it's removing some of the bleed from the cymbals so it won't interfere because I want the cymbals to come from the actual cymbal mics, not the kick mic, because it's not going to sound that good. So that's what I did.

All the real kicks go to the real kick here, which is a folder (Figure 7.2), so I can process them individually from my sample, which is here. So, the only sample I'm blending in is this one-shot. I'm usually using this just like my sample; I've been using that for years. And that's very consistent. It's always the same level, which is going to be blended with the more dynamic kick. I can show you what they sound like. This is the real kick. And here is the sample. So together. And it's really important that these are in phase with each other because if I flip the phase, all the bass disappears.

HiMMP

And on the individual, acoustic real kick source, are you using frequency bracketing or any particular approach on those different microphones?

Buster Odeholm

I don't think I did anything, actually; I just processed them together—all the real mics here (Figure 7.3). I could have EQ'd them separately, but I felt that

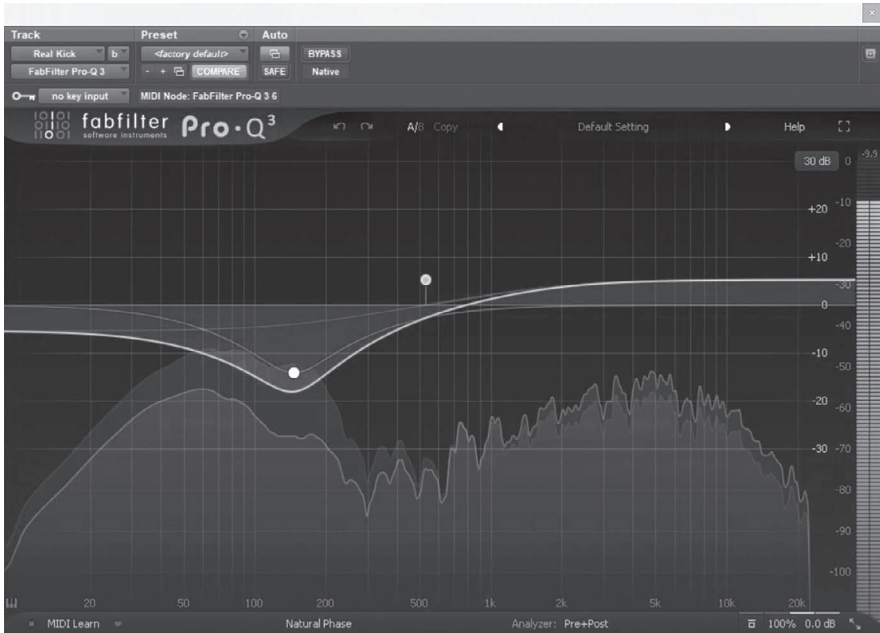


FIGURE 7.3 Attenuation of low-mid frequency on acoustic kick track to increase clarity.

I didn't have to. There's probably a lot of EQ going on, though. The kick is usually really low and heavy. And from the real kick, I would want more of the high end rather than the low end.

And this is definitely a tone-match. So, I am matching the frequencies to one of the kick sounds I like. I have my favourite kick sounds registered in this EQ plugin, so that I can tone-match and match the frequencies to anything I want and get that same type of sound, even though it's a completely different source. That's what I did there. And this is some compression. I would say this is like steroids for any drum (Figure 7.4). So, let's see what it does here. I like bringing that attack out and really making it sound processed, which is what I like.

HiMMP

Fantastic. And from an ambience perspective, the kick sample that you're using there is quite a dry sample, right? Are you sending any of those kick signals to reverb?

Buster Odeholm

Yeah, so all the channels here, again, are sent to the reverb, so we have a consistent room. As you can hear, it's pretty low on volume, but it's good



FIGURE 7.4 Sonic enhancer for the acoustic kick track, adding thickness and air.

being blended in with the real room that we have here. And that has a fair amount of kick as well. So, you're getting the length from the rooms and the reverb combined.

HiMMP

Fantastic. And then moving on to your snare drum.

Buster Odeholm

So, this I did blend with a more dynamic sample. I did some processing on the snare that is pretty heavy on my computer, so I had to bounce it



FIGURE 7.5 Only one snare sample, which makes the entire snare sound.

down, which removes some of the bleed. Here's what it sounds like. Okay, I might have swapped out the snare entirely, I'm realizing now; it's hard to remember exactly why I do everything. But I think I wanted a more hard-hitting snare, so I just swapped it out. This is a sample entirely, the snare (Figure 7.5).

We have the bottom mic and the overhead mic to get some stereo width. And this is a one-shot that I like to use. So, I blend that in with the more dynamic sample. The overhead is the sample as well. But it's just like the overhead mics of that sample. I probably used the real snare at first, and I probably realized I didn't think it worked for what I was looking for. So, I swapped that out, but I'm still getting that real feel and that energy from the cymbal mics and the room mics, where you also hear the real snare; it's just that the close mic wasn't consistent enough for me, personally.

HiMMP

And then you're taking all your snares to the snare buss. Is that where the heavy lifting is, as far as all your processing?

Buster Odeholm

Yeah, there are a couple of EQ moves I'm doing that are quite extreme, but that's on the separate channels, and they all get summed to this, which has even more EQ. It also has that Scheps thing I talked about, like steroids for any snare; I can show you what it does here. It just adds that attack.

Then, we have some distortion to make it more processed (Figure 7.6). I'm just adding these plugins when I feel that I need to beef it up. So, the reason I would add distortion here is probably because the snare sounded a bit thin; maybe it had too much transient. I wanted to keep the attack in the transient, but I still wanted a more even and thicker attack sound. And that's what I get from the distortion.

Even more EQ (Figure 7.7), here, this is done in stages. So that's why this is a new insert of an EQ: because I might do this for three hours while I did this, maybe in hour one. So, rather than putting that into the same EQ, I would do a new one because that way, I just knew this is what I did later, and then I can remove it easily if it wasn't the right move for this.

HiMMP

Sure, and then the rest of the processing on the buss.

Buster Odeholm

Then we have even more distortion (Figure 7.8). But this is not really distorting that much. It does add a really cool low end that I like, but it's very



FIGURE 7.6 Tube saturation on the snare buss for a thicker tone.

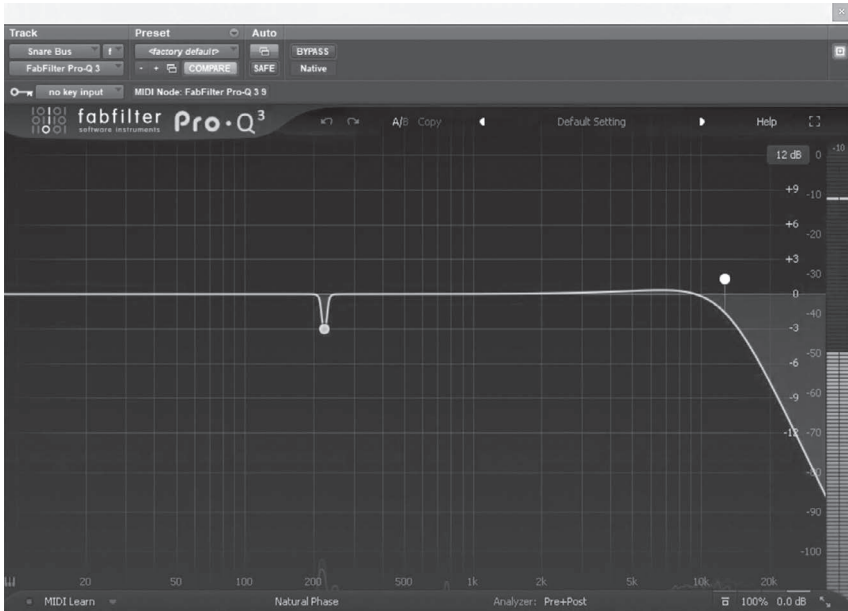


FIGURE 7.7 EQ attenuating low-mid resonance and top end.

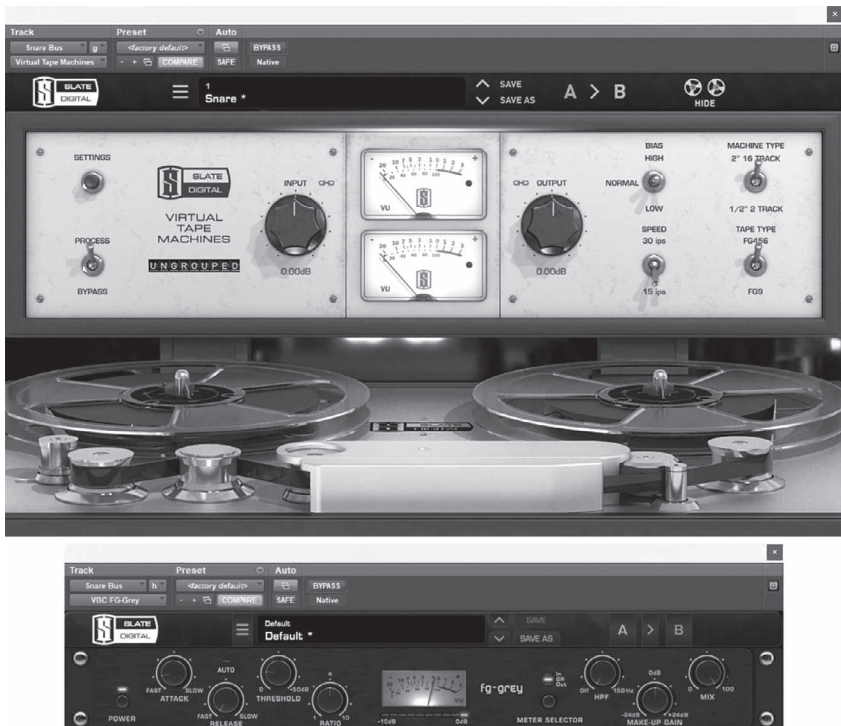


FIGURE 7.8 Top: tape saturation for warmth; bottom: compression for shaping the snare envelope.

subtle, and it shaves off that super high end over, like, 10 kHz. That's not really something I like, and this shaves off even more transient; it's all about generating a lot of attack and transient and then taming it with the processing, which makes a certain sound—like a really processed sound—but I do enjoy the attack.

And then we have Soothe, which deals with any harsh frequencies that might hurt your ear a little bit. So, I finish off with that to make sure I'm good in that respect.

HiMMP

Fantastic. And are there other processes to the right of Soothe?

Buster Odeholm

These are the parallel busses. I'm going to show you what it sounds like dry without the parallel buss. Then we have this, which is called sustain because that is what it's adding; it's adding sustain. And that means a short attack and a fast release.

HiMMP

To really bring up the sustain. You got some saturation on there as well.

Buster Odeholm

Yeah, I don't usually do this. But apparently, I did that here. So that's distortion (Figure 7.9). And this cluster here, it's not doing a lot from what I'm seeing. It's mostly snare here. This is like you mix, and you mix, and the compression changes depending on the levels you have. So, it's not actually that compressed.

And here we have the Attack [buss]. I'm removing some low end on the snare because the distortion reacts a lot to the low end of the snare, which can sound a bit weird. Then we go to this compressor, which is slamming it, and then just the limiter to tighten it a little bit (Figure 7.10).

Then we have a distortion (Figure 7.11). So, what I want to do is I want to focus on the mid-range. I'm removing some lows, really cranking the distortion here.

And then, after the distortion, removing some lows, and removing that—these highs are not good if you listen to them (Figure 7.12). They're a bit weird, so I'm removing them to focus the distortion on more of the low frequencies and mid frequencies. And I'm blending that into the dry here. That's the dry, and these are all the parallel busses at the same time.

HiMMP

That's interesting. How are you using the dry buss there? Is it just literally another version of the original send source that you're blending along?



FIGURE 7.9 Tape saturation (top) and compression (bottom) on ‘Sustain’ buss, gluing and compressing drum shells.

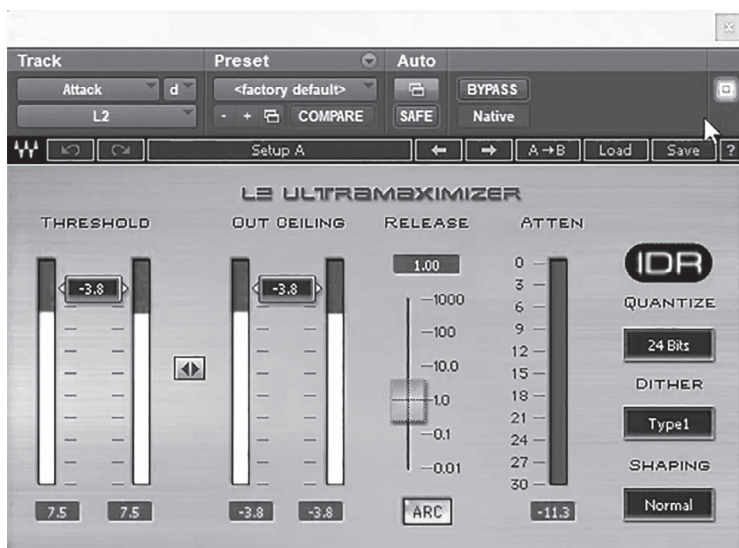


FIGURE 7.10 Limiting on 'Attack' buss controlling peaks.



FIGURE 7.11 Tape saturation on 'Distortion' buss enhancing mid-range.

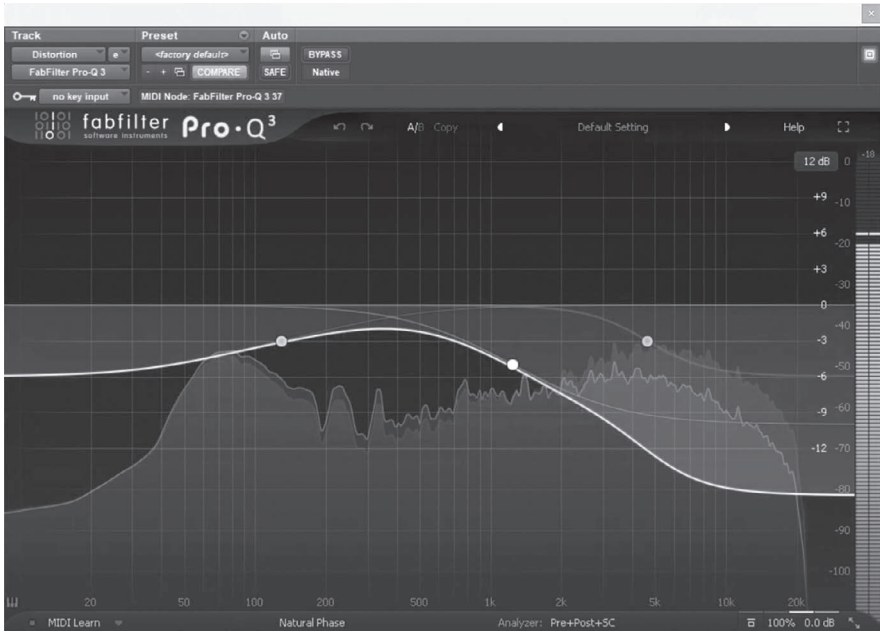


FIGURE 7.12 EQ attenuating bottom and top end to further emphasize the mid-range.

Buster Odeholm

Yeah, so these are parallel and blended with this. So, these are not parallel on the channel. These are 100% mix on the channel, and I'm blending these in with this that has nothing on it.

HiMMP

And is it routed to that, or is that dry channel a parallel buss or a direct?

Buster Odeholm

All the shells and stuff are being sent to all these busses in different amounts.

HiMMP

That's interesting. And then you're sending kick buss and snare buss, and then what else is going to the parallels?

Buster Odeholm

I'm sending the toms. We have both samples and real toms. Some of these fills are played a bit on the soft side. I have super fake-sounding samples blended with the real stuff. So, the fake toms sound like this; it's super transient-heavy. But if you blend in with the real, you get both.

HiMMP

Beautiful. Are those tom samples some of your own?

Buster Odeholm

I don't know. I use so many samples; I probably just tried something. I have extreme amounts of samples. So, I just picked something that sounds cool. I'm not really sure what those are, to be honest. But I blended those with the real toms (Figure 7.13). The real toms also have some stuff to remove as much bleed as possible. It's really hard when you play fills like he's doing where he's hitting the splash cymbal and the ride after he's hitting the toms, which means that the splash cymbal is inevitably going to leak into the tom mic here. I can play with and without this set-up. So, listen to how much cymbals are coming through now. There's a lot of cymbals.

This is quite a weird, complex set-up. This is all in parallel. So, this is a VST loader that I can use to load plugins. And this is at 50%. This is removing all the attack as much as possible with this Spiff (Figure 7.14). It is like

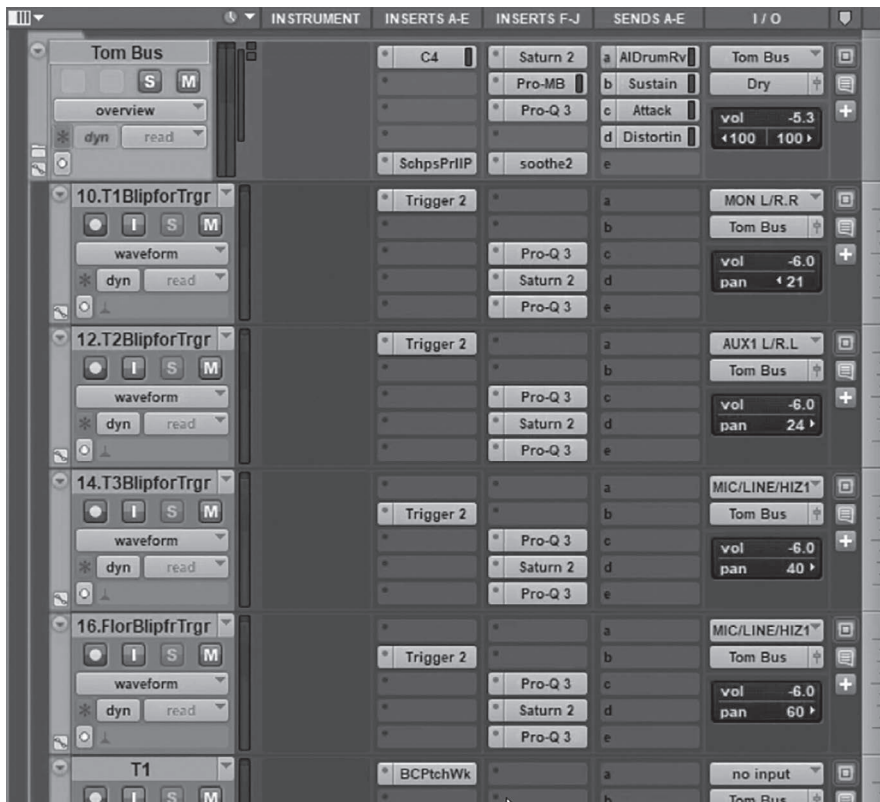


FIGURE 7.13 Processing of toms and tom buss.

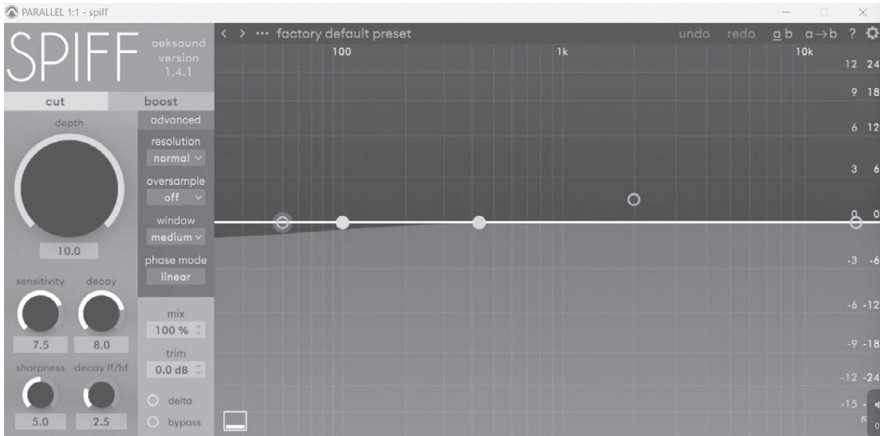


FIGURE 7.14 Spiff transient designer reducing cymbal spill on tom tracks.

a transient designer; it both boosts and cuts depending on what you want. So, I'm actually removing all of the transients, which leaves you with only the sustain. And then I filter here, which leaves you with only cymbals. Then I phase-flip that and put it at 50%, which leaves the high end only being transients. So, the other way around, it's quite a weird thing, but it works great.

HiMMP

Fantastic. What a great approach.

Buster Odeholm

I don't see people use that trick. There's a lot of tricks for that nowadays. But it really works. It works on snare as well, which I probably did on this snare. But then I gave up on it.

HiMMP

I've seen people crossfade; they'll apply a low-pass filter, and then they'll crossfade it. So, as the hit decays, they'll crossfade into the low-pass filter that keeps the sustain of the lows without the spill.

Buster Odeholm

I've done that as well. It's a great trick, too. This is just faster, and it works great, especially if you're already going to blend in samples. And it's like, I might as well use that and combine that with the sample, then you get a great tom sound.

HiMMP

And it looks like you're taking your sends to verb from the tom sum.

Buster Odeholm

Yeah, so we have all these folders. The same with the snare and the kick. So, these are the plugins, and these are the sends. Here, you have the reverb. And we have the sustain, attack, distortion. All of these have different amounts. I find a place where everything is playing, and then I listen to all the busses by themselves.

And it's also like a compression hierarchy. If you have a fill, you don't want the kick to duck everything. But you don't want the snare to duck everything. So, you have to balance it in the compression while you're listening to the fill. And that's how I balance my parallel busses for sure. That's the same for all of these. I don't send the cymbals to my parallel busses, or my reverbs. I do send the rooms there. And I also send the rooms to sustain and attack but not the distortion. So that's just me trying stuff. Does it sound good? Yes or no. And that's how I decided that.

HiMMP

Interestingly, it doesn't sound like you're hitting your rooms too hard with compression at all. You're not going too aggressive there.

Buster Odeholm

I probably did a lot on . . . I committed these. Let's see what I did. So, what I did here is basically, with my kick and snare, I have: EQ is snare one EQ, snare two EQ, like EQs of snares that I really was happy with. Or kicks or whatever. The same goes for the room. So, I have my favourite EQs for rooms. That's probably what I did here. So, the first plugin is just removing some harshness. Soothe, it's called. I used that for the snare as well. I'm using that for all of them, so toms, kicks, snare, cymbals, and rooms.

That's what's first, and then I have my tone-match. But to get that sustain from the rooms that you usually use compression for, if you use a transient designer and you increase the sustain that way, you won't get the compression effects where it brings up the cymbals. So, that's kind of why I did that. If you listen, they have the sustain, but they're not compressed that much. But the cymbals are nice and contained. If you listen, it's mostly kick and snare, and that's what we want. At least that's what I want from the rooms. So that's how I combined them.

And I probably EQ them the same to be able to pan them left and right. As you can see here, this is right, and this is left. But these are two different mics in two different positions. But I want the rooms to be stereo and to be a whole thing instead of three mono [tracks], I would like it to be stereo. That's also why I matched the frequencies, so it's a whole stereo package of rooms. And then I did some EQ after all this processing as well.

HiMMP

Awesome. And with all the drums, you used just the one reverb?

Buster Odeholm

Yeah. So that's the reverb (Figure 7.15).

But there's also other processing. I'm smashing this first to have all the instruments be the same volume going into the reverb, then EQ, and then some dynamic EQ after that (Figure 7.16). It's not really necessary, to be honest, but the hard hits will be more than that. Okay, it's not that much, but usually I go like this, probably. But for this, I went for that.

HiMMP

Quite a long reverb time. Is that what you generally go with, a nice long reverb wash?

Buster Odeholm

Yeah, having long room sounds or room samples might be a bit distracting sometimes; I just want this to have a little bit of that tail because it's not super loud if you listen to the drum mix, and I mute and unmute. But it has that tail at the end of the transients. It just gives it a bit more glue. And if there are maybe weird cuts or edits, this might smooth over that a little bit as well.

HiMMP

And quite a lot of automation with your drum processing.

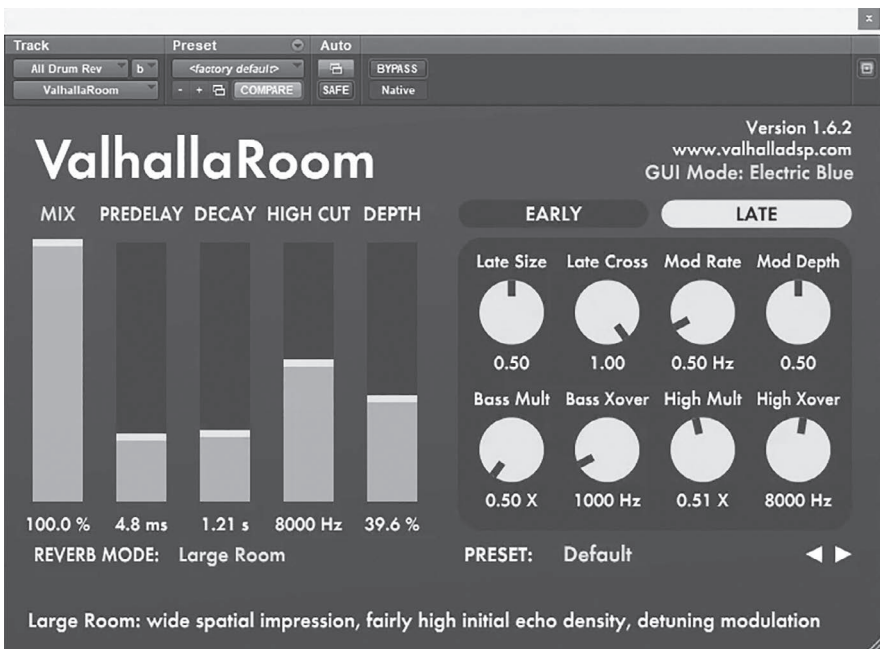


FIGURE 7.15 Only drum reverb on the mix.



FIGURE 7.16 Limiting and EQing reverb buss for balanced volume and improved clarity in the low mid-range.

Buster Odeholm

Yeah. Like I said, I want stuff to hit hard and impact. So, when a riff starts, or there are accents, or whatever it might be, I usually edit stuff to have a little push. As you see here, you have the kick buss; it's going to do a little ride. And the same with the cymbals here; you can see these three hits here. I just wanted to accent where it comes in. And I actually also have this aux crush here, so if you listen without these parts.

HiMMP

We were chatting earlier about how you'll sometimes paste up better hits with the real snare drum; is this something that you needed to do in this session?

Buster Odeholm

This is all fake. This is all MIDI snare; that's what I went for. It's hard to remember all your decisions from a while ago, but it just sounded great, so I kept this. I probably started by blending this in. And then I listened, and I thought it sounded better just using this. So that's what I did. But I can do that sometimes, definitely just if a hit might be off. You can find a spot where maybe you hit way better, and then you can copy and paste it.

I did some edits on the cymbals because the drummer was hitting the kick before the crash, and the editor of this drum performance put the kick on the grid, which means that the crash came after. It was a bit lagging, so I did a couple of edits on some crash hits to make sure that they were in time with the real kick in the overheads as well.

HiMMP

And with the toms, what panning perspective?

Buster Odeholm

There's a couple of things you can do. I did this kind of natural of what I thought the set-up was, so like 25, 25, 40, 60, that's what I'm doing here.

HiMMP

But you've gone for drummer perspective?

Buster Odeholm

Always drummer perspective, but I'm not opposed to any perspective. If the band wants me to have another perspective, I'm fine with that. The only thing I have to do is reverse the panning, so it's fine. I go for that because I'm a drummer. So that's what's natural to me.

HiMMP

With your cymbals, what was your width perspective? Looking at your rooms, you have the Coles 4038 fully wide there. Are you going for maximum width with the cymbals?

Buster Odeholm

Yeah, I've always done that, always full left and right on cymbals. I don't see why you ever want to not do that because if you have a ride mic and a hi-hat mic, those will be placed like 50/50, and then the overheads 100/100. Then, you get the placement of those things. But if I would take in the overheads to maybe 50/50 or 80/80, I don't see any point in that because I like stuff wide. And I also have outboard gear, which has a little bit of widening on it—not here because we're not in my studio—but that makes it even wider. So, I definitely would not make this like 80/80; some other people might do that. I just like it super wide.

HiMMP

What were you looking at processing-wise with the cymbals? Was it mainly high-pass filtering?

Buster Odeholm

I've removed some of the snare honk; probably, there's some overtone, so I probably cut that out (Figure 7.17). I don't like that super-high high end. So, like 12.5 kHz is usually where I cut stuff off because it just sounds like noise to me. Let's see, that was hats. I focused the frequencies more on the high frequencies, removing some muddy kick here, probably.

All of these have Gullfoss, which is kind of an active dynamic EQ. Let's see what it does here. It reacts to the material depending on what cymbal is hitting. It's correcting to maintain the frequency response more to be the same. Here is even more EQ.

When I put all the mics together with the drums, I probably felt that it still lacked some high end. Some distortion on top of everything to just thicken it up because that's a good trick (Figure 7.18). If you're doing a lot of EQ, which I usually do, the sound can sound a bit disconnected from what it used to be, and distorting it brings it back. It glues it all together again and makes it a cohesive sound rather than this weird EQ'd version.

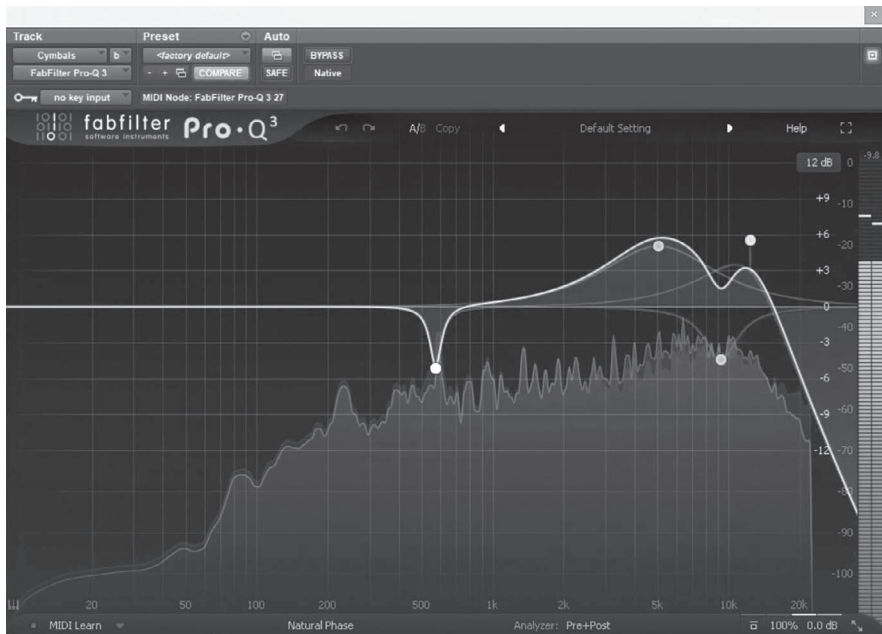


FIGURE 7.17 EQ boosting the top end of cymbals while removing air to control harshness.



FIGURE 7.18 Tape saturation for glue and sheen on the cymbals.

HiMMP

I've never used it like that. I always use the Gullfoss on the master buss, but never on the cymbals.

Buster Odeholm

I recommend you use that on cymbals, leads, synth, or any resonant, not transient-heavy sound—more on sustained sounds. It works great.

HiMMP

And the cymbals, you've not taken any of those fed to reverb here?

Buster Odeholm

No, but the rooms are being fed there. So effectively, you get some cymbals in the reverb, but my reverb is pretty bright. So, like sending cymbals, there might be a bit too much, and it sounds a bit weird to me.

Bass

HiMMP

Fantastic. Are we okay with moving on to look at the bass?

Buster Odeholm

Let's do it.

HiMMP

So, with the multi-track that I sent you, you had quite a number of different options. There was a DI, there was a Trondheim SkarBass One, there was a Darkglass, and a cleaner Ampeg. Did you decide to create a bass sound from the DI yourself? Or did you use some of the signals?

Buster Odeholm

I'm too proud to use other people's tones. I just feel like I want to create it from the ground up. And the way I create stuff goes hand in hand with my philosophy on everything. So, that's what I did. I went through the DI, and we have three busses; one is just the sub, one is the grit tracks, like more of the bass tone (Figure 7.19). And then we also have stereo width, which is the same set-up as the grit track, just with a stereo cab, which gives you that sense of a room or stereo. Basically, it is stereo. That's the sub.

HiMMP

How is that signal created?

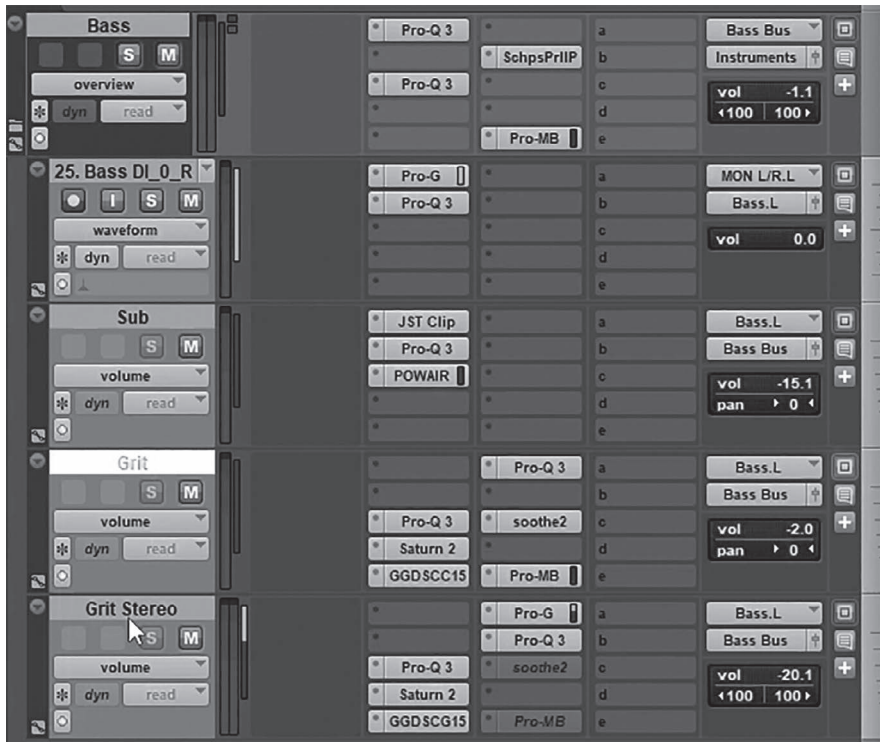


FIGURE 7.19 Processing of bass tracks and bass buss.

Buster Odeholm

This is the DI, and this is being sent to all these three. First, there's a gate [FabFilter Pro G]. There is definitely a tone match (Figure 7.20).

As I said, I have my favourite frequency responses with everything, including a bass DI, so this is like a rough tone-match of my favourite bass DI and a massive gain boost. Let's listen to this with and without. It's basically scooping it a lot, just getting that high-frequency string sound and some more low end. Like I said, this has been sent to all of these three. Here on the sum buss, I'm really distorting a lot to make the subs a super consistent sound that doesn't go down in level whatsoever. There's a couple of ways I'm doing this. The first is distortion.

HiMMP

Are you distorting the lows?

Buster Odeholm

Yeah, this is not effectively the lows; it's the entire signal, and then I filter (Figure 7.21).

So, this is this distorted DI filtered. And then, I have this plugin, which keeps the level in one place (Figure 7.22). It corrects it. Depending on the notes, the volume and the level are going to fluctuate, but this pins it in place.



FIGURE 7.20 Tone-match EQ on bass DI track.



FIGURE 7.21 Top: distorting the bass track; bottom: band-pass filtering the bass to create a sub-bass track.

There are more extreme ways you can do this as well. Sometimes, I filter, put this plugin, then distort, then filter again, and then put this plugin again. So, it's really a sausage of low end, basically.

HiMMP

That's fascinating because so many producers want to keep the low end entirely clean on the bass sum and use a lot of frequency bracketing approaches. Like Jens Bogren would take the DI, which is super clean, and use that for the lows, but you like distorting the lows.



FIGURE 7.22 Compressor to even out the volume on the sub-bass track.

Buster Odeholm

I feel like the DI is not consistent enough, especially now in my mixes that are super-processed; it's not going to keep up. So, I need to really make it super fat. And I also have a thing [side-chained multiband compressor] going that's helping me get the kick to be on top of it (Figure 7.23). This thing is being ducked by the kick that makes sure that kick is number one in the low-end hierarchy. But this is still super fat and as loud as it possibly can be.



FIGURE 7.23 Multiband compression on the lowest band side-chained to kick to duck the bass during hits.

HiMMP

So, it's just side-chained . . .

Buster Odeholm

Only the low end is side-chained to the kick. And that's the same for guitars, the same for drum rooms, the same for cymbals, and the same for the synths and effects. Everything has been side-chained to the kick. But I don't want that [ducking] feeling. That's why I make the sidechain only affect the low end because you're not going to feel that sidechain like in EDM. You're not going to get that because it's only in the low end. So this is not going to be heard that way.

HiMMP

So, you're ducking the rooms and the guitars and everything just in the lows.

Buster Odeholm

Yes, to the kick.

HiMMP

And even the synths?

Buster Odeholm

Yeah.

HiMMP

And then the grit channel on the bass.

Buster Odeholm

We have even more EQ cutting some mids here before hitting the distortion (Figure 7.24).

So, this is multiband distortion [FabFilter Saturn] (Figure 7.25). This [the lowest band] is inactive because I want all the bass to come from the sub-channel, not from the distorted bass because it's going to be really hard to make that work in the mix. It can be a little bit there, of course, but mostly in the low-mids and mids. So, we have the two bands I'm using here with the heavy saturation.

This is like a saturation without a cabinet, so I'm using this with the cabinet here. This is the same as the guitar later because I want them to be married. I basically want them to be one unit. So that's why I'm using the same cab here. This is the mid-channel. As you can hear, there's basically no low end in this. But that's by design.

And here's definitely a tone match again. I have my favourite bass sounds, and this is a tone match. This is like I get where I want to go faster because, let's say, I do everything by ear, and I do no tone-matching, I'm still going to get to this place because this is what I want to hear. Tone-matching is just a faster way, and this is not the be-all and end-all. I'm still going to tweak stuff and make the mix its own thing. It's just like this is the general kind of EQ curve I would look for in a bass. I'm going to play it without and with. I'm removing low mids and getting some high end.

And I found a super harsh ringing there that I took care of. Now, we have this Soothe guy again, like the others. I can isolate here what it's removing, that horrible noise. And then, I'm finishing off with a multiband on all the frequencies (Figure 7.26). This could probably be fewer bands, but this is just a set-up I had. It could probably be four bands.

HiMMP

And you've also got compression on the master buss?

Buster Odeholm

It's the same set-up as I just went through, except that it's this cab here, which is a stereo room sound, and it sounds like this. But it's being gated [FabFilter Pro G], so this is getting signal from the bass DI, which means that when the bass DI's quiet, this is not going to ring a bunch. It's just going to be short because what I want from this is not sustain. I want stereo because I used to

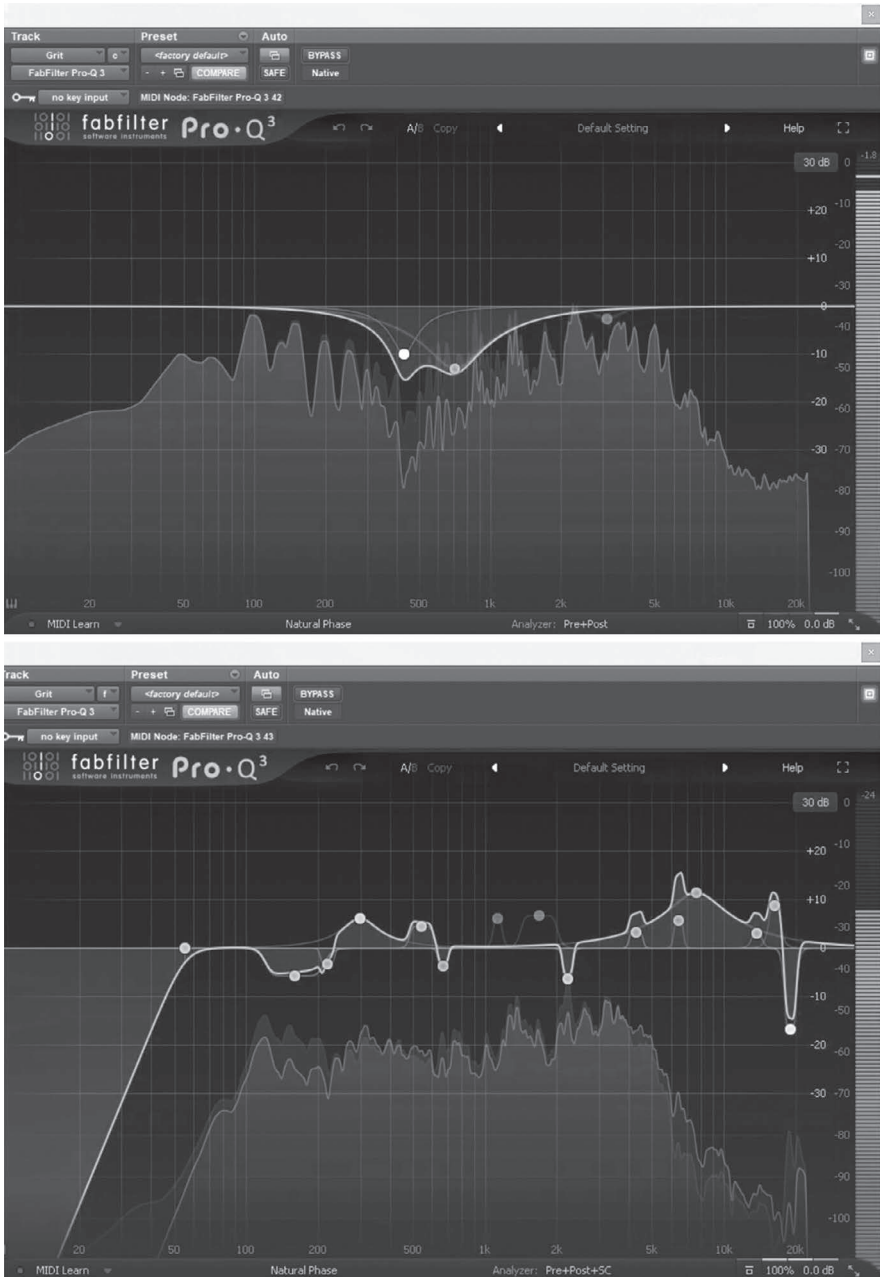


FIGURE 7.24 Two EQs to tone-match (top) and increase clarity in the mid-range (bottom).



FIGURE 7.25 Multiband distortion saturating middle and top bands on the distorted bass track.

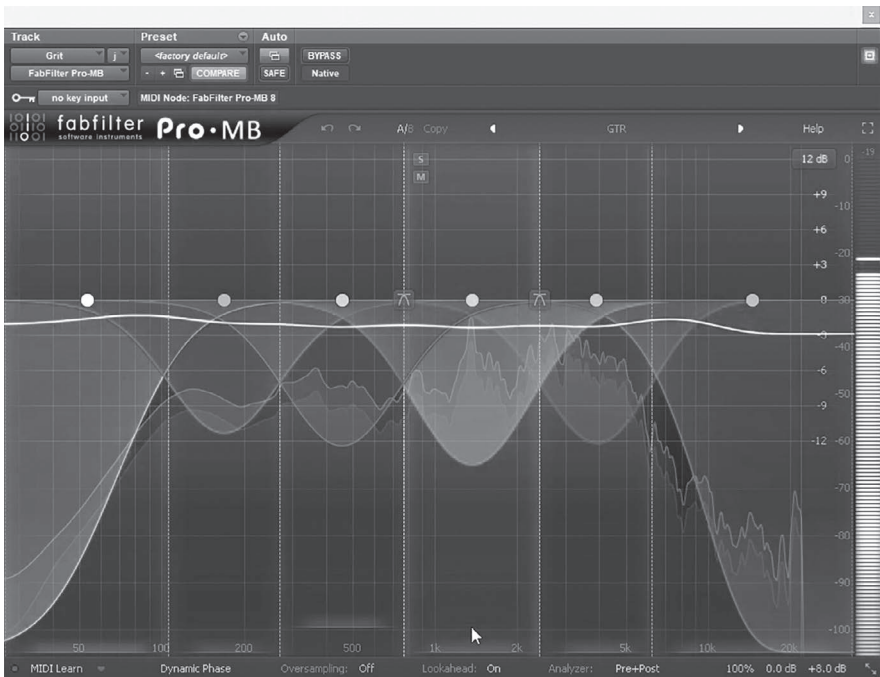


FIGURE 7.26 Multiband compression without sidechain to ensure volume and tone consistency across different pitches on distorted bass track.

use a doubler or a chorus-type thing to get that spread. But it sounded a bit fake and '80s-ish. This is more like a natural room sound, which worked well to blend in with this to get it more stereo.

HiMMP

So, it's high-pass-filtered, and then?

Buster Odeholm

This Detection Circuit is high-pass because I want it to be super-fast when it stops playing.

HiMMP

Got you. So, you go gate and then the Saturn and then?

Buster Odeholm

This is the EQ; this is a lot, I know. But this is the same deal as the last one. It's tone-matched to my favourite bass tone, and then some more stereo spread here (Figure 7.27). I'm boosting all the frequencies on the sides by four dBs to make it even more stereo because this is going to be very low in the mix. I just want that connection to the guitarist and on the sides to have a cohesive kind of picture.



FIGURE 7.27 Tone-match EQ on distorted bass track.

HiMMP

But there's not actually a bass amp that's going into the cab?

Buster Odeholm

This could be qualified as the bass amp, basically. This is like the preamp. And this is the cab.

HiMMP

You just got that as a super wide setting on the cab.

Buster Odeholm

Yeah, this is cool. And that goes to this bass folder here. This is a lot of EQ [a boost at 2 kHz]. This is probably something I did very late because I probably didn't get the bass to cut through with the other instruments. So, I made this tone match (Figure 7.28).

Once again, it's more tone-matching. I've found my sound, and I just want all my mixes to have the same quality and the same general vibe to it. And that's one of the ways I get there to make sure that this bass sound is competing with the other stuff because I don't want a client coming to me like, 'Oh, I listened to your other mix, but when you mix my stuff, it sounded way different'. It will sound different because it's a different source, a different song,



FIGURE 7.28 Tone-match EQ on the overall bass buss.

a different tuning, a different guitar, and a different player. This is just a way to make sure that the instruments are producing the frequencies that I want and that they are the same as my other stuff.

HiMMP

Representing your tonal identities as a producer.

Buster Odeholm

Exactly. And it also works faster. Let's see what this sounds like without. This makes sense because many of my bass tones tend to clutter up in the 90 Hertz range. So, I'm using a multiband or an active EQ that takes care of that but does not lose too much low end, at the same time boosting the entire low end here.

HiMMP

So, it's just a bit of dynamic EQ.

Buster Odeholm

Yeah, and this is stuff that you don't think of because I really like subs, and I generally don't remove a lot of subs. But when I did this tone-match, it told me that, compared to your favourite bass tone, you have 11 dBs on 28 Hz too much, which helps a lot to glue the mix together. It's not bad without it by any means. But it's more scooped, and the low end is focused more upwards, which is fine. But that kind of works better in this mix.

And then I have this [Waves Scheps Parallel Particles]. Again, this is like nothing is on, but it does something that I like because you just have to put this on whatever it's going to act, even though you don't have these things on because it's doing something for sure. But it's like, I don't know if it's audible here. This is just a thing that I put on, liked it, and never took off. And it's been in my template since. I probably hear no difference, but it's on there because it was good once.

HiMMP

What I find interesting about your bass sound is that there's, compared to other producers, a vastly reduced reliance on compression, probably because you're going for the distortion in the way that you have, which is having a compression-like effect.

Buster Odeholm

Yeah, but this also compresses all the bands a lot. So, this is a lot of compression. And this can count as compression as well because distortion is a kind of compression. And that's on the sub, which makes it super consistent. I mean, there's some compression for sure.

Guitars

HiMMP

Fantastic. Let's move on to guitars.

Buster Odeholm

So, I've muted this and got it in here to be in the middle. We have four DIs (Figure 7.29). I don't know how many I got from you, but I'm using three because I don't like quad-tracking. I don't like two guitars playing the same thing. That's not for me. I like the detail of one take on the left, and one take on the right. That's just me.

HiMMP

And then the third track that you're using here . . .

Buster Odeholm

It's only the plucky guitar. So this, it's panned to the middle. And then I'm bringing the chug in from one of the quad-tracked ones so I can get stereo spread on the chug. This is stereo, these two, and this is in the middle, and then it just goes back here. That's it.

HiMMP

Fantastic. And what's the signal chain with these guitars?

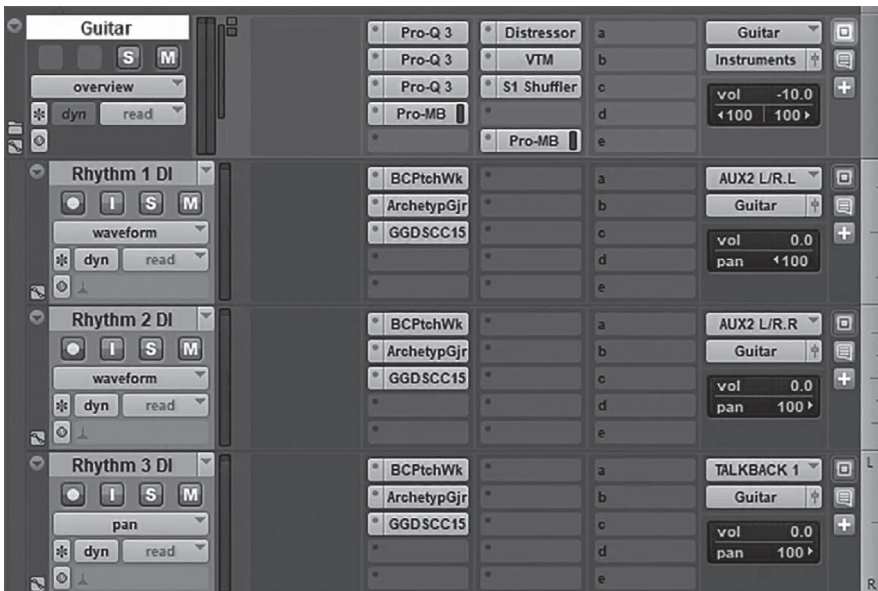


FIGURE 7.29 Processing of guitar tracks and guitar buss.

Buster Odeholm

This is some complicated stuff. I use this VST loader to load certain plugins in parallel that don't have the parallel function. This is an overdrive pedal [Tube-screamer emulation with minimal drive and maximum volume]. But the thing about overdrive pedals, for me, is that they remove too much of the low end, which is fine if you want a super tight tone, but I want to maintain the full frequency spectrum of the DI going into the amp. So, I don't want to filter anything, but I still want the effect of this, so I'm blending this in at 40%. This is the typical setting for a boost pedal, and it's blended in to make it a bit tighter.

HiMMP

So that's processing the DI before it hits the amp sim.

Buster Odeholm

That's correct. And the amp sim has no pedals. So, this is kind of the pedal I'm using. But you're not losing that low end I'm talking about. And the amp sim I'm using here is only like the amp block (Figure 7.30).

And in the EQ block, I'm taming some low-mids and some high-mids. That's the thing about amps; they should have high-mid and low-mid controls, but they rarely do. Because I like my low end to be around 80, 90 Hz, but this low end is probably boosted at like 110 or 120 Hz. I like it lower. And there's no way with these controls to control those frequencies. So that's why I use this. Like I said, the boost pedal is going into the amp here; these are the settings. I usually go for pretty scooped and a lot of high end. And then the same cab as we did on the bass tone here. That's the set-up for the tone. And then it's just a bunch of EQ (Figure 7.31).

HiMMP

Obviously, the Gojira amp, you're not using a cab on there on the actual plugin?

Buster Odeholm

No, I just like the GGD [Getgood Drums] cabs. I haven't tried the Gojira cabs, to be fair; I'm sure they're great. But I just like the sound of it a lot. And then there's going to probably be a scary amount of EQ, as always.

HiMMP

So, one of the things we really loved about your mix was the sense of stereo width. Is that something that's coming from the guitars? Or have you got a very similar signal on the left and right of the guitars?

Buster Odeholm

Yeah, it's similar. It's exactly the same on the left and right. But the thing with stereo width has less to do with panning than with mid/side information;

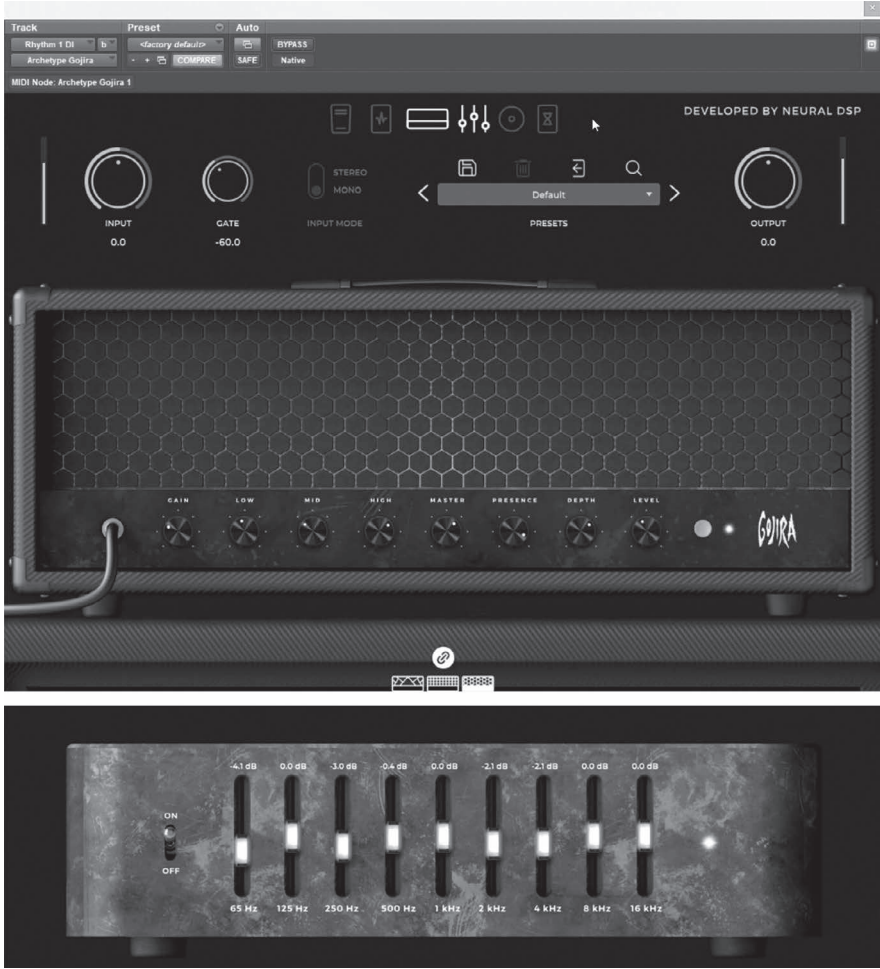


FIGURE 7.30 Guitar amplifier simulation and EQ block.

I think it has to do with how stuff is EQ'd and how the mix is glued together. Because if you make everything super glued and if the drums, bass, and guitars interact in a certain way that I strive for, the width will come with that. But that being said, there are also width plugins, so this is like a shuffler (Figure 7.32).

This is the widening that I've been using for years; that is making stuff wide for sure. And my outboard stuff that I don't have here also has widening on it. So, there's widening happening. But there's also something like this; for instance, this is a mid-boost of 4 dBs in the mid frequencies and the mid-band.

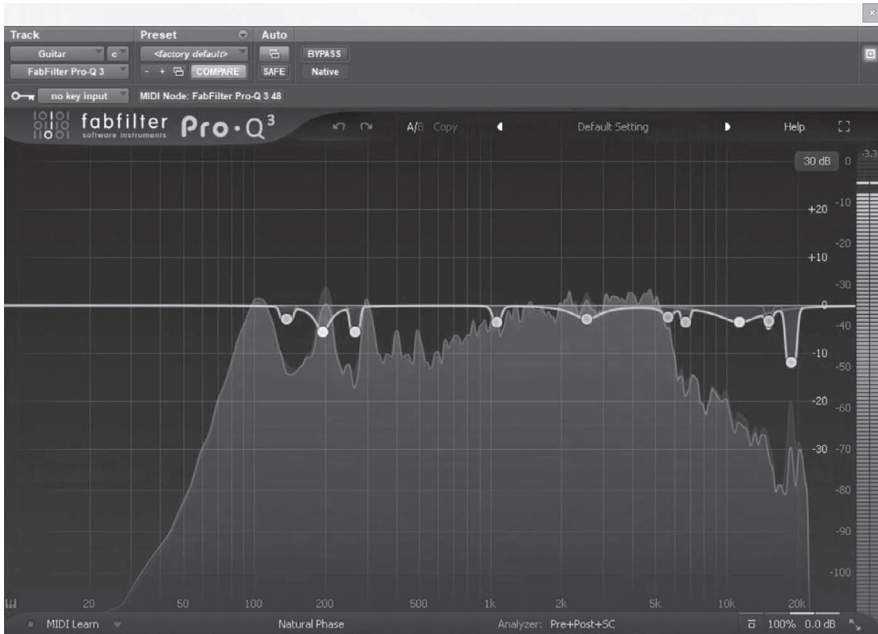


FIGURE 7.31 Tone-match EQ on guitar buss.

So, this is actually the opposite of widening. I'm pushing the mids in the middle of the stereo field on the guitars. Because without this boost, if you listen to this mix in a car or on a Bluetooth speaker, the guitarist can easily disappear, and it's very apparent if I don't use this because of the way I EQ and the way I widen stuff. So, this is making sure that the guitars are heard on more mono-focused speaker systems or whatever it might be.

HiMMP

So, that's the EQ just for the mid of that stereo image?

Buster Odeholm

Yeah, I can play it. So, if you listen to this on a phone or a Bluetooth speaker or whatever, it's very apparent when this is not on. This is like a safety; it just makes sure that all the notes are coming through, even if mono or in the mid-stereo field, so it doesn't disappear. But this is like an obscene amount of EQ; I kind of feel ashamed showing this amount of EQ. But these are different . . .

I think this is the EQ I made manually, and the rest is more like different tone matches (Figure 7.33). I have a bunch of tones I like; I'm super happy with those I tone-match to and use as a building block for the mix to come together. And these are probably two different ones I used in different

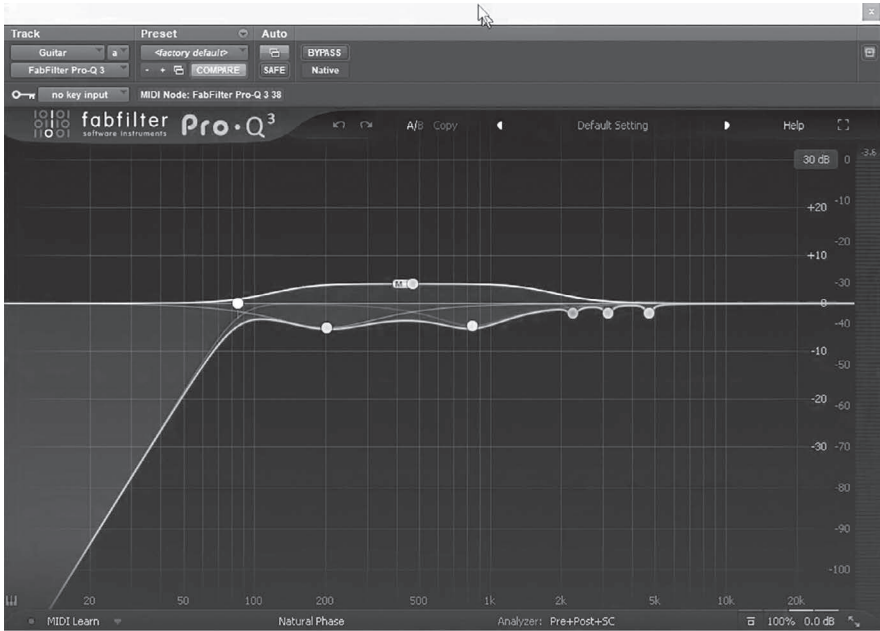


FIGURE 7.32 Stereo widening on guitars through mid/side EQ (top) and stereo spreader (bottom).

amounts. So, if I do a tone match, I can do this, and then I can do this, so I can apply different amounts of correction. This is like two dBs here and one and a half dB here. When I tone-match this, it was probably more like that.

But it sounds a bit weird when you go 100%, so I just dial it back. And the same goes for this here. You can also tone-match in different stages. You can tone-match on the actual guitar buss, but you can also tone-match in the master to actually get the final sound and have that be your EQ.



FIGURE 7.33 More tone-matching EQ on guitar buss.

HiMMP

Sure. And on the individual channels on the double-tracked rhythm guitars, what's going after the Gojira?

Buster Odeholm

There's just a cab. The next step is the buss and these EQ moves.

HiMMP

And you got a little bit of multiband compression . . .

Buster Odeholm

Yes, that's [multiband compression] the same as the bass (Figure 7.34). I just really love what this does, especially to the high end. Of course, the low end, when you chug on the guitar, is going to produce that bloom in the low end. This takes care of that. But it also lets me have super bright guitar tones without them sounding brittle, which can happen really easily. But this is a way to maintain the frequency signature that I gave this. This just maintains it, so whatever is happening is not going to exceed any threshold because I'm just keeping it in place.



FIGURE 7.34 Multiband compression on guitar buss to even out the tone and to control excessive low end and harsh high end.

HiMMP

Sure. And then the insert after that?

Buster Odeholm

Then we go to the Distressor (Figure 7.35). This is for when there are riffs that are more choppy, I call it, but it's like when it's quiet, and it's loud, quiet, loud. This adds a little bit of a transient. It's not compressing that hard on this song because it's not asking for that amount because there's not a lot of that, like choppy vibe riffs, but usually, the bands I mix go for that sound a lot. So, this helps with having the guitars have some attack to it.

HiMMP

What I've seen in some of your previous mix sessions is that you've taken a bass amp signal and frequency bracket up to the high end and then added that for note definition. And that's kind of doing a similar thing; it's just adding that transient.



FIGURE 7.35 Compression on guitar buss to add attack to rhythmic riffs.



FIGURE 7.36 Tape saturation on guitar buss, adding weight and removing harshness.

Buster Odeholm

For sure. I used to do that for adding the stringy-type sound, and that's cool. It's still a cool way to do it. For some reason, I haven't done it in a while, but stuff falls in and out of favour as far as what you want to go for.

But this is also just thinking stuff up. I'm not sure this is level-matched. It's subtle, like anything. This is tape saturation (Figure 7.36). It shaves off

that super high, high end, and it has a very significant bass boost in the low lows. It might be like 50 or 60 Hz. I'm not sure if you can hear the difference exactly. It removes mid-range, that super hissy high end, and adds weight. It just sounds nice. And after that, it's the widening thing. This is on, so like that, this is the default. When I'm turning it off, it sounds weird to me.

HiMMP

I've never used the stereo shuffler. I've got just the stereo widener.

Buster Odeholm

I learned to mix a lot from this guy, Brian Hood; he was my early mixing idol. And he had a course where he put this on guitars. So, this never left, and I haven't really tinkered with it a lot. It's just like, 'Yeah, it sounds good', and it's on. There's like a frequency; you can dial in the frequency. I guess below 650 Hz is where the widening is occurring. So, the shuffler is a bit different than the regular widening one.

And then we have the kick ducker (Figure 7.37). This is one of those tricks I learned when I mixed the *Ashen* (2023) album by Humanity's Last Breath



FIGURE 7.37 Multiband compression on the guitar buss side-chained to the kick drum to avoid guitars masking kicks in the low end.

because all the instruments had a lot of low end, and I had to somehow make it work and make it impact together. And this was one of the ways to do that because, effectively, it's only turning down the bass when the kick hits really fast, which means that all the sustaining notes are still going to have that low end that you want. So, you're not losing the low end by doing this because it's so fast, but the kick will still hit you.

HiMMP

Absolutely, you don't get that pumping effect because it's only in the low frequencies. Where do you have the frequency there?

Buster Odeholm

It's effectively from here and down, which is like 90 Hz and down. But like you say, there's a slope here, so this is at 120 Hz at super-fast release. The attack is more to make sure that all of the kick is covered. So, it's not too fast; it has to stay long enough for the kick to come in and out.

HiMMP

Sure. And the approach between your bass and guitars. We were chatting earlier about getting that separation and the sense of clarity and cohesion at the same time. When you listen to the guitars, you were saying that you'd want to get every instrument as you want it in isolation, then you put it into the mix and see what needs to change together to work. Can you remember what you needed to do to solve any problems between the guitars and bass?

Buster Odeholm

What I usually do is listen to the bass without the sub and the guitars, and that way, I can hear the tone of it. What I do is basically turn the grit up till I hear it. And then I'm listening: what am I hearing from the grit? Am I hearing the mids? Am I hearing the lows? Am I hearing the high-mids? Usually, there's one sticking out, and I bring that down in level. And then I bring the entire level up again. So, what am I hearing now? I'm hearing maybe too much of the low-mids; they are taken over, so I bring that down and bring the level up again till it's even with the guitars. So that's how I do it with guitars.

But tinkering with the low end at the same time as the guitars doesn't make sense because this is going to affect the kick; it's not relevant. So, I only set a level of this with the kick. I remove all this stuff that's ducking the kick, and then I filter my master. This is my master at the end, so it sounds like this. So, I filter that, and I listen to only the bass and the drums, and I bring this up till I feel like it's taking over the kick, and then I bring it a little bit back down, and then I turn on all this ducking stuff. Then, I make sure that I'm at the right level with the kick. That's how I dial in the sub.

HiMMP

Brilliant methodology for solving some of those challenges that we're talking about.

Buster Odeholm

Let me just close these so we don't get any CPU errors. These are all bounced down to stems because I have a plugin I apply to all of my stems called [SoundRadix] Pi (Figure 7.38). And Pi is a phase interactions mixer, I think they're calling it, but there's so much happening between these instruments. And to make sure everything is in phase, regardless of what notes the guitarist is playing or what rhythm the kick is playing with those notes, the phase relationship is going to be different for each part of each riff. So, if I use this, I can make sure that the bass is aligned with the kick. That's basically what it is. I use it on guitar as well. And I also use it on effects tracks, such as sub-drops or impact sounds.

So, it looks like this: I have the low-frequency mode engaged. You can also do full frequency, but I don't really see the point. This is aligning the low end of all these three. It's pretty subtle, but it just makes sure that the kick, bass, guitar, and the low end of those are not competing with each other but adding to each other instead. So, if you're listening, I don't know if you're going to hear the difference, but let's try. If you're listening to this on headphones, that might be the best way to listen and hear the actual difference. To me,

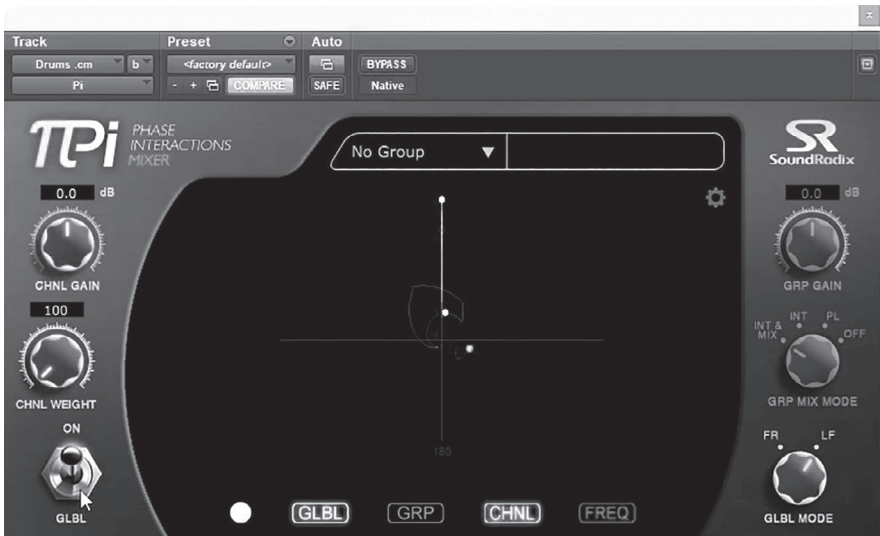


FIGURE 7.38 Phase alignment tool improving phase relationship between instruments in the low end.

it's just like, I know what this is doing. And I know it's always better when it's on, so I don't even question it. I don't even try it out, this is going to be on now.

And here are some quick EQ moves I did. I'm just controlling some of the high-string noise on the bass and dropping some of the mids on the guitar. It was just last-minute changes. So, I'm boosting the same amount as I'm cutting with the dynamic. I'm boosting one dB and cutting two dBs, so the dynamic EQ is doing two dBs, and I'm boosting the overall frequency by one dB. So, I'm just making that high end or high-mid of the bass more consistent.

HiMMP

Can we quickly listen to that with it on and off?

Buster Odeholm

If you hear this in the mix, with everything going, it's like, 'Wow, the bass is really going crazy there'. So, I just tamed it a little bit to have it on the same level. It's not meant to be a huge difference, and it's not a huge difference. Okay, we have a bunch of stuff. Okay, these are, right? I got these; I'm pretty sure they are already processed.

Vocals

HiMMP

From here, could we look at your vocal processing approach (Figure 7.39)?

Buster Odeholm

The only thing I did on the channel here is Gullfoss. No saturation on the cleans, probably on the screams. This is acting like a de-esser, and also, some of the notes he's singing might resonate a lot in the low-mids or like 200 to 500 Hz, maybe. This takes care of that, but not too much. We still want it. Mostly, it's taking care of the 's' sounds.

Then it goes to my clean buss here. It's clean singing, basically. This is just light compression to maintain the level between the amount of takes (Figure 7.40); usually, I get way more takes than this. I can get like 30 vocal takes in different amounts. So, I need to control the level of everything, but this might not need it that much. When all these takes are going, I want them to be at the same level as one take is going, so I don't want it to jump out too much.

Then we have just EQ taming some honky-like stuff [3 dB cut at 1.3 kHz with FabFilter Pro Q]. Some Soothe like I showed you before. As you can see, I have a pretty similar set-up for this as guitars and bass as far as the



FIGURE 7.39 Processing on the vocal tracks and vocal buss.



FIGURE 7.40 Compressor on the vocal buss creating even volumes across vocal tracks.

[FabFilter] Pro MB stuff; just committing to a frequency. It's not departing too much from the EQ I made; I'm just maintaining that frequency response.

Then we have this [Waves Vocal Rider]. This is being sent to, from all my stems here, I send the signal to this plugin, which makes the vocal be the same level compared to the music throughout. So, it will listen to the track. It'll make adjustments so the level is the same relationship between the vocals and the rest of the track.

HiMMP

So, buss three is your send from the whole mix pretty much to the Vocal Rider.

Buster Odeholm

Yeah, that's it. Then we have some effects stuff [SoundToys Echo Boy]. And some more compression; this has a bit of compression. Sub, I'm not sure we need that, but it's on. So, with and without, this is probably going to be a pretty big difference, at least level-wise. There's some stereo width and some shorter reverb, compression, some high-end boost, and some low-end boosts. It's just more processing, basically (Figure 7.41).



FIGURE 7.41 Multi-effects processor for vocals.

And all these sends here are sending to my vocal effects, which are here. So, I have a bunch of it, but I'm not sure how much I'm using for this. This is all from my old template. Let's see, we can hear these. It's always tricky to isolate only the effects.

That's one reverb [Waves IR-1], an EQ, a lot of EQ, actually (Figure 7.42). I just want my reverbs to be around 500 Hz to 3 kHz. I don't want them over

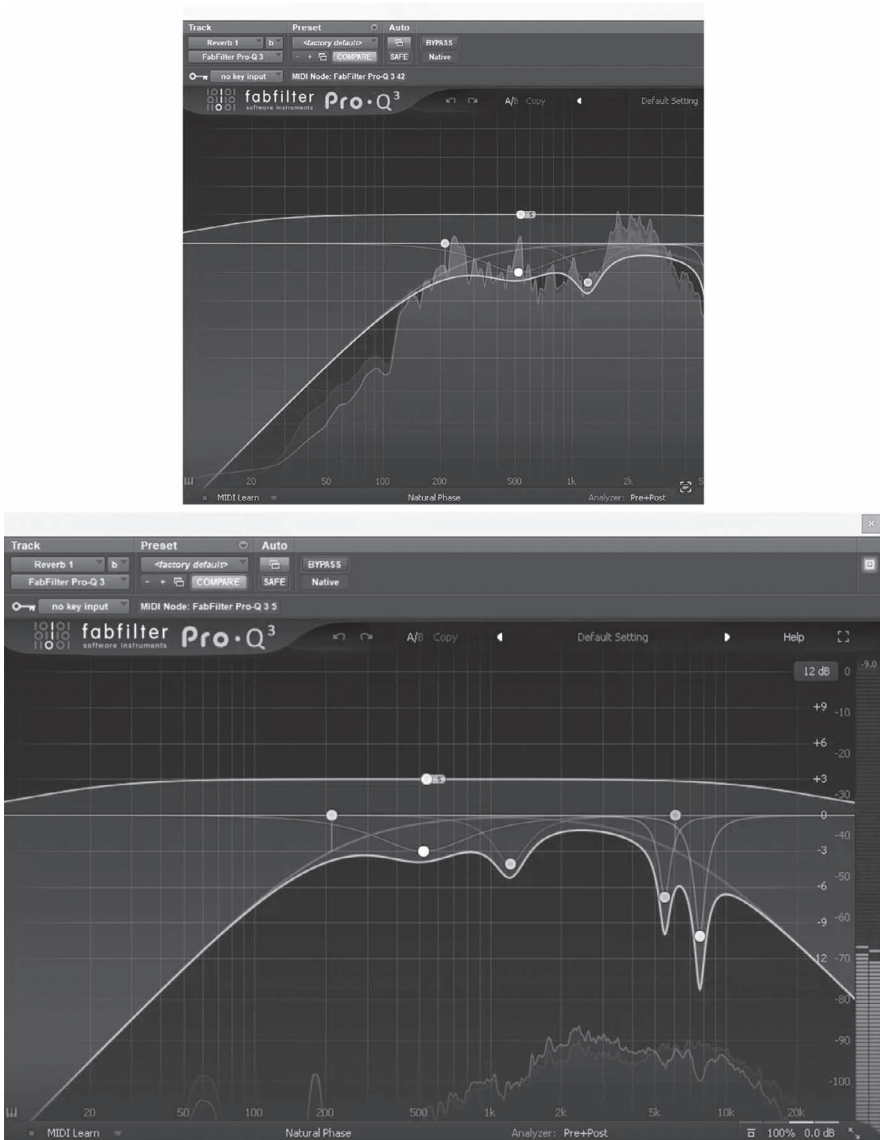


FIGURE 7.42 Two EQs on vocal reverb focusing the effect on the mid-range.

or under, especially not under because it can be really weird; it's muddy. The next reverb [Valhalla Shimmer] is the same processing afterwards, but it's this. I just can't decide what reverb I'm going to use; let's just use all of them. Basically, all of the ones I like and then blend them in. If something sounds weird, fix it, but usually, it doesn't sound very weird. It's just a nice reverb sound.

And the last one is this [Valhalla Room]. It's probably just me seeing, like, I'm getting sessions where it's like, 'Oh, they use this reverb, sounds great. This also sounds great. Let's use all of them'. So, there's no really clear direction. Then, we have a regular reverb.

But then we have this filtered type. I got this from Dan Bronstein, who engineered the *Silent Planet* (2023) [by Superbloom] record I did. And he uses this a lot [SoundToys Effect Rack]. This is like a filtered stereo; it has a lot of widening on, a lot of chorussy delay that I really like. It sounds modern. So, all of them together with the vocal. I'm sure it adds to the overall widening as well, as you talked about.

HiMMP

Yeah, but no specific widening tools on the vocals, then?

Buster Odeholm

I usually go for this, the [Waves] doubler. But I took it off because I thought it was too much in combination with this because this is a lot of widening already. So, this is my main widening on these vocals, at least.

HiMMP

And just going back to the main EQ curves on your vocals, just what was your main . . .

Buster Odeholm

Basically, this is because these were already processed, so I didn't have to do that much. I'm just making sure that they're maintaining the frequency curve. And this is maintaining the frequency curve. And this is maintaining the frequency curve. So, I'm not changing the overall curve that much.

And then we have this scream thing, I think. Let's see what this is.

HiMMP

That's Aaron [Stainthorpe] from *My Dying Bride*.

Buster Odeholm

Cool. So, same here, just maintaining, but this, I'm adding this compressor here, it's a super aggressive compressor (Figure 7.43). This is like, if you compress half a dB with this, it sounds like 20. So, I'm basically doing nothing.

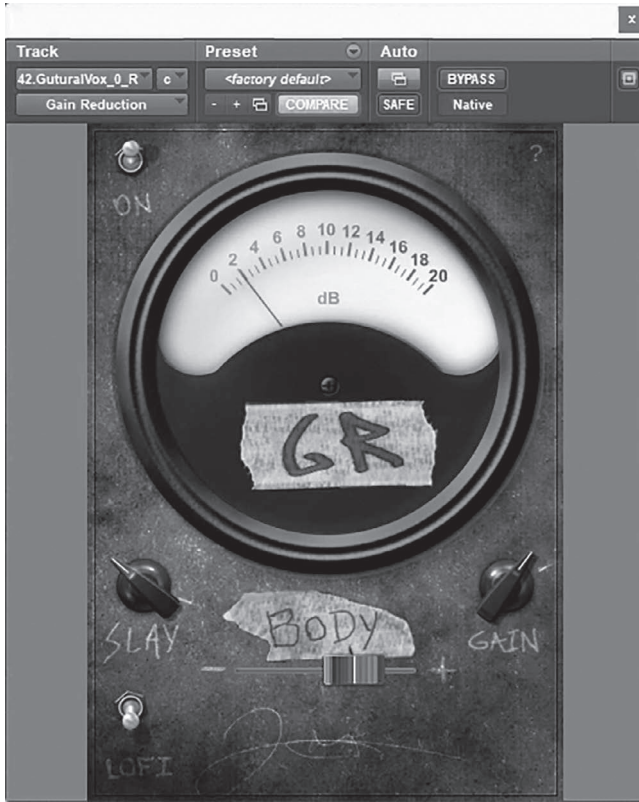


FIGURE 7.43 Lo-fi compressor adding saturation to the vocals.

But it does a lot, sound-wise, with Gain Reduction by Joey Sturgis. And then, basically, it's the same set-up but a little more EQ. I'm taming some lows, but it's just the same as this and the Vocal Rider one. And here I'm using doubler. I'm using the doubler here for widening, and I'm using the CLA vocals here. It changes, whatever works.

Orchestration

HiMMP

And then, with the additional instruments, there were horns . . .

Buster Odeholm

Yeah, the synths, let's jump in. Usually, what I do with synths is two things. I'm filtering the low end away, but I do it with a slope that is super light (Figure 7.44). It's not that, but it's like a more gentle slope. But I guess here



FIGURE 7.44 EQ attenuating low-mid frequencies on orchestration to create space for drums, bass, and guitars.

I just caught a bunch of low end because what I want, all of this, this is going to be guitars and bass. I don't want this to interfere too much. I usually want the synths to be around this area here, to be there more than here. And, like, 99% of the time, all the synths are focused around this area for some reason. So, I always have to tame it.

But usually, my move is like this: a super long slope, just shaving off. That's usually my move, but I did this. And then I did the Gullfoss again. Gullfoss, like I said, it's great for sustained sounds without transients. And depending on the notes, as you see here, this track is pretty dynamic, and that's kind of depending on what notes the strings here are plucking or playing, it's going to resonate in different frequencies.

HiMMP

You tend to use Gullfoss more on sustain characteristics and Soothe more on . . .

Buster Odeholm

I use Soothe as well, but this didn't come across as too harsh to my ears, so I didn't have to use it. But I use them both a lot with each other at the same time because they do different things. Soothe finds the resonances really detailed; the detailed peaks it can take care of, but this [Gullfoss] is more

like an overall EQ curve in another way. Because if you have Soothe and you crank it and get rid of those frequencies or the harshness, the frequency profile is still going to be the same.

This [Gullfoss] changes the profile. So, this is more like an overall EQ. I found that 30%—I don't go over that 99% of the time. I don't use the Recover thing here because it adds a lot of low end that I don't want. So, I just found that 30% with this works for so many things. We can listen without. The nice thing about having Gullfoss after a cut like this . . . This is going to bring up a lot of harshness because I'm removing all the fundamental notes, which are focused off up here, which can get harsh.

But then I add this afterwards, which takes care of that. And then you just get a wonderful, nice sound, so the best of all worlds. I'm pretty sure this is the same move on the piano and brass here. And I left some low end in here, probably because I always think that people who make these synths probably crank them 10 dB over the track. And it's like, wow, what a nice low end from my brass. I kind of feel bad shaving that all away, so I'm just keeping this for the producer's sake.

HiMMP

So, would I be right in saying that you're not really processing your synths there with any time delay processing and any effects?

Buster Odeholm

I can do that sometimes, for sure. But I listened to these, and they sounded weird enough to me. Because sometimes, I can get really dry synth stuff or strings or whatever, but that just sounds terrible. And one way to make fake strings sound realistic is by adding reverb. But then I have to go through all the places where they might have automated stuff quietly. So, it should go from zero to nothing. And if it's going to go quiet, and I have to automate the reverb, and I have to go through maybe an entire album of automating reverb because I thought it sounded a bit dry. So, you have to weigh the options a bit, but this sounded fine to me, as far as that went because this song is fast, and you have to fit it all in. And maybe if it was a bit slower, I could fit it in a bit more.

HiMMP

Yeah, I just exported it in the different libraries with reverb on, and it is natural from the string library.

Buster Odeholm

As you see here, this is supposed to be quiet. If I put a reverb on this, this would ring until here. Maybe that would sound weird because this guitar here is supposed to be by itself. So, it's always like, you have to think about

more than actually adding a reverb, but what does that lead to? You have to go through everything. Is it really worth it? But obviously, if I think things are too dry, I'll do it, of course. But this sounds fine to me.

Mastering

HiMMP

Excellent. Moving on to your master buss signal chain (Figure 7.45). As a fundamental question, do you tend to go with either fast attack, fast release that brings up the sustain, particularly the snare and the kick? Or do you go more like 10 or 30 milliseconds to emphasize the transient on the master buss?

Buster Odeholm

I used to do that, first emphasizing the transient, but I feel like the best sound to my ears is having the drums be really attack heavy and transient heavy and then having a compressor with fast release and fast attack that ducks the snare and the kick a little bit. So, if you look here, what that means is that I can have a louder snare than I would if I chose 30 milliseconds because that's just going to make the snare louder. But this is kind of clamping down on that snare. That also has an effect on the mix that implies impact; it sucks the mix in really fast. That sounds like impact to me. And it registers that way to my ears, so it sounds better.

HiMMP

Do you ever have concerns about the way that the guitars are hitting the master buss compression and what they're doing to the guitars, like chewing them up slightly?



FIGURE 7.45 Master buss with its two subcomponents 'Instruments' and 'Rest'.

Buster Odeholm

No, I think it's only affecting the drums. And it's fast enough that you can't really detect what it's doing to the guitars, at least to my ears. But using a setting like this requires you to have loud drums, like louder, a lot louder. So, if I turn this off, let's see if there is going to be a difference; maybe we can do that. It's way too loud, but not enough. So, if I would tailor the drum level without this, then the bass compressor might chew up the guitars, like you said. But since my drums are that loud, it's going to only affect the drums, and it lets me have super loud drums.

HiMMP

Got you. So, on your master buss, you've got?

Buster Odeholm

A lot of stuff. There's so much. This is also a thing that I put stuff on. It's like, 'Oh, it's made the sound better.' And then I didn't take it off. And then I tried another thing, 'Oh, it sounds better,' and then I kept it. It's so much stuff. And there's a lot of volume discrepancy here. I can't say I'm not a fan, but I don't do proper gain staging most of the time because I don't see the usage of it other than comparing back and forth, which I do sometimes. And then, if I do that, I have to do the gain structuring that way. But this is not, for whatever reason. This is only affecting drums, bass, and guitars.

So, I muted the rest buss, which is synths and vocals. This is just adjusting the level going into my chain. That's why I brought the entire mix down because it was too loud. I'm boosting 100 Hz by 1 dB here. No, I'm not, it's off. I usually do that, but probably this is a move that works better for down-tuned stuff because the down-tuned stuff is going to be more around maybe 60 Hz; it might be missing some of that 100 Hz, so that's why I go for that. But this didn't need that because it's not that down-tuned.

HiMMP

But some console emulation?

Buster Odeholm

Yeah, console emulation (Figure 7.46). Then, I'm EQing all the instruments together; it's not the same thing as EQing the separate ones. So, this is just to tame 1 dB of harshness; that's it, and it's compensating for the volume loss. It just has a nice effect when you do super loud mixes. When you combine all these instruments, the combination of the instruments can generate stuff that you don't want in the low end as well. But yeah, this time, I just did that. You can see in the frequency curve where it's the loudest.

Then we have this [Pultec EQ]; I barely use this anymore, but I must have mixed this a while ago (Figure 7.47). I'm boosting a lot of high end. So, this



FIGURE 7.46 Console emulation and analogue-style EQ to add glue and warmth.



FIGURE 7.47 Analogue-style EQ shaping the low and high end.

is cutting and boosting at the same frequency, which in turn means that it's bringing the subs up and higher bass frequencies down. It's doing barely anything, but it's doing a lot. I'm boosting 3 dB of like 12 kHz, so it's doing a lot to the high end.

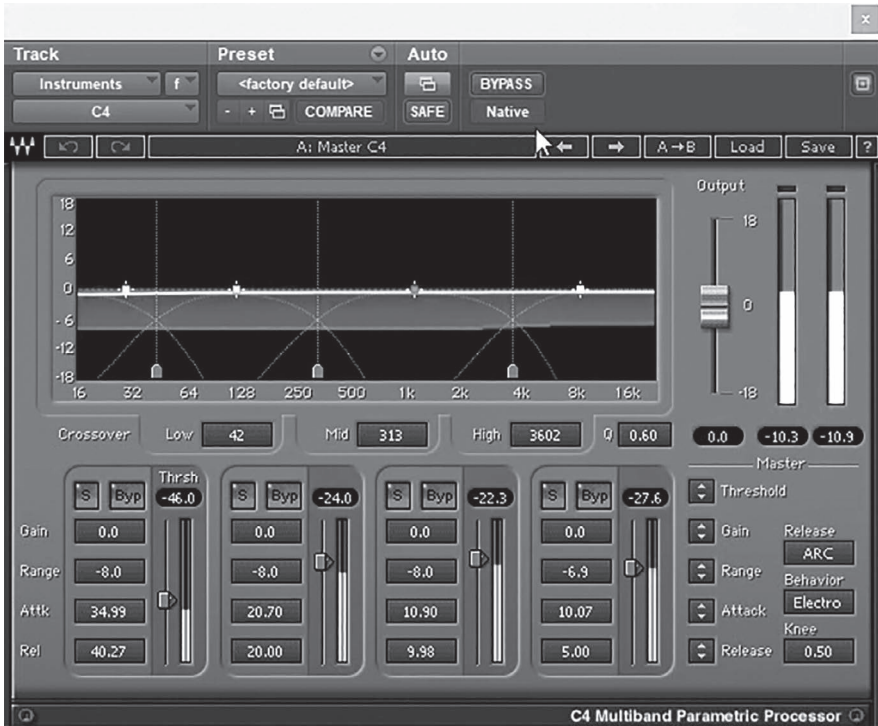


FIGURE 7.48 Multiband compression shaping the character of transients.

Then we have this [multiband compressor] (Figure 7.48); wow, I'm doing this. I don't do this anymore. I'm usually only doing these two bands instead of all of the bands. But this worked for this. It's just like a little bit of multiband compression. It's really important to pay attention to the attack times because the higher I go frequency-wise, the faster attack I want. So, if I listen to the high end, I don't want to hear any like [k, k]; I want to hear more like [t, t], as like super tight, it removes any weird transients that might appear in these higher frequencies. So, the attack here is 10 ms, which is really fast, and then the high-mid band is also 10 ms.

Then, when we come down here to the low-mid band, it's 20 ms, so it's clamping down a little bit on a transient but not totally destroying it. It also takes that snare and makes sure that the snare is not building up in the low-mids as much as it would without this. And then slower attack on the really low lows to get some attack on that super low stuff. It also just glues the kick and bass together a bit more. But it's not removing any attack; it just keeps it all in place. And the attack is letting any attack transient through and gets better or more attacky, I suppose.

And then we have this that I demonstrated: the master buss compressor (Figure 7.49), so fast release, then almost the fastest attack to cut that snare



FIGURE 7.49 Master buss compressor increasing impact and controlling volume.



FIGURE 7.50 Tape saturation on the master buss for added weight, glue, and sustain.

and the kick, as I showed, but it's boosting a lot of level. The reason for that is that this is what I use for my distortions because I have two distortions after this. And, when I'm at home, this goes out to my outboard gear. I'm controlling the amount of distortion I want on the entire mix. So, this is going to be a bit louder. This is only the low; I'm just controlling the level going into the distortions. So, it's a weird way of doing it; it's not really a good way of doing it, to be honest. But that's how I'm doing it.

So, there are two distortions. One is just regular tape distortion. And then this is a preset in [FabFilter] Saturn I found that just made stuff sound better to my ears (Figure 7.50). They changed the presets since I installed this because before, there was a mastering thing here. And then you can find it. It was called like 'magic mastering'. But I saved that as a preset. And it's doing

a bunch of weird stuff that I don't understand with the blue thing here; it just sounds better, so I used it. But let's see what it sounds like with or without all these. It adds low end, glue, sustain, and removes some other weird transients.

This [tape saturation] will do the same thing, but it also brightens stuff up (Figure 7.51). It adds a lot to the low end if we listen to the low end here. You can really hear the difference. The kick has way more authority. And I'll mix with these on a lot because they change the frequency response a lot. I just make sure they're on from the beginning, so I mix into them.

And then we have the rest buss, which are the vocals and synths, and that has nothing on it. I don't want all of this processing I just showed you; I don't want that going to the vocals and the synths because it's going to destroy it. But I want to destroy the instruments that way.

Then we have the master buss, which everything goes to; this is just an EQ replicating my outboard gear that I talked about (Figure 7.52). So, this is what it does, as far as the frequencies go. It's some distortion and EQ, basically, but it scoops it, like more high end, less mids.

HiMMP

Outboard distortion?

Buster Odeholm

Yeah, there are two outboard distortions. There's the SSL Fusion, and there's the Neve MBP Master Buss Processor, the silk mode and the red mode.



FIGURE 7.51 Tape saturation for increased low end.

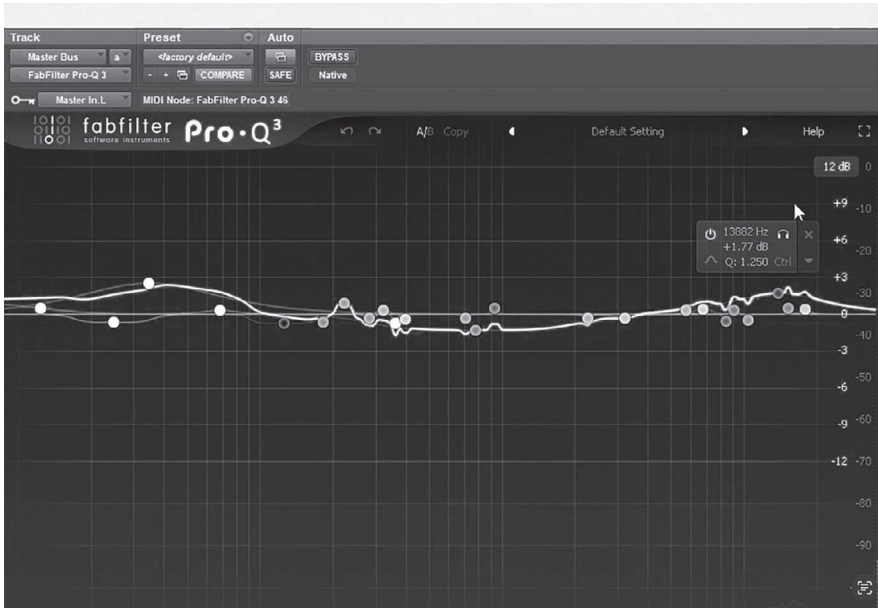


FIGURE 7.52 Tone-match EQ replicating frequency curve of outboard equipment.

There is a high-frequency saturation and low-frequency saturation, and I just cranked the low-frequency saturation.

Then we have the Gullfoss we talked about. I thought it removed too much of the snare and kick impact, so I started to move it so it doesn't affect those. But it's not doing that much because I already have Gullfoss all over the place. This is just a final; I don't know if I really need it. This is huge. Like I said, I always use this on separate stuff as well, but setting it on the entire mix does a lot for me. Usually, this bass boost will be higher, but I brought it down; I thought it was too much. But it's just glue, mids, and just what you hear. It's not huge, but if this were louder, it would be huge. But I brought it down; it effectively makes it not do that much. But I've tried making mixes without this, and I just don't like it without it on.

And then we have two limiters (Figure 7.53), and I don't even know why I'm doing this. I'm using an old version of iZotope 4 for the limiting. That's also a relic from the Brian Hood guy I was talking about. He used this, so I've been using it for years till FabFilter came out, the Pro L. And then I used them in tandem, but I realized that only one of them is actually doing gain reduction most of the time. Let's see if both of them are doing gain reduction. Yeah, as you can see, this is not doing any gain reduction. This is just level into this, so it's kind of stupid, but it is what it is. So, this is basically not necessary; it's just boosting level into this, and this is on transparent mode. I don't think I've touched these settings at all.



FIGURE 7.53 Ozone 4 limiter (top) to increase level, FabFilter Pro L (bottom) for final limiting.

HiMMP

And you're hitting 6 to 7 dB of gain reduction there?

Buster Odeholm

Yeah, let's see how loud we are. I usually go for this, but that's also a Brian Hood relic. Oh, maybe I should do a proper LUFS measurement; this also

has that—it's loud. I could probably go louder. So, this is the last step in the mix, and after this, it's done.

HiMMP

Amazing, thank you so much. That was absolutely fascinating.

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8

DAVE OTERO

8.1 Introduction

Dave Otero (b. 1981) is a US-American metal music producer and engineer who owns Flatline Audio studio in Denver. He began his career working with extreme metal bands from Denver and Colorado, including the deathgrind acts Catheter (*Preamble to Oblivion*, 2002) and Cephalic Carnage (*Lucid Interval*, 2002; *Misled by Certainty*, 2002), the sludge/doom metal band Primitive Man (*Scorn*, 2013; *Caustic*, 2017), and the black metal band Wayfarer (*Children of the Iron Age*, 2014; *Old Souls*, 2016). Otero has produced all albums by the Denver-based doom metal band Khemmis, from *Absolution* (2015) to *Where the Cold Wind Blows* (2023), as well as every release by the Seattle-based deathgrind band Cattle Decapitation since 2012, starting with *Monolith of Inhumanity* (2012) and continuing to their latest release, *Terrasite* (2023). While primarily focused on extreme metal, Otero has occasionally collaborated with heavy metal bands, such as the power metal act Visigoth, for their album *Conqueror's Oath* (2018).

Otero is best known for his work in technical death metal. Notably, he has produced every Allegaeon album except for their second, from *Fragments of Form and Function* (2010) to *Damnum* (2022). His production for the Vancouver-based technical death metal band Archspire is also highly acclaimed, particularly on their albums *Relentless Mutation* (2017) and *Bleed the Future* (2021), earning him widespread recognition in the metal production community. Otero's reputation is further reflected in his extensive contributions to Unstoppable Recording Machine's 'Nail the Mix' series, where he is the most-featured producer with eight episodes, focusing primarily on technical death metal and doom metal. He also has a signature one-shot drum sample

library with Drumforge, designed to capture his clear, punchy, and powerful drum sound tailored for extreme metal.

Otero's approach to metal production prioritizes the individuality of each band and their recorded material. When serving as producer, recording engineer, and mixing engineer, he oversees the entire process, from the initial recording to the final product. Otero strives to understand the artist's songs and develop a vision for translating them into a recorded format. While he follows a production and mixing workflow, he avoids rigid templates, seeking to develop both artistically and technically. He primarily works in the box using Steinberg Cubase but frequently incorporates hardware, particularly compressors, for their tonal qualities and colouration. Compression, especially parallel compression, is a cornerstone of Otero's sound. He views compressors not merely as tools for controlling dynamics but as devices for achieving specific sonic qualities, such as air, bloom, or snap, particularly in drum sounds. Otero's technique often involves using multiple compressors for different sound characteristics, blending them through faders as needed. To enhance sonic density and consistency, Otero's engineering approach also relies on console and tape emulation. These tools counterbalance his natural tendency towards clean, precise sounds by adding warmth and saturation, resulting in a cohesive and dense mix.

Heaviness

Otero views the concept of heaviness as deeply subjective, varying between individuals and contexts. At its essence, he defined heaviness as a feeling of 'undeniable weight or dread or sorrow or excitement, or just crushing power of something'. While not exclusive to metal, Otero emphasized that metal places heaviness at its core. He also identified other genres that lean towards heaviness, such as electronic dance music, with its powerful bass sounds, synthesizers, and bass drops—elements increasingly incorporated into metal—and classical music, which creates weighty, sorrowful atmospheres and allows for extended musical development.

According to Otero, heaviness in metal has not fundamentally changed since the 1970s, with bands like Black Sabbath remaining as heavy as ever. He likened the evolution of metal to a tree, describing it as an 'orchid of heaviness' rooted in its classic origins. Contemporary metal bands continue to draw from these roots, taking them in new and innovative directions.

Otero considered production a crucial contributor to heaviness, arguing that it must align with the song to effectively convey emotions like heaviness to the listener. Song structure plays an essential role in guiding the emotional journey, with production serving as a vehicle to amplify the musical material and its performance. Acoustically, sonic weight is one of the most significant factors contributing to heaviness. While Otero acknowledged that lo-fi

productions, such as those common in black metal, can be heavy, he argued that they are unlikely to achieve the same level of impact as well-produced metal. ‘For something to be truly heavy, the production has to match, and it doesn’t have to be perfect and modern. There’s plenty of classic death metal that’s undeniably heavy. But yeah, the lo-fi thing—it’s going to be tough.’

Regarding performance speed, Otero believes that all tempos can convey heaviness, from the slow, crushing riffs of doom metal to the fast blast beats of extreme technical death metal. He views these as different manifestations of the same emotion. Otero argued that there is no definitive answer to the relationship between heaviness, performance, editing, and quantization, as the needs vary between bands. For some, extreme precision and synchronization are essential for maximum impact, while for others, a more human performance allows listeners to connect with the musicians and their emotions, creating a different yet equally powerful sense of heaviness.

In Solitude

Otero approached the mix of ‘In Solitude’ by dividing the song into two distinct parts: the slow middle section (breakdown) and the faster sections that bookend it. He emphasized that the slower section required additional sonic weight and space, particularly in the drums, to achieve a more ‘epic’ sound. While he did not use entirely different tones, he applied automated reverb to enhance the sense of space and length in the slower section. Except for vocal effects and snare reverbs, Otero employed minimal automation. He also chose to forego sidechain processing, viewing it as a temporary fix rather than a solution to the ‘frequency puzzle’, a problem he addressed by carefully managing the frequency spectrum instead.

Otero prefers to work with the recorded acoustic drum kit whenever possible, even in contemporary extreme metal contexts. However, he acknowledged the necessity of using drum samples for two key reasons: (1) to ensure consistent volume and tone and (2) to provide complementary sounds. He explained that drummers cannot always maintain the same tonal qualities and dynamic power across a range of tempos, from powerful backbeats to hyper-fast blast beats. To support a heavy aesthetic, he pairs drums tuned higher for stick rebound with weightier samples. Notably, he often relies on pre-made library samples rather than samples derived from the recorded kit.

A hallmark of Otero’s drum processing is his method of controlling cymbal bleed. By using MIDI signals fed into multiband expanders via sidechain inputs, he increases the signal-to-noise ratio by attenuating unwanted frequencies. Higher frequency ranges, where cymbal spill is more prominent, are pulled down faster and decay more quickly than lower ranges. Otero highlighted that this approach achieves more natural noise control than

gating, allowing the initial drum attack to come through before suppressing spill frequencies.

The acoustic kick drum played a central role in preserving the natural dynamics and sonic complexity of the original performance. To ensure consistency, Otero blended five samples to further provide sonic weight, loudness, and attack, though the acoustic kick remained the dominant component of the overall sound. He applied a levelling processor to the kick (and snare and toms) to maintain a consistent level before running it through a coloured compressor, which served more as a wave-shaper than a dynamic range reducer. Transient designers further refined the kick's temporal features, enhancing both attack and sustain.

Otero's snare processing followed a similar approach, maintaining a balance between the acoustic snare and samples that was slightly weighted towards the samples. Parallel compression was crucial for shaping the snare tone, utilizing two hardware compressors along with a distortion plugin. Each compressor contributed distinct 'snap' and 'smack' qualities, while the distortion enhanced the ambience and enabled a dedicated snare room fader. Additionally, two reverbs with pre-delay were employed to increase punch, further enriching the snare sound.

For the toms, Otero chose not to use samples, relying entirely on the acoustic recordings. The processing included drum levelling, parallel compression, and multiband expansion for bleed control, consistent with his approach to the kick and snare. The room tracks were heavily processed, utilizing band-pass filtering and multiple stages of compression to provide glue and dimension while enhancing the cymbals. The overheads contributed a high-end sheen and required minimal processing aside from EQ adjustments. On the drum buss, Otero applied several layers of (multiband) saturation to achieve a more balanced frequency response and generate 'excitement'. He avoided buss compression, relying instead on a blend of direct and parallel compressed signals to achieve the desired sound.

For the bass, Otero utilized two tracks: a DI processed through amplifier simulation and a recorded amplifier. The DI track was compressed to maintain a consistent level before being fed into the amplifier simulation, which added overdrive and reinforced the low end, further enhanced by tape saturation. Otero emphasized the importance of cabinet and microphone emulation within amplifier simulations, as they significantly shape the tone and ensure tonal consistency. The recorded amplifier was used primarily for colouration, requiring minimal EQ adjustments. Otero explained that he often avoids compressing the bass at the buss level, preferring multiband saturation to achieve a full, weighty low end. Instead of sidechain compression, he adhered to his philosophy of managing the low end with static EQ adjustments.

After crafting the drum and bass sound, Otero re-amped the guitars. For 'In Solitude', he re-amped all four guitar tracks using two amplifiers with

complementary tonal characteristics: a Peavey for its aggressive, mid-heavy sound, and a Mesa Boogie for cleaner, softer saturation. A booster pedal was used to clean up the low end and add aggression to palm-muted sections, resulting in a more saturated guitar tone. All guitars were panned fully wide, and processing was kept minimal, involving only low- and high-cuts, attenuation of harsh high-mid frequencies, and slight saturation to increase perceived loudness. Otero avoided using multiband compression for palm-muted notes, arguing that compressing guitars can undermine the dynamic impact in fast, technical metal.

For vocals, Otero employed hardware compression during the recording stage to shape the tone, a practice he considers essential for effective ‘pre-mixing’. In addition to reverb and delay, he used artificial double-tracking to enhance the size and width of the vocals. EQ adjustments reduced harsh high frequencies introduced by the microphone, while a multiband compressor increased vocal presence and controlled sibilance. Otero also utilized upward expansion to emphasize syllables in a controlled manner. Regarding orchestration, Otero viewed these elements as non-essential to the song. To minimize their impact on the core instruments—drums, bass, and guitars—he reduced their frequency spectrum and widened their stereo image, relegating them to a supporting role.

Otero’s mastering chain was extensive, designed to enhance the mix’s punch, cohesion, density, and weight. Console emulation was employed for colouration and compression, adding ‘excitement’ and glue. Psychoacoustic inflators and additional saturation further enriched the tone while reducing dynamic range. Two intelligent processors were used to manage harshness and temporary frequency imbalances. Tape saturation was applied to enhance the low end, and parallel saturation EQ contributed to a more pronounced ‘vibe’. Stereo width was expanded above 80 Hz, while a final limiter increased saturation for cohesion and performed brickwall limiting to control peaks. The resulting master was intentionally loud, with Otero explaining that the decision to produce a ‘hot’ master was based on sonic considerations rather than simply achieving loudness for its own sake.

8.2 Conceptual Interview on Heaviness

HiMMP

What is heaviness to you?

Dave Otero

It’s quite the question. It’s so wide-ranging and can mean so many different things to different people and in different scenarios. That’s a hard one to pin down, just one meaning to succinctly sum up something like that. But if I had

to sum it up—it'd be in the context of music anyway—that thing that washes over you and makes you feel such undeniable weight or dread or sorrow or excitement, or crushing power of something. Crushing power—that's probably the best one of those I just came up with. It's hard to sum up, but it's a feeling, and you kind of know when it's there, I suppose.

HiMMP

Absolutely. Obviously, that'd be different for different people.

Dave Otero

Yeah, for sure.

HiMMP

And do you feel that heaviness is limited to metal music? Or is it relevant to other genres?

Dave Otero

In music, I feel like it's definitely not just for metal. I mean, metal focuses on it, maybe more than other genres do. It's kind of like a primary point . . . If you ask a typical metal songwriter what they're going for, heavy is probably going to be in the first two or three descriptors, which maybe isn't the case for other forms of music. But it doesn't mean that other forms can't get there.

I mean, the first thing that comes to mind is . . . Honestly, industrial or electronic music can get really heavy. And in some ways, they are cheating because of those electronic sounds. It is really easy to get that punishing bass, which is one of those fundamental qualities. And then, they're elements of classical music that can be heavy in a weighty, sorrowful sense of the word. And, by maybe taking a longer, more progressive path to the point of a song that drops into this sorrowful or just unbelievably dark, weighty element, you can get the sense of heaviness, even in a more extreme fashion; honestly, you really take your time getting there. So, it's definitely not only metal.

HiMMP

You're talking about different forms that heaviness can take: sorrow, immense power, or energy. Before we started filming, we listened to lots of different productions that you've worked on, like doom metal and then Khemmis with some of the more traditional metal influences. And from the early days of Sabbath, right the way through to Lorna Shore, for example, how do you feel heaviness has changed over that half-century?

Dave Otero

I would say that maybe not so much has changed, but it has expanded in meaning because obviously, the original Black Sabbath songs are just as heavy

now as they were back then. But there are elements of metal music anyway that those listeners in the '70s probably couldn't have comprehended, and maybe that wouldn't have even been technically possible at the time.

So, those original heavy roots of the genre are still as heavy today. But I feel like those roots have grown into a tree, and perhaps even an orchid, of heaviness. And it's pretty interesting that bands are still managing to take it to new directions, but it still evokes that feeling of heaviness.

HiMMP

And the way that bands are taking it in new directions and expanding all the time. Again, it's another really broad question. But what are the elements in heavy music that provide and deliver heaviness to the listener?

Dave Otero

So obviously, as a mixing engineer and producer, I'm going to say production is a big part of it. It's definitely not the only part of it, but the production and the mix need to be paired with the song. And the two of those things deliver the emotions to the listener. Heaviness is one of those emotions, as well as a multitude of other feelings, that you can wash over a listener or a fan. So, that's one thing.

Closely related, but tangent to that, would be guitar tones and tuning. A lot of that is bridging between the songwriting and the song structure. Then, the other thing is song structure. It's like, if you're looking for that peak heavy moment of a song, often, it's pretty tricky to jump right into it. You got to set up the listener, so that goes to the song structure element of it, you know, work your way towards the part so when it finally gets to that drop, the production and everything is working together to just completely destroy someone.

HiMMP

So that sense of anticipation and almost delivering the leading up to the punch line where something drops. What are your observations about performance speed and heaviness?

Dave Otero

It's tricky because, obviously, things of all tempos can be heavy. But I guess it's got to be set up right and goes to these different forms of heaviness. You get that plotting, trudging, funeral dirge-esque heaviness of a doom band from this almost uncomfortably slow tempo that can just wash over you with supersaturated guitar tones and production and blooming low end.

Or you can reach the apex of a more aggressive song, where it's the most extreme blast of the song, and that can also be the heavy moment. So, I think it has more to do with setting up the moments rather than the individual speed. They're kind of different forms of that same emotion.

HiMMP

And in both of those forms of the same emotion, what are your thoughts about performance synchronization and edits and quantization? What are your thoughts on the whole situation with quantization edits?

Dave Otero

It's so context-dependent. They're useful tools. Obviously, I do plenty of editing here on certain projects, more on some and less on others. And it's really kind of knowing what the music is calling for. And sometimes that picture-perfect edited performance is just unbelievably tight, and everything's right on the money, and it hits with such precision. Sometimes, that's where you get the heaviness, or at least it plays into it.

And then, at other points, a bit of human performance allows you to more closely look through the music to the person behind the music and identify with them and their feelings. And if it's a vocal line that maybe isn't perfectly on time and is, say, a heavy line that even has a crack in the voice or something like that, that can impart more emotion than maybe a picture-perfect one might have. So, it really is context-dependent.

It also depends on the band, the genre that the band plays in, and what their fans expect. And then where the talents lie of those particular performers. Is it more in the songwriting, and is the precision going to let the songwriting come across better? Or is it more in the raw performance attributes of that particular artist? Then you need to let that shine through, and that's what's going to convey the most emotion to the listener.

HiMMP

Sure. Regardless of how that's achieved through the performance edits, quantization, Beat Detective, etc., what do you feel are the central challenges to mixing metal music?

Dave Otero

Clarity, for one. I mean, metal is an amalgamation of a bunch of really noisy, distorted instruments that don't naturally fit together to make a nice puzzle, as other forms of music might. So, in a genre of music where everything is supposed to be in your face, everything is supposed to be louder than everything else, you have to find a way to balance those together in some fashion. So, it can be more of a struggle than other forms.

Some of those EDM guys, I feel like, are cheating just because of the puzzle pieces right there. All of the sounds are built to work together, and a faders-up mix sounds pretty close. I have not heard many faders-up mixes in metal that are anywhere near where they need to be. So, a lot of work is crafting where each instrument can live in the frequency spectrum to make a nice full mix but not overwhelm the listener.

HiMMP

With the productions that you've worked on outside of drums, bass, guitars, and vocals, what textures have bands used that significantly enhance heaviness?

Dave Otero

Synth, for sure. And that's becoming a little more prominent these days, along with electronic sounds, and it helps to fill in some of those gaps. You can get some really nice, consistent low-end frequencies, for example, which I think in heaviness are particularly important in getting the low end right. That's one of the ways in which bands in this more modern context are finding ways to expand heaviness.

Like, going back to what we're talking about before, they're using a bit more of the electronic abilities, influences, and textures to enhance things like bass drops. That's one of those original ones that can take a part that's like, 'Oh, that's heavy', to just like, 'Oh my God'. They're heavily used in the deathcore scene. You go to a deathcore show here, and it's like every downbeat is a sub dropped down to 30 hertz that's working the venue subs to their fullest extent. So, I think the electronic thing is, at least, the more recent addition to, like, okay, we're really taking this into new genres now.

HiMMP

And you were talking before about this focus and the challenge with getting heavy music to be clear, and that emphasis on clarity, but do you feel that low-fidelity versions of metal and lo-fi production can be heavy?

Dave Otero

It can be, but not to the same extent. It certainly can. But there's a reason why, like in the concept of extreme metal, you're more likely to see a more low-fidelity mix in like a black metal context than you would be in a heavy metal or a death metal context. And while there are heavy elements of black metal, it's not a primary focus. So, you can see where it works in this genre because maybe heaviness isn't the primary element there. I think for something to be truly heavy, the production has to match, and it doesn't have to be perfect and modern. There's plenty of classic death metal that's undeniably heavy. But yeah, the lo-fi thing, it's going to be tough. You got to really work the song into it.

HiMMP

Fascinating. And more from a future-looking perspective. Where do you think it can go from here? Do you think that technology will continue to change? Have we reached the limit as far as performance speed and ensemble synchronization with those super-fast blast beats and subdivisions are concerned? Have we tuned as low as we can go? Where could it possibly go?

Dave Otero

It's hard to predict the future, but I have no doubt that there are some artists out there now who have some idea brewing to bring something new to the fold. And I don't know if it's going to be tuning lower or playing faster or having an even bassier bass drop. I mean, with some elements, we have reached the limits in a physics sense. But one of the beautiful things about metal music is that it's such a young genre. We're still kind of in the infancy, so there's a lot more to happen.

And being a fan of it at this time period is pretty cool. There might be some old guys out there that, like, fist in the air, 'Get off my lawn kids,' you know, it's not like it used to be. But man, I think there's still a lot of ingenuity out there. And I see some of the younger bands doing really cool things and taking different angles.

And even if it doesn't always resonate with me personally, I look at younger fans, and it clearly resonates with them. So, there's validity to it for sure. It's exciting to see, and I try to stay open to it, doing what I do. And wanting to keep producing music for a long time, I have to force myself out of that old guy mentality and try to appreciate what the younger generation is bringing to it. And I do, and I find a lot of it really inspiring.

HiMMP

Fascinating. Can we move to having a listen to your mix of 'In Solitude' now?

Dave Otero

Absolutely.

8.3 Mix of 'In Solitude'

HiMMP

When you're mixing metal music, what are the limitations and trade-offs that you're looking for? In other words, denser, thicker guitar tones make the drums harder to punch through, or with less distortion, it's a less thick sound. What are those trade-offs you're looking at?

Dave Otero

A lot of it is just starting with the material. You have to start with the song: what are the focal points of that particular song? What areas of the mix should be highlighted more than others? What is driving the song? If it's a very rhythmic song, and the drums are really pushing things forward, then those need to make sure they're punching through. But I mean, at the end of the day, really, everything needs to be punching through no matter what. So, it's like a multi-step process of digging in and getting the fundamentals in place so that you have workable tones for everything. Then, the creative

side kicks in, and it's more like shaping the song to appeal to the listener in the right form.

HiMMP

Sure. And does your general approach with bussing change from project to project? Or do you have a general template approach for your rough bussing?

Dave Otero

I guess a workflow would be more appropriate. I wouldn't say I start from a template because I think that can hinder the process and stagnate me as a mixer. I let myself be free to discover new tricks rather than sticking with the tried and true, so I don't stay stagnant. But I definitely do have a workflow as far as grouping and a signal path method that I mostly stick to, and it just changes when necessary. Drums go to individual groups, then to a drum buss, and then to the master buss so that they'll have the signal flow that works for me.

HiMMP

Obviously, how you use your parallel compression, distortion, and saturation will vary from project to project. But as far as parallel compression is concerned, is it something that you'll use on the drums for every project or every project, but in varying degrees?

Dave Otero

Probably the second. For the past few years—and these are things that also could change—I've been using parallel compression on drums on about every project, but to varying degrees. Similar settings because I'm using hardware, and it's to avoid having to recall a bunch of settings for every single project. I find where I like a certain piece of gear doing a certain type of thing, and then I go to it for that time and time again. It makes things a little easier. But yeah, that feeds back into the project on its own fader. And that's always going to be a varying part of the sound, depending on what the project calls for.

HiMMP

Sure. And what is your approach? Is it generally that you'll look at parallel compression for the snare, one for the kick, and maybe one for the toms? Or is it, 'Here's one that's for the kick and snare'?

Dave Otero

I have a piece of gear, and I figure out what about it that I like and then utilize it for that sound. So, most parallel compression, for me, is for that snap. Two of the more common ones I'll use are an [ADR] Complex and then an

AudioScape D-Comp. They both have a similar but slightly different kind of snap, and that's what I'm trying to get out of them. So, I load them up, and then I send them to it whenever I want some of that flavour. And if I need more snap on the snare, I'll send more snare to it.

So, rather than it being a specific processor for an instrument, it's a processor for a sound. And the parallel side allows me to dip into it in whatever way I want, rather than having it isolated on one instrument. And all of the parallel compression combined helps me with that glue. So, it almost acts like a drum buss compressor since a lot of the drums end up going to these compressors, and together, they add some of that glue and reactivity between the different instruments.

HiMMP

And is it an approach where you'll go for different attack and release times with different compressors? Like, one's really taking a fast attack, fast release approach, so it really is more for sustain, and then another one that's more about punch?

Dave Otero

Precisely. And then that gives me faders to control those elements of the mix, where if I feel like I need a little more air behind the hit, or if I need a little more bloom on the toms or on the snare, I can push up that fast attack, fast release one, and it maybe gives me a bit of snap because all my compressors are going to give me a bit of snap, but then it brings up some of that air around that almost acts like a drum room in parallel with the drum room.

Or if I feel like I need a little more excitement, and I want to give the drummer like 10,000-pound arms, that's how I think of the snap of my compressors. It just makes them sound like he was hitting about ten times harder and adds a lot of excitement to the mix. You can even vary it per part if you find that necessary. I don't often do that, I wouldn't say, but it's definitely possible.

HiMMP

And continuing with the theme of workflow, do you generally start off with master buss processing as far as a bit of compression and limiting is concerned? Or is that something you'll leave till later in the process?

Dave Otero

It's somewhere in the middle. I'll start with a clean mix buss. And then I'm doing a lot of solo tone listening, sculpting things like, 'Okay, let me just hear the vocals'. Okay, what do I know needs to come out right away? At the earlier stages, I'm almost always listening for what I don't like, and I'm removing that. If I'm going to augment drums with samples, then I'm going

to maybe figure those out first. Okay, let's find some samples that feel like they're at home with these natural drums, blend well, and take care of the phase and all of the details.

The first part of the mix is a lot of technical stuff. Just getting things in place, like okay, everything sounds good on its own now. But by the time I'm using those prepared tones to sculpt a mix, then I'm going to want some processing on the mix buss, probably not a lot of EQ, but set up some of my Virtual Console-type things, which add a bit of that saturation. I'll probably get some limiting on there, although I won't hit it too hard because I don't really know where all the headroom is yet.

I start adding some of the colour-type items. I'm a big fan of the Slate Virtual Tape on the mix buss; I feel like it adds a nice bloom to the low end. And that's a love-it-or-hate-it type of thing. But I like starting with that fairly early. And I can mix into it and allow it to just provide that fundamental, like, push that forward a bit. It's not something you can add too late because it can ruin a mix if you just toss it on when your balances are already in check. So, it's like nothing at first, and then I start stacking some things on. And then, by the time I have everything in there, and I'm really looking to fine-tune everything glued together, I need to have a pretty stacked mix buss.

And typically, in most scenarios, I'm mastering the project, too. So, by the time I'm at the end of a session, I'll have a full mix and mastering chain on my mix buss that I'm mixing through at the very end.

Drums

HiMMP

Then, going back to the beginning of that process, we talked about drum samples that work with original tones. Do you have any general approaches where you would like to take clean hits from the kit used for tracking and create drum samples from those?

Dave Otero

That's a case-by-case thing, too. It depends on the sound required. I've worked with a few drummers who have very specific sounds and specific styles that rely on their drums and the way they tune. In that case, I'm going to lean more heavily on samples created from the kit from the session. Obviously, that allows me to keep a unified sound, but then I gain a little more control over dynamics because I can obviously control the velocity of the samples.

So, it really depends; it's a case-by-case thing. I would say probably 30% of the time, I'm using samples from the recorded session. And the rest of the time, I'm just utilizing those live sounds because they obviously still exist there. And I feel like if I'm producing the drums or recording drums as well, I could probably get what I need out of those drums in the live performance.

So, if I need more consistency, I can get that out of the drummer when we're tracking. And then I'm looking to augment those sounds with slightly different sounds later, using samples to get something that the live kit didn't really provide, which I feel is necessary.

HiMMP

Sure. And from that perspective, is it generally that you look towards more ambient samples or ambient and dry samples and then different feed levels?

Dave Otero

Yeah, it's probably that. If, say, we tuned with a higher-pitched snare, for instance. And that's great for the reactivity of the parts. If that's what the drummer feels most comfortable with as far as getting a proper bounce, cool, but then it gets to the mix, and I feel like I'm missing some weight. I really like a weighty snare, even for higher-pitched snares. I really want some weight to come through. So, maybe I'll look for a sample to add that weight. And then, if I feel it needs more room, I can also . . . It's really whatever the project calls for, and it's always different.

So that's why I like having a workflow that I'm comfortable with, where I know where everything is in the mix and in the signal path. But really, just letting the song guide you rather than having a set workflow as far as, like, 'Okay, this is how I actually treat each instrument'. You really need to let the song tell you what it needs, and you just follow that.

HiMMP

Absolutely. And with the kick drum, it's a similar circumstance in that you'll potentially use a kick sample from the kit used in the session for tracking and then use different samples for the different qualities you get.

Dave Otero

For sure. Mostly, like on kick drum, I'm almost always going to be looking for a little more consistency. And you want to have a bit of that natural dynamic from a real kick drum because even if the volumes are completely unified, a hard hit sounds different than a soft hit, even if they're the exact same volumes. And in a kick drum, there's a huge difference: the amount of attack, the amount of smack, and the length of the bloom after the kick. You want some of that stuff.

But in a dense metal mix with a wall of guitar and bass and vocals and other elements, consistency isn't always there with only the natural kick. So, I use a sample to give me some consistent fundamental low end, some consistent attack, and you can even vary that with how closely it attracts the drummer's natural velocities. Sometimes, I'll have it match them almost perfectly if it's more of an open mix and there's more room for that. Or if it's

really fast stuff, and the natural dynamics are more like—if you're playing 32nd notes at 280 BPM—there's only so hard any drummer can hit those kicks. Then, I'm going to utilize a sample just to push it for a bit more.

HiMMP

Sure. And are you generally favouring sending your acoustic snare and the snare samples to the collective snare buss with the acoustic and the samples? And you'll use that as the take-off point for sends to reverb? Or do you do the Andy Wallace thing, where it's more the samples that are sending to reverb? Or is it sometimes a mixture of both, or is it just dependent?

Dave Otero

It's definitely a staggered approach. Typically, I'll have more than one snare mic, a top and a bottom, almost always, and then sometimes two tops and one bottom. Those will go to a single group called 'snare mics'. And then my samples will go to another group called 'snare samples'. Both of those will feed to a master snare group so that they have different points to apply processing where I need it. And typically, that master snare group will be where the reverb sends are.

So, I'm using just the combined full snare sound. But then that master snare group will go on to the drum buss, so it's a staged approach that allows me to put processing efficiently. So, if I want to add EQ to the natural snare, I can add it to the group rather than off three or two—or however many—individual instruments I have. But then I only dial in that natural snare sound, not the sample sound, and then together those go to another one, and then I'm usually applying more processing there and in stages.

HiMMP

And when you first looked at the 'In Solitude' session, what did you do? Did you just listen to all the tones and set up your session? And did you go left to right across the board, starting with the drums?

Dave Otero

Pretty much. The first thing I do is give myself a real basic faders-up mix so I can hear the song and poke through it a bit. Honestly, I probably didn't even listen all the way through. I get a good idea of what I'm dealing with. 'In Solitude', in particular, as a long song, has a few different feels; it goes through some different ranges and different tempos.

So, I try and get an idea of where I'm going to want the final product. And then, once I get an overview of the song and I start to have a bit of a direction, then really, it's just a bunch of technical set-up stuff. I'm going through each track. On this particular track, there are a few different snares. I think there are two snare tops, a bottom, and a snare side, for instance. So, I'm

like, ‘Okay, do I want to use all these, and what amounts?’ At that point, it’s methodical, and almost like my brain shuts off, and I go through it in a process that I’ve done a million times to this point.

And then once I get through that, it’s when that creative side kicks back in, and then I’m making more mix decisions, ‘Okay, I got things set up pretty comfortable with everything, I have a smaller amount of groups in front of me that are a little more manageable than 50 or 60 individual tracks.’ So, it allows me to zero in on the larger elements of the mix and do most of my work on those.

HiMMP

Sure. And on that process where you’re putting it together, do you generally favour waveform edits on your toms and gating the kick and snare mics pretty hard? Or do you go for limited-range gating?

Dave Otero

I do essentially limited-range gating, but my particular method uses MIDI, so I trigger samples off MIDI, and I also trigger my gating off MIDI. I actually use FabFilter Pro MB, which is a multiband compressor, and I use it as an expander. It’s gating off of ticks that are again generated live with MIDI. And it allows me to gate all the drums in a pretty natural way. The multiband aspect of it allows me to control cymbal bleed by setting the high end of, say, a tom track to a faster release time that matches the feel of the song, while letting the low end bloom a bit longer because that’s not as problematic on a tom track.

Cymbal bleed is one of the things that anyone who has ever mixed a song with real drums is pulling their hair out trying to deal with that. But it allows me to do it in a more natural way, where it tucks it into the mix. I get that initial snap from a tom hit, for instance, but then ducked out of the way fast, and it lets the low end bloom a bit longer.

HiMMP

Sure. And when you listened through the multi-track, what became your primary focus with the song? There are blast beats and a slow middle section. What were you thinking would be a challenge with this song? Or what were your thoughts about, you know, is going to need a lot of automation?

Dave Otero

I guess I split it up into two sections, which would be the beginning and the end of the song, which have a consistent feel, and then that section in the middle with a lot of orchestration—that’s like the curveball thrown in. Luckily, they’re not so divergent that they require completely different mixes or completely different tones. But it’s something you’re going to want to keep in

mind; the middle section gets a little slower and churnier and weightier. So, I know I'm going to want drum tones that can carry that weight and that can have a bit of length to them.

I also like automating in some additional reverb for that section to give it some more space and to feel a little more grand because that's the feel that it has already. And my approach to mixing is, 'Okay, let's listen to the arrangement. How does that make me feel?' What choice is making the mix to embellish those emotions? You're there to enhance what the song already is. Mixing is just a lipstick-on-the-pig situation, so you want to take what's there and release it for an audience.

HiMMP

Yeah. And from the width perspective, are you going cymbals and guitars fully wide? Or do you have any stereo-widening techniques on the bass or in the mix overall?

Dave Otero

Typically, I don't on bass, but I'm going to usually pan hard left, hard right on overhead. There's enough bleed already. And they're all mics on the same instrument. So, panning 100% left and right will still leave you a bit of cross-talk. Typically, the ride, I'm moving a bit; that's one of the only things that I feel like when you really hard-pan the ride, and it's such a bright attack; it can be a little off-putting.

So, I'll bring the ride in; guitars are almost always going to go hard left and hard right. On some more commercial stuff, maybe sometimes you bring them in for the verse, just so you can pop them out for the chorus for a little extra lift. But on a song like this, they're just going to be hard-panned all the way.

HiMMP

So, with your kick drum, did you completely replace the kick on this one? Or did you use elements of the acoustic mics at the same time?

Dave Otero

There was a blend. Actually, the kick drum sound was pretty good, and I liked the dynamic nature of it. So, there's a blend. And you can see there's a little more processing on the kick mics just because they generally need it. Samples, by nature—many of them that I choose—have already been processed, so they're ready to go. Here would be this live gate that I'm running, and you can even see how the top end releases a lot faster, a lot more reactive to each hit, while the low ones, a little slower—it allows them to bloom a bit more (Figure 8.1).

And then some EQ, some drum levelling (Figure 8.2). I've been utilizing this guy [Drum Leveler] lately, which is pretty fun. It's not really compression;

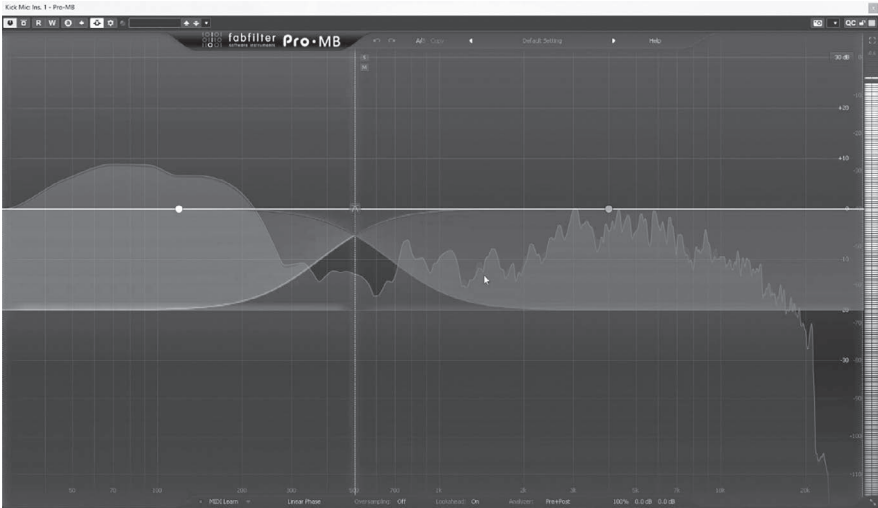


FIGURE 8.1 Multiband compression on a kick track with faster release on the top band to control bleed.

it's levelling each hit. Usually pretty hard on kick drum, typically a bit less aggressively on snare and toms. But I find that using some of the Drum Leveler before it hits a coloured compressor, which I am using here in this SSL channel, allows the compression to react a little more consistently to those hits because it's seen a more similar level. So, you're getting a similar level of snap out of the compressor, which is really what I'm using this SSL channel for.

HiMMP

So, on the multiband compression there, it's not actually gating it, is it?

Dave Otero

It is gating it. Well, it's set as an expander. The range of both of these is set to 20 dB. So, I'll solo the kick mic, and then we can see what this is doing. And if we turn it off, it feels really natural and allows me to sculpt it a bit differently for every project, depending on the bleed levels, how fast the performances are, and whatnot.

HiMMP

And were all three of the microphones that I gave you on the kick drum?

Dave Otero

We are using all of them here. Typically, what I will do is that the [Audix] D6 is my main track; you can see the faders at the highest there. I'll use that as my

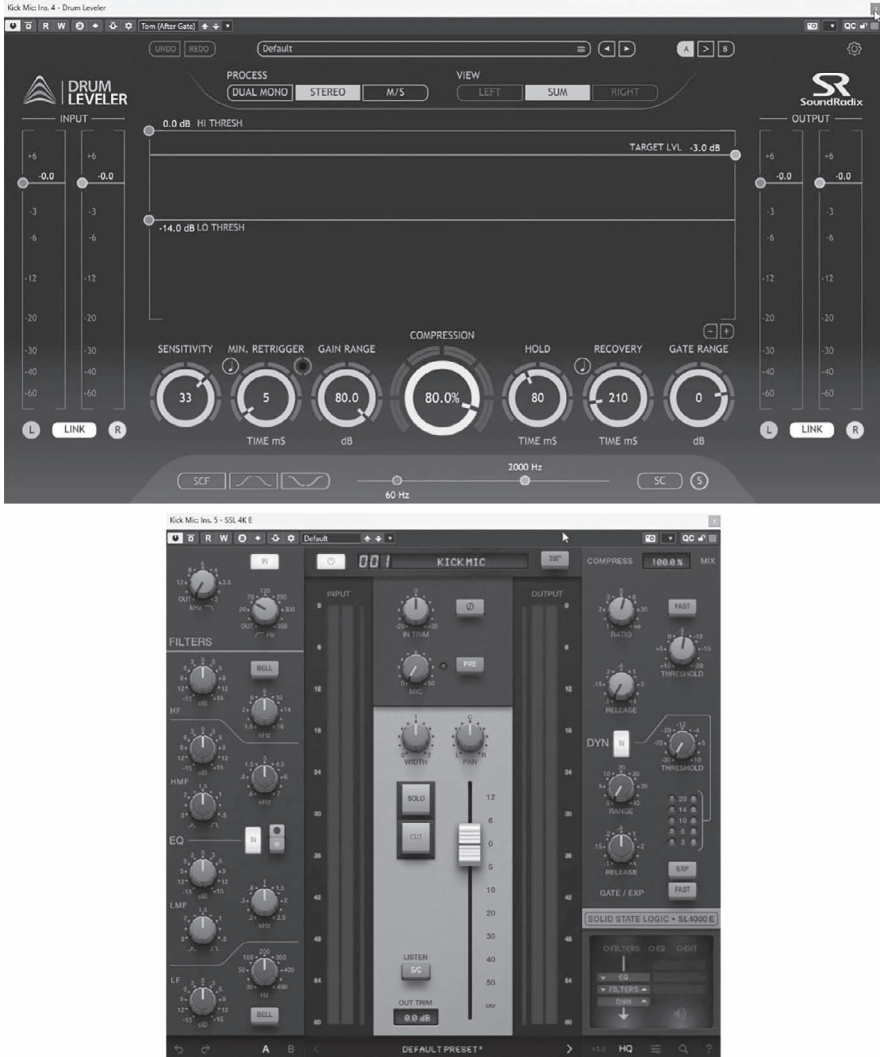


FIGURE 8.2 Dynamic range control for more consistent volume (top) and analogue-style EQ in SSL channel on kick track (bottom).

central kick sound, and then I may apply some processing to the additional tracks so they’re augmenting what I want out of that main track. The sub-kick—I went in and took all the top end out, so I’m really just getting the bloom (Figure 8.3).

At this point, anytime you’re processing these two different sources on the same instrument, you have to be aware of the phase, specifically on the kick drum, because the low end is where you hear that phase the most. So, that’s one of the few cases where I’m going to use a natural phase EQ to make sure that I’m not losing anything there, and even then, sometimes I won’t; it’s

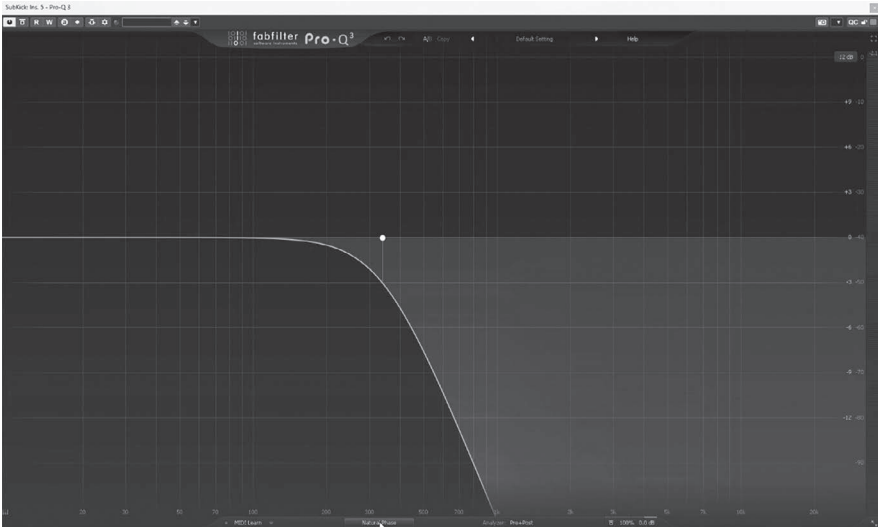


FIGURE 8.3 EQ on the sub-kick removing middle and higher frequencies.

really a case-by-case basis because there are some downsides with pre-ringing to using linear phase processing in a DAW.

Let's see, I took a bit of that notch of the [Shure] Beta 91 because they can sound a little door-knocky, so I'm sculpting those to augment what I want out of my main source (Figure 8.4). Stacked approach, so these get a bit of processing, and then they go over to this group track where I'm doing a lot more heavy lifting and EQ.

HiMMP

Fantastic. And you're using [SoundRadix] AutoAlign, and you are phase-aligning all three kicks, are you?

Dave Otero

I'm not because the mics felt pretty in phase to me, or at least I was happy with their phase relationship. But I will use it between my kick mics and my kick sample because of different samples. Obviously, you are dealing with DAW delay compensation; you never really know what's going on under the hood. And since I'm not printing my samples, if I were, you could zoom in and visually see if they're in phase. Since I'm running them live, I'll typically use AutoAlign on my samples.

So, you can see a few of these groups—like my kick, my kick sample, and the same on the snare. And then I've auto-aligned all of my bass tracks just to make sure those play nice together. And AutoAlign, in particular, is really useful. It's actually doing some pretty crazy stuff on these. If you look at the little colour band here, it shows you how it applies different phase adjustments at

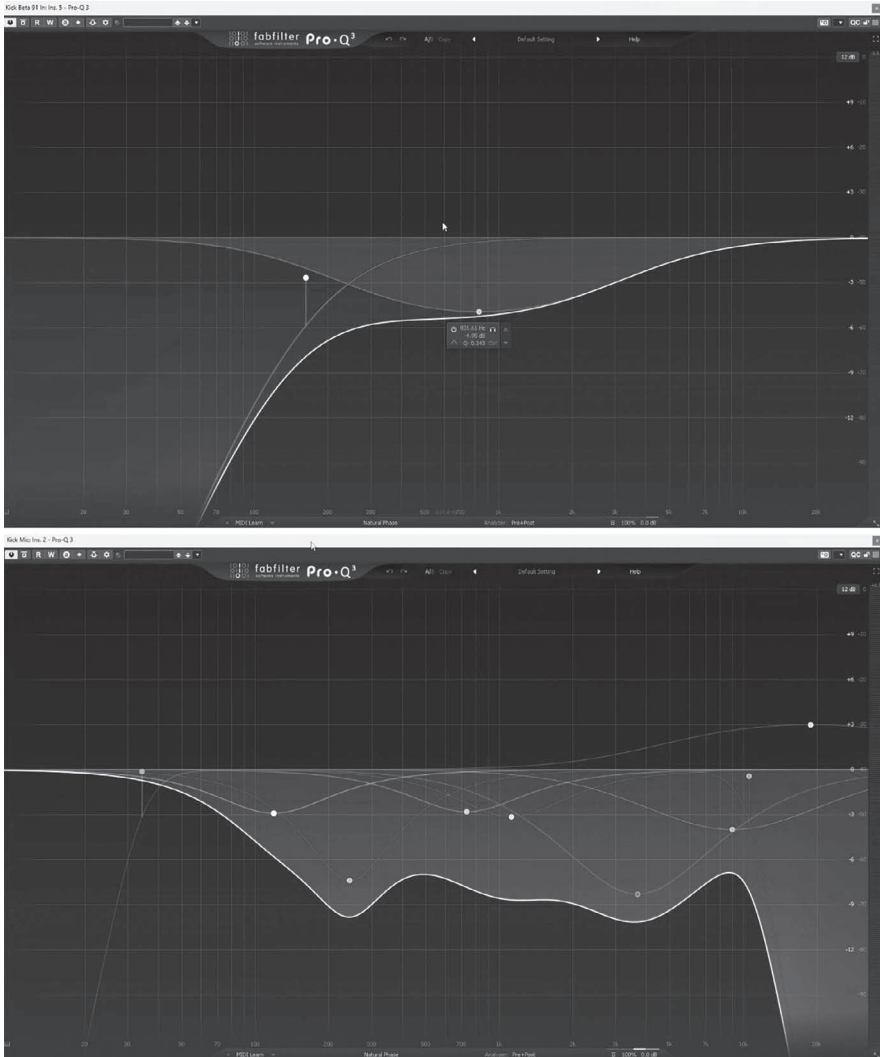


FIGURE 8.4 Different EQ on the tracks Kick Beta91 (top) and Kick Mic (bottom).

different frequency points—which, for multi-miked guitar sounds, like you got a few different mics on a cabinet—can be a game changer, versus just pure time alignment or phase alignment.

There's a bit of uneasiness that comes with using tools like that because so much is happening behind the scenes. And it's not like you really have control over every aspect of it. But in almost every case, it ends up making the sound better. So yeah, phase is one of those things that it's like a love/hate for me. I wish that it didn't exist and it would be something we never had to worry about because, in a lot of situations, there's no right or wrong with phase.

HiMMP

Have you used SoundRadix Pi?

Dave Otero

I have once, and I think my issue with it was because it's constantly adjusting, I felt like I could hear it. When I'm listening to a source—say, if I'm using it on drum overheads or guitars—it's always trying to adjust. I feel like if I listen to it, I can hear it adjusting, and I'm getting slightly different phase relationships as the song goes on. It's just not reliable enough for me. I'd rather have something that I can dial in, and it stays static once it's set, and then I don't have to worry about our AI overlords trying to ruin my mix.

HiMMP

Absolutely. Did you just go with the one kick sample on this one?

Dave Otero

I have one track, but I'm probably blending a few (Figure 8.5). Some of my own; here's one I bounced from a project I did in 2019 and another one here that I did late last year. And then a few. I think the cheek slap is our good friend Jens Bogren's kick sample. So, it's just a collection; I've got a few that

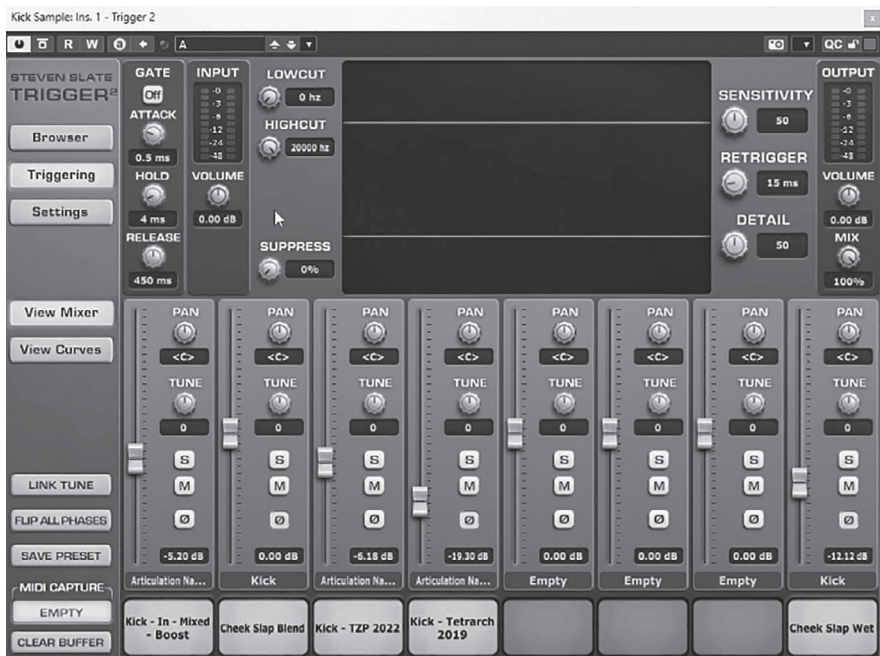


FIGURE 8.5 Five kick samples for complementary sounds blended with the real kick.

I like. But then it's mostly a matter of bringing up the natural mics once I have some dialled in there and then trying out samples. And sometimes, I'll pull them both up and solo the kick and the sample, and I'll pan them a bit. And then I'm trying different samples until I'm like, 'Okay, these are starting to come together.' Maybe it gives me a clue that they'd work well together.

I typically do not do a lot of tuning of samples; I'd rather find samples that work together naturally. But I know other guys that'll either try and match-tune using the tune knob here on whatever they're running samples on. Or I think a common tool is Waves Torque, which is specifically made for tuning percussive instruments and has some way of separating the attack from the sustain. Some voodoo magic back there. I've played around with it a bit, but I typically don't mess with that too much.

HiMMP

Sure. Can we listen to your acoustic kick mic and then the kick sample and then blend it together?

Dave Otero

Absolutely. That's together.

HiMMP

Some nice ambience in that kick sample. And then, moving on to the snare mic, there were two snare tops I gave you, a snare bottom and a snare side. What were your decisions about these?

Dave Otero

I'm using a bit of everything. And I remember specifically blending in the snare side. It's probably been a year since I put a snare side mic up. But I quite enjoyed this one. It gives you a little ambience; it's a bit like a room mic. So, I'm using them all a bit here. And again, I didn't really phase-align; I'm assuming that my assistant did check the phase in the snare. But that looks pretty good. If I zoom in on these waveforms right there, that's pretty good; they're reacting pretty similarly.

So, by the time I get a prepared project, I would assume that all of the mics have already been treated for phase. Then, I mainly just have to worry about the phase between those and the samples that I add. And then any phase relationship changes that happen with processing are, again, another can of worms that you get into when you go deep with the phase. But yeah, I did use all of them. And they're probably gated pretty heavily. I think I ended up splitting this particular track up into four bands to really control how much bleed I'm getting (Figure 8.6).

Another thing you can do, using the multiband expansion method, is control the feel of your ghost notes. It allows you to use a threshold on this



FIGURE 8.6 Multiband compression on the snare buss controlling bleed and tone depending on frequency.

expander, which is like the gate thresholds, and dial in how much of those ghost notes you want to come through. Because if it's hitting heavy compression afterwards, you don't want those ghost notes to sound unnaturally loud. So, in this case, particularly on the top end, you can see that the threshold is a little lower on these lower bands on the top-end. It's up a bit higher to make it less reactive for those ghost notes, so they don't open up and expose tonnes of bleed to the mix.

HiMMP

Fantastic. Regarding the EQ approach, were you EQing individually or on the sum?

Dave Otero

It looks like I did a little. So again, the same type of situation where I'm going to find my main source, and it's probably not going to have much processing. And then I'm going to apply a bit to the other sources to augment that main source; I guess that's almost like a top-down way of dealing with an individual instrument. I find what I like the most, 'Okay, this has a good balance', and then I'm bringing the other things in. And if I find aspects of them that don't play as well with what I want to be my main source of that, I'll sculpt those sounds at that point.

So that was a condenser. Sometimes, condensers on the snare can get a little too snappy. And they can get an almost strange type of low end. I'm

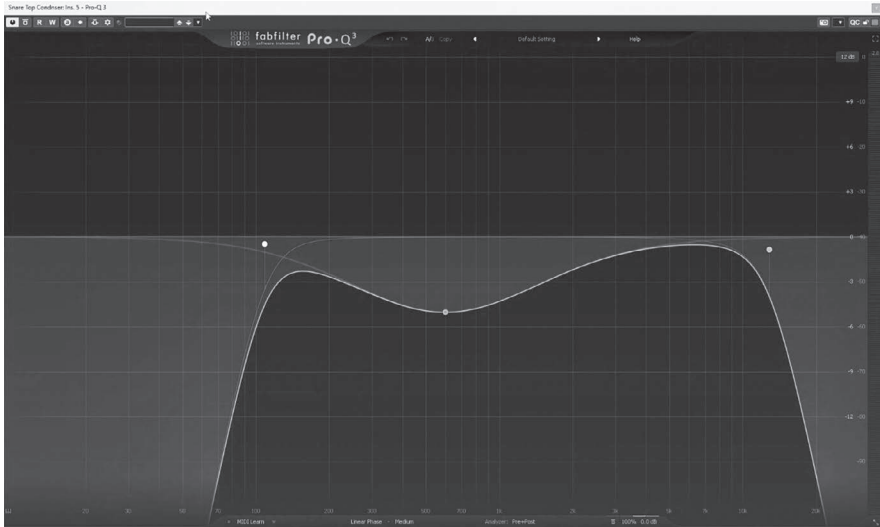


FIGURE 8.7 EQ of condenser microphone at the snare top to attenuate excessive mids, high-end fizz, and low-end rumble.

cutting all that out because it's nothing I need. It's just pulling some mids out because that condenser was a little more mid-heavy (Figure 8.7). And then probably similar stuff for the snare bottom, controlling some of that fizz, so the snare wires aren't too top endy. And I actually like to utilize some of the low end from a snare bottom mic, which I don't think a lot of guys do. So, I'll leave my high-pass pretty low so as not to cut too much down there and get a bit of body out of that snare bottom as well.

HiMMP

And then you're hitting Virtual Tape Machines and then Virtual Mix Rack?

Dave Otero

Pretty much across the board on almost every channel, it hits a bit of VTM and then a Slate [SSL] 4000E channel (Figure 8.8). And I crank the drive. This is something that worked for me. And I think I've landed on this approach because, naturally, my ear goes towards cleaner sounds. I think I'm always looking for stuff that I don't like, and I'm trying to remove, remove, remove.

I find that adding this stacked saturation element helps me still have a nice full mix, where maybe earlier in my career, some of my mixes could have been a little more on the sterile side because this is what I prefer. Naturally, I'm always looking to bring up the clarity. So, I'm compensating for my natural tendencies by stacking this saturation to squish everything together. I really like a nice crunchy, squishy mix; it feels like it's wrapped around you like they were in the heyday, I suppose.



FIGURE 8.8 Tape (top) and console (bottom) saturation on the snare top for fullness and character.

HiMMP

And then you've got any EQ and processing on the acoustic snare sum?

Dave Otero

I'm sure I've got a tonne; that's usually something I'm going to hit a lot. I think I was moving pretty quickly on this mix. There are probably some

pretty wild-looking EQ curves like this (Figure 8.9); I'm pulling in a lot of that 500 Hz. You do this long enough, and you learn the key points for each instrument. For snare, it's going to be a certain amount of high-passing; you're really going to want to control the 500 Hz on a natural snare to get that cardboard knockiness out.

And then, for most natural drums, I'm going to do some high-passing way up top somewhere in this range to keep the crisp, fake-sounding, digital feeling sound out. And then just shaping from there. I think I have multiple

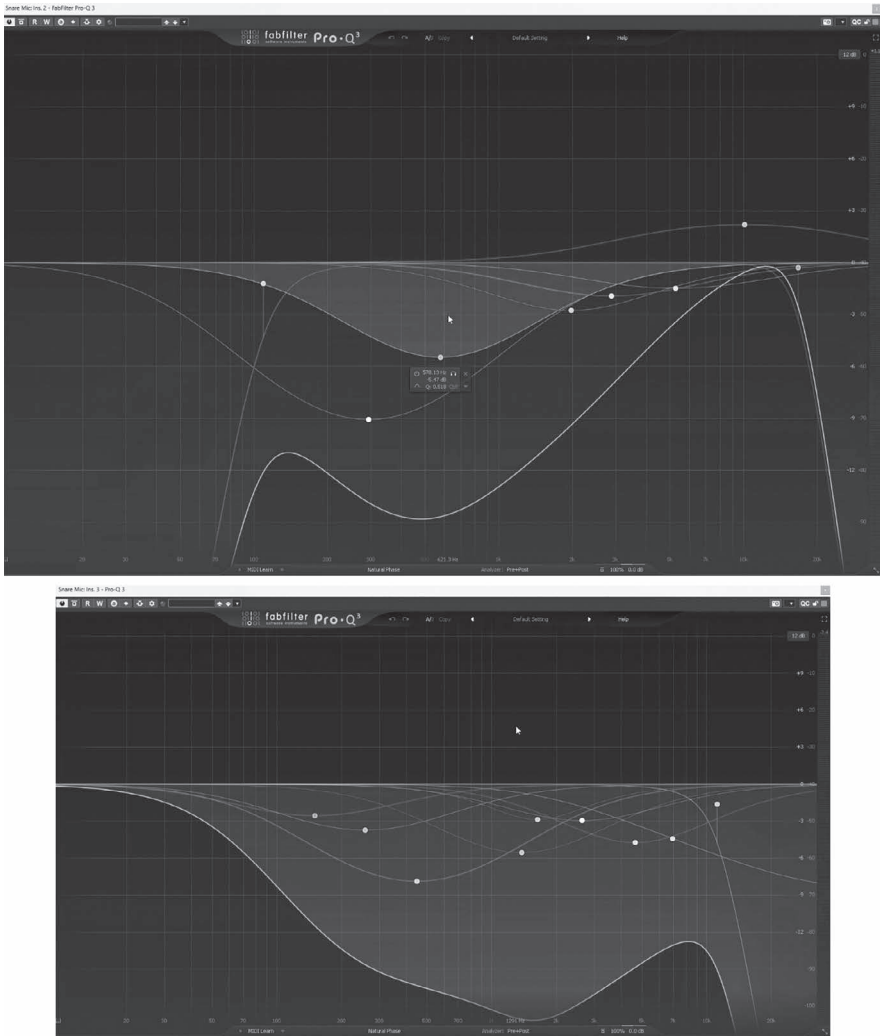


FIGURE 8.9 Two EQs on the snare buss track removing cardboard quality and digital ‘fakeness’ in the high end.

levels, like two EQs. Honestly, this is pretty messy; I could probably combine all this into a much cleaner curve. But when I'm mixing, sometimes it's like full go, and I'm not too worried about being clean. I use a lot of points to create the shape I'm looking for.

HiMMP

Is any of that dynamic EQ?

Dave Otero

Not on snare, not right now. I'm trying to remember where I used some dynamic EQ. This is my master buss for the production and synth elements. And with any kind of synth or electronic stuff, that low end can easily get out of control. So, I have a quick, dynamic, low shelf to keep that in check. But I probably don't lean on the dynamic stuff too much because sometimes I feel like it's a little too unpredictable; I want to know what I'm dealing with and be very careful and deliberate when I apply those dynamic processors.

HiMMP

Can we listen to your acoustic snare mics?

Dave Otero

Yeah. This is obviously hitting the Drum Leveler (Figure 8.10). So, the fact that I'm gating first really cleans a lot of this up, and it will be a lot more noticeable if I gate and turn this gate off.

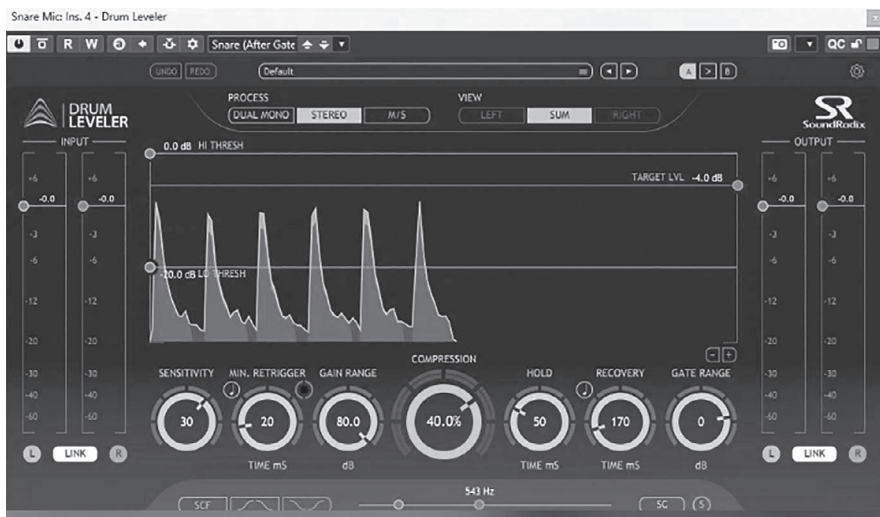


FIGURE 8.10 Dynamic range control on the snare buss.

HiMMP

Sure, what sort of levels are getting a reduction on the compressor?

Dave Otero

It's really hard to tell with these [SSL] 4K, so I crank it up until it feels like it's snapping (Figure 8.11). Usually, on the LEDs, I'm looking at three to six, but I have a feeling it's probably more than that at peak levels. So, we're just popping out; I could probably go a little harder. But these are also, again, like we talked about before with the parallel compression hitting those, which a lot of the snap is coming from. If I were to turn off the parallel compression and hear that this was happening on the actual snare mic channel. So that's what we're getting there. And if we add that parallel compression back in here, we get more snap.



FIGURE 8.11 SSL channel strip compression on the snare buss for enhanced snap.

HiMMP

And you're taking parallel compression feeds from the snare mic sum here?

Dave Otero

It's from the master snare, actually. They're off sends, and I put them down on the bottom here. And right now, I'm using three different parallel compressors (Figure 8.12). The first two are hardware pieces, so those are hardware inserts. Both of those are variations of the snappiness we discussed earlier. And then the last one is the opposite. It's that fast attack, fast release. And it's actually the SoundToys Devil Lock, which is great for smashing drums. And you can be a little more liberal with that one because it can quickly get out of control. I can use a listen function directly on the returns for those parallel compressors; you can really hear what's going to each one.

So, the [ADR] Compex, I could listen to just this return all day because the attack characteristic of this particular compressor is so pleasing. I wouldn't mind if there were just drums that sounded like this because they're so smacky. You can hear it's mostly snare, a bit of kick. There are some toms in there, too. And I send a bit of overheads again to help glue them in. And then, if we look at the next one, the [AudioScape] D-Comp. It's a similar thing, but it has a built-in high-pass filter on the detector circuit. I like the way it reacts more to low-end frequencies. But again, it's adding that snap. So, when we listen to this, when you hear more kick, less snare; probably it's a lot of snare. But it's more kick and toms, and I think there are probably no overheads.

And then the two of those together are so smacky. I love that sound. And honestly, it's like you can get close in the box, but I haven't heard an in-the-box compressor that makes me feel the way I feel when I use these two. There's something so special about that snappy attack characteristic and the



FIGURE 8.12 Sends on the snare buss, including three parallel compressors.

saturation that happens on the snappy part of those drum hits. It's worth dealing with the hardware inserts, the real-time exports, and all that stuff to get that sound.

And then, if we add the Devil Lock and mix it. I use the slow attack setting most of the time, so it still adds a good amount of snap, but there's going to be a lot more sustain. And I will probably typically send some. It's getting a lot of snare, a bit of kick, a medium amount of toms, and sometimes I'll send a little room to it. It just helps glue it all together. The Devil Lock still has a lot of snap on that slow attack setting, but there is a lot more of that ambience. It's almost like a fader for your snare room. So, all these together is a pretty big part of the drum sound.

HiMMP

Perfect. And can we have a look at the EQ you're applying to the kick sample channel?

Dave Otero

Certainly, there's probably not much. I've only taken out some knock; it's a bit knocky (Figure 8.13). Really, some of this probably has to do with the processing I have on the master kick channel here, which I'm going to guess is cutting some lows and some 200 Hz.

And then one of these might be adding some. Actually, it's not really; they're all just sculpting some of the mids. So, the samples, I guess, are a little mid-heavy, which may work in another context, but in combination with this

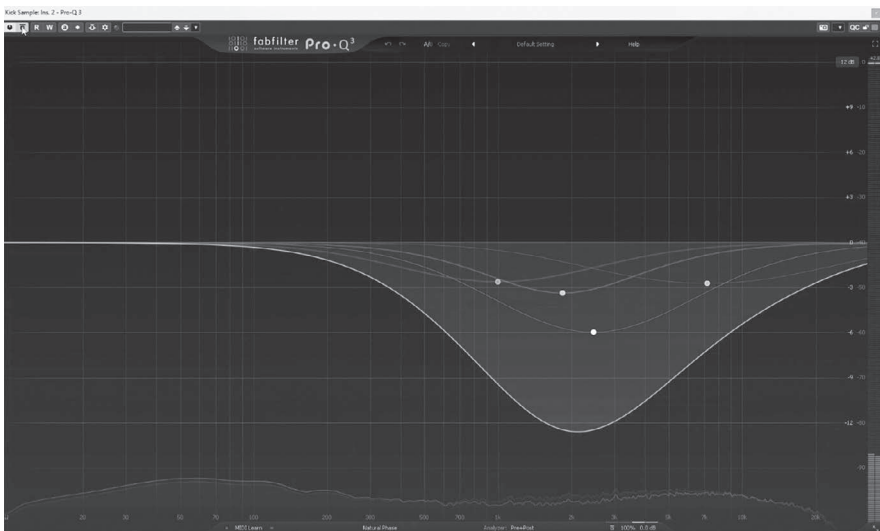


FIGURE 8.13 EQ on the kick sample reducing the ‘knockiness’.

natural kick sound in this mix, I need a lot less mids. So, it's really putting them up together and then making sure they've got similar sounds.

HiMMP

Sure. And then you got a bit of True Iron on there just to give it some colouration?

Dave Otero

Yeah, just a little squish on the low end. I really like how this gives you that transformer push on the bottom end (Figure 8.14). So, for kick and snare, sometimes toms, I'm going to use a bit on the mix buss. It's one of the more subtle processors. Especially on something like this, you don't want to be too heavy-handed and puke colour all over your mix. You just want to add little bits here and there.

And a bit of transient design (Figure 8.15). I feel like this one is being used pretty subtly. Just a bit of sustain, a little punch. This [Softube Transient Shaper] has been my favourite transient designer lately. It's usually this one or the UAD version of the SPL transient designer. But I've been leaning towards this one. I like it; it gives you some options for attack speed on the punch circuits and then some crossover points for where you want to focus on the low and the high end and how much of each. I'm not a fan of this, like '90s hi-fi DIY, but it sounds good; that's what matters.

HiMMP

Absolutely. And then, on this snare sample channel, you just got a bit of EQ and stereo imaging there.



FIGURE 8.14 Vintage outboard transformer on the kick for saturation and colouration.



FIGURE 8.15 Transient designer on the kick for enhanced punch.

Dave Otero

Yeah, I think I was looking to widen the snare [Waves S1; widening 1.15] because I think there's a room sample. That's one of the things that I struggle with. Sometimes, I like to blend snare room samples or snare samples with a room sound baked into them, and I often want to be able to treat that room sample separately, but splitting it up into yet another instance of Trigger becomes too cumbersome. So, I fight with that in some regards. Typically, the close mics are going to be mono samples anyway, or mostly mono feeling, maybe a little overhead mixed in. The widening enables me to almost add a bit of width just to the room side of the samples without really affecting the mono compatibility too much.

HiMMP

You've got some more samples on the snare samples that you've blended within Trigger. Is that one of Jens Bogren's? Some are dry, and some are more ambient, are they?

Dave Otero

For sure. Some of these, a lot of the samples that I choose, are more finished sounds (Figure 8.16). I like finished sounds or close-to-finished sounds. Somewhat processed sounds allow me to mix a little faster. And then they give you a built-in reference because, okay, now I have a sound that I know sounds good in the context of a mix. So, it gives me a goal of where I need to shift my natural, the actual microphone tracks towards.

And it's always a bit different. I would say on this project, I was pretty happy with the kick mic. So, I started with the kick mics, and those were my true north, my lighthouse, and the samples may be more needed to blend in with those. On the snare, it was maybe a little more equal footing where the

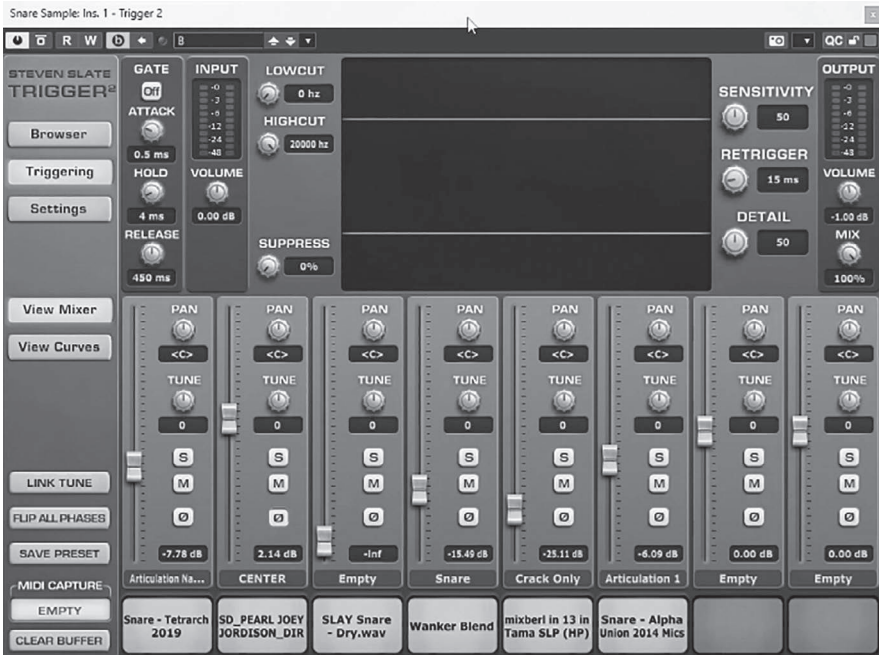


FIGURE 8.16 Six snare samples with complementary sounds to the acoustic snare.

snare sample was going to be a pretty prominent part of the overall snare sound. Then, the mic sources needed to fall in line behind those, or at least on the same level. It just depends on how I'm feeling about the natural sounds versus where I need to get them.

HiMMP

And a bit of sculpting EQ-wise on the snare sample track?

Dave Otero

Yeah. So, I'm cutting some of the fizz out that probably is controlling a bit of the room (Figure 8.17). Some of the processed snare samples can get a little bright, especially if they're going to hit further processing down the road. That's pretty common for me; it's just to pull some top end out of that. Probably not enough. I feel like my snares end up a little touch on the bright side most of the time. So, it is a conscious effort for me to not make them too abrasive in that range. And then a bit of low push here for some beef and then smoothing out some mids.

HiMMP

Some real low end there right below the fundamentals area.

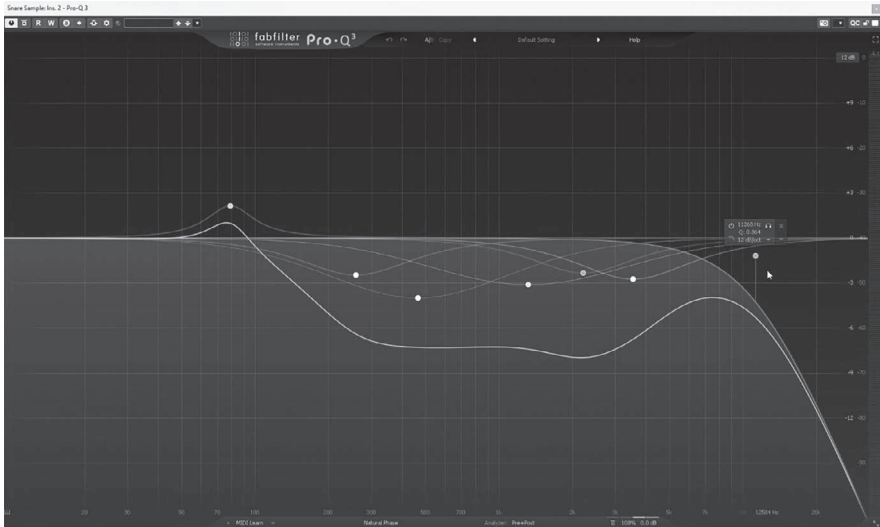


FIGURE 8.17 EQ darkening the snare samples.

Dave Otero

It's probably honestly below where I'm doing some high-passing over here. It allows me to use larger moves over here and really massage exactly where I want that resonance.

HiMMP

Fantastic. And a bit of stereo widening on the sample sum?

Dave Otero

That's on this snare, just a bit. I think it's really just altering the mid and the side rather than using any psychoacoustic tricks to widen the snare. Because you can run into phase issues, it can definitely sound unnatural if you push it too far. Typically, about 1.3 is as far as I feel you can go with this processor on about any source.

But in this case, it made the room sound a little more prominent and wide. And some of that is because the room mics with the session are all mono. Typically, I like to have a spaced pair, like a nice wide omni-spaced pair of room mics, to get that overall encompassing stereo wide room sound. So, I was trying to get that through some other sources.

HiMMP

Sure, and could we just listen to the snare mic channel, then the snare sample channel, and then both of them summed?

Dave Otero

Sure. It's a pretty even footing as far as levels go, but it obviously plays a different role in the overall sound.

HiMMP

And there are some really nice reverbs and some ambience coming from the snare samples.

Dave Otero

The samples and reverbs I'm running live. So, two reverbs on snare, one that is just like a room verb, a bit shorter. Again, I'm trying to add some more glue around the whole kit, and then I'll typically have a longer, brighter hall sound to give that the length that I like out of a snare verb.

HiMMP

So, quite long reverbs there, not a shorter plate?

Dave Otero

No, even on really fast stuff, my longer hall snare reverb will sometimes be two and a half seconds or three seconds. And it's not super prominent, but it soaks in there underneath the mix. It adds a layer.

HiMMP

Sure, what reverbs are those?

Dave Otero

The room one is the Sonsig Rev-A by Relab that I've been digging a lot (Figure 8.18). That's going to be probably pretty low on your end, but it's more of a room sound. It's still not super short, over a second, but it definitely is trying to add that space. Versus, I'm using a [FabFilter] Pro R here as my other snare verb, which definitely had some room sound too. It's actually not super long.

HiMMP

It sounds really long, though, doesn't it?

Dave Otero

Yeah, but a little more of a tail to it. So, it's pretty bright and sounds like it has a bit of a pre-delay in it to give you some of that slap.

HiMMP

Sure. And a bit of kick is getting sent to those verbs as well?

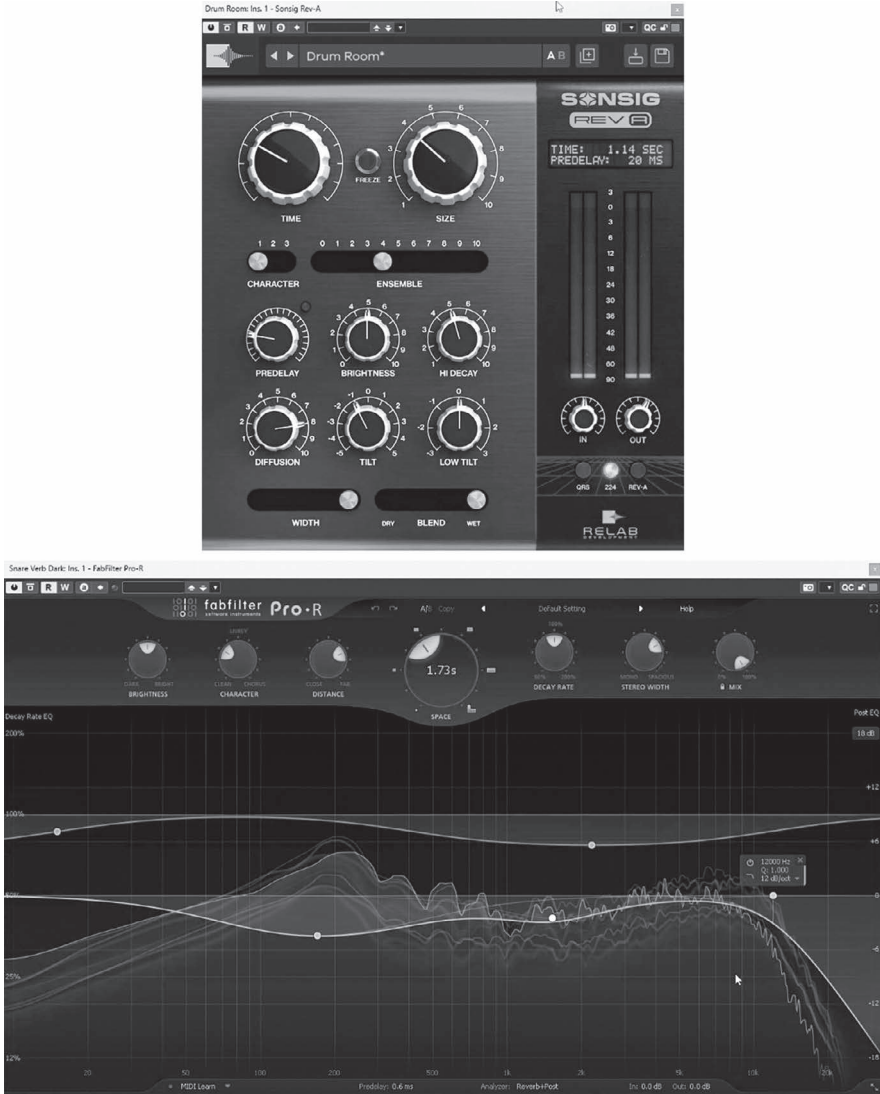


FIGURE 8.18 Two different snare reverbs.

Dave Otero

No, there's no verb on the kick. The toms are going to that first reverb, the drum room. And really, that's about it. I do have another verb set up here. I just call it a huge verb, which I will automate on and off. So, actually, if we go over to the middle section, I think I have an extra big, long verb that pops in. And if we solo these, so here's the tighter section of the song without that verb. That's just the shells, obviously. And if we go to this section with

that extra reverb, it gives some length and some epicness, for lack of a better word.

HiMMP

Sure. But you keep your overheads and rooms out of the reverb sends.

Dave Otero

Yeah, I do.

HiMMP

Fantastic. Moving on to your toms. Am I right in saying that you didn't go for any tom samples here?

Dave Otero

No, there's no augmentation on the toms. I probably still have a bit of fine-tuning to do on this mix, so I may go on there, and there's a chance I could copy some hits around or maybe do some volume automation for individual fills when I feel like they need it. But really, most of it is taken care of by the gates. Also, if we go to the individual channels, I believe I'm only using the top mics. I'm not using the bottoms at all.

And then all of the toms have a bit of their own EQ (Figure 8.19). So, for instance, this is tom one, and if I open tom two, you can see how the fundamentals are going to shift down a bit. So, the high-pass is at 94 Hz, and that

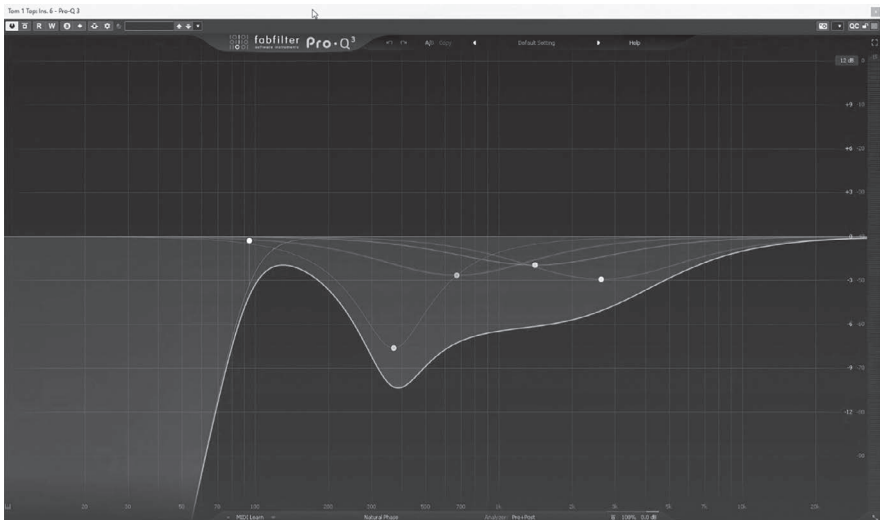


FIGURE 8.19 Tom EQ removing rumble and attenuating low-mid mud and higher-mid ‘knockiness’.

moves down to 84 Hz. And if I were to play these two toms, you could see that high-pass is going to be right behind where the fundamental of that tom is. And then this low-mid knocky cut is going to follow that down, and then the rest of these moves are just to unify the toms.

So, before they hit the group, I make moves to each tom to clear up any mud below that fundamental and then make them all gel together. Because you can have the same toms with the same heads and the same mics, some toms will have a weird mid-range knock to them, and all of a sudden, it makes it stick out and not feel unified with the whole kit. You can take care of that on the individual channels first. And then, when you get to your tom group, you can make those overall EQ changes that translate well to each drum.

HiMMP

And its multiband expansion with the gating?

Dave Otero

Yeah, it's the same type of method. I'm doing the same thing, or I'm splitting the frequencies with a faster release up top, slow release down below. Another tool that I sometimes use to manage bleed that's in conjunction is Soothe (Figure 8.20). Actually, I have it on the snare mic, and on the toms. I have a few presets I've made I usually cycle between that are meant to take care of some resonance up top with fast attack and fast release. And that, again, is like another layer to smooth over some of the cymbal bleed because it's always such a problem with drum shells with heavy compression.

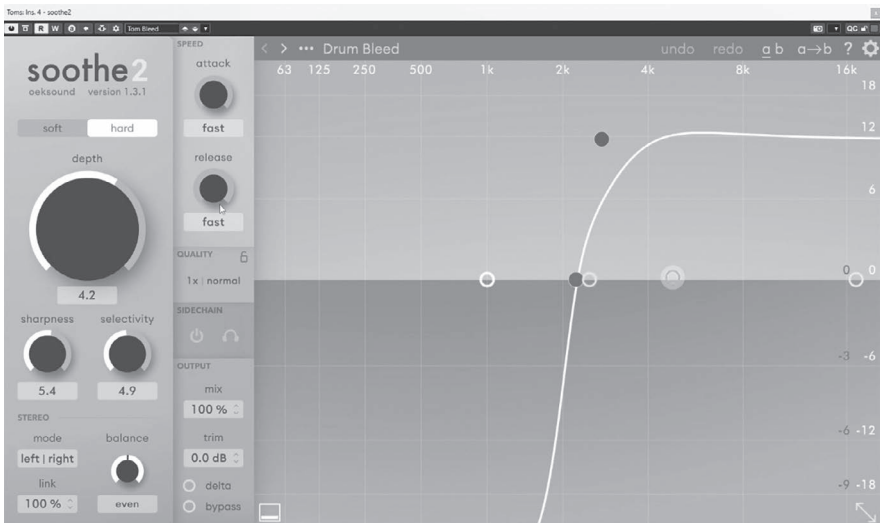


FIGURE 8.20 Dynamic bleed control on the tom buss.

HiMMP

Sure, and then you compress the toms on the sum, do you?

Dave Otero

I am. Actually, it looks like I have these compressors turned off currently. I'm using Drum Leveler (Figure 8.21), again, on each drum, usually between 40% and 60%; I'm going a little higher on these because they're a more dynamic performance. And then it looks like I had this guy up, but I have a bypass for right now. So, that could have either just been something that I haven't turned back on yet before printing or just decided that I'm getting enough with the parallel compression because, again, the drums are also hitting those parallel compressors. The beautiful thing about using those hardware pieces as a parallel compressor is that it allows me to spread that nice sweet sound across all those shells when obviously it's not a plugin; there's only one of them, so . . .

HiMMP

Sure, and are you sending to the parallel compressors and to reverb from the sums or the individual channels?

Dave Otero

From the sum because since so much of my process is happening here on the sum tom group, if I were sending reverb from these channels, it's probably



FIGURE 8.21 Dynamic range control on toms in parallel.

going to get a dull, not clean, even-sounding source. So, just so the reverbs are getting what is a balanced signal already, I'm going to send it from the tom group and then to the parallel compression, too.

HiMMP

Transformer colouration is there on the sum. And then the [Brainworx] Bettermaker, what's that?

Dave Otero

It's an EQ. I very rarely use this one, but I popped it up on toms once, and I thought it sounded pretty cool. I believe it's supposed to be like a Pultec-style EQ, and literally, it's hard to even tell what I'm doing with this thing. But I'm boosting some low end and boosting some top end wide. I thought it had a nice bloomy sound on toms. But again, I've barely used this guy. I mean, like, 'Yeah, sounds cool on toms.'

HiMMP

And then a bit more EQ.

Dave Otero

Yeah, the Pro Q3 is like my go-to EQ. You can see I get pretty crazy curves going on here (Figure 8.22). But I guess I've become accustomed to really focusing on this. This is what matters. And I like it if I need to shape something

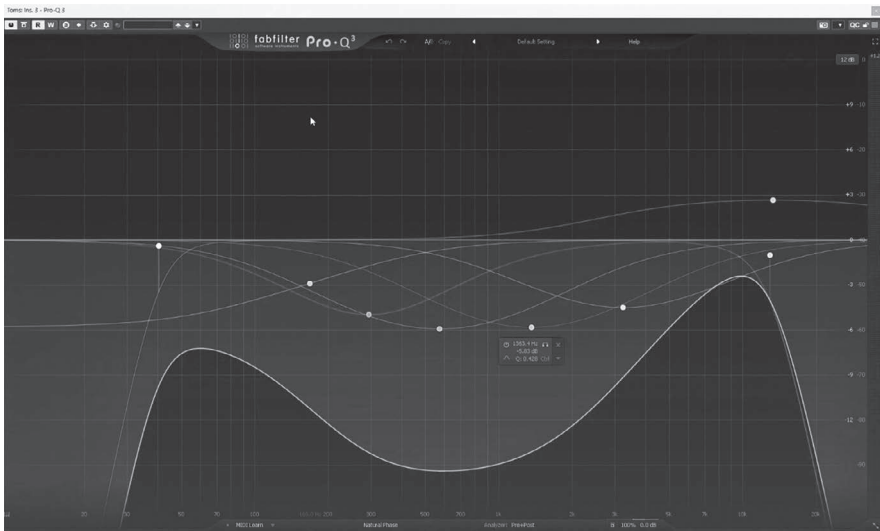


FIGURE 8.22 EQ on tom buss with a scooped spectrum and a high-pass and low-pass filter.

a bit; I just add a point. And it's so quick and smooth. And when I hear a sound in my head, I see it in Pro Q3. So, it's like an extension of my brain at this point as far as sculpting.

HiMMP

And a lot of your sculpting, interestingly, is with quite wide Qs. Is that something you've always done, or is that a general approach of yours?

Dave Otero

Before the days of Soothe, I would get some pretty narrow cuts for resonant stuff. And I still may sometimes do that; these overheads and room mics sounded pretty good. But let's say I might have some sharper cuts. Actually, no, not really, they're on the room. Yeah, it's pretty clean. So, I stay pretty wide. And then I'm handling a lot of those sharper, resonant things with some of these tools. I'll typically use a combination of BX Refinement, which does a Soothe-type thing.

And then I stack it with a bit of this guy [SSL Blitzer] in varying degrees. And this has actually been hit pretty hard. This is on the room; it's really pulling a lot of those resonances out of the room mics. And it handles a lot of that where I would typically need to use a lot of static sharp cuts. These dynamic tools do a great job; they are doing it for you.

HiMMP

Sure, and doing it dynamically.

Dave Otero

And that's a dangerous path to go down, to go hunting for those frequencies and sit there for hours, tiny little notches, because my ears start to adjust, and I hear resonant frequencies everywhere. And, all of a sudden, I pull out of solo mode, and it's a whole mix, and it's just dull and lifeless. So, I'd much prefer using these tools because they allow you to move through that part pretty quickly.

And then, even if later I still hear some pokiness, you go in there, make a couple of quick tweaks, and forget about it. You don't have to go down that rabbit hole of hunting for those resonant frequencies, and it really throws your objectivity off and puts your ears into a troublesome spot as far as trying to hear the overall mix. You're just too dialled into the details at that point.

HiMMP

Can we have a quick listen to your toms?

Dave Otero

Sure. A pretty unified sound, and a lot of that is coming from the sculpting idea for each individual tom to get into play nice together.

HiMMP

Absolutely. And I see you've got close overheads and main overheads. Are these duplicated tracks?

Dave Otero

No, I just split up, and this is a pretty recent change in my workflow, like, again, always adjusting. So, I'll take my main overhead left, right, and centre tracks and process them independently of what I would consider close mics, which, in this case, would be the overhead and the ride (Figure 8.23). It's

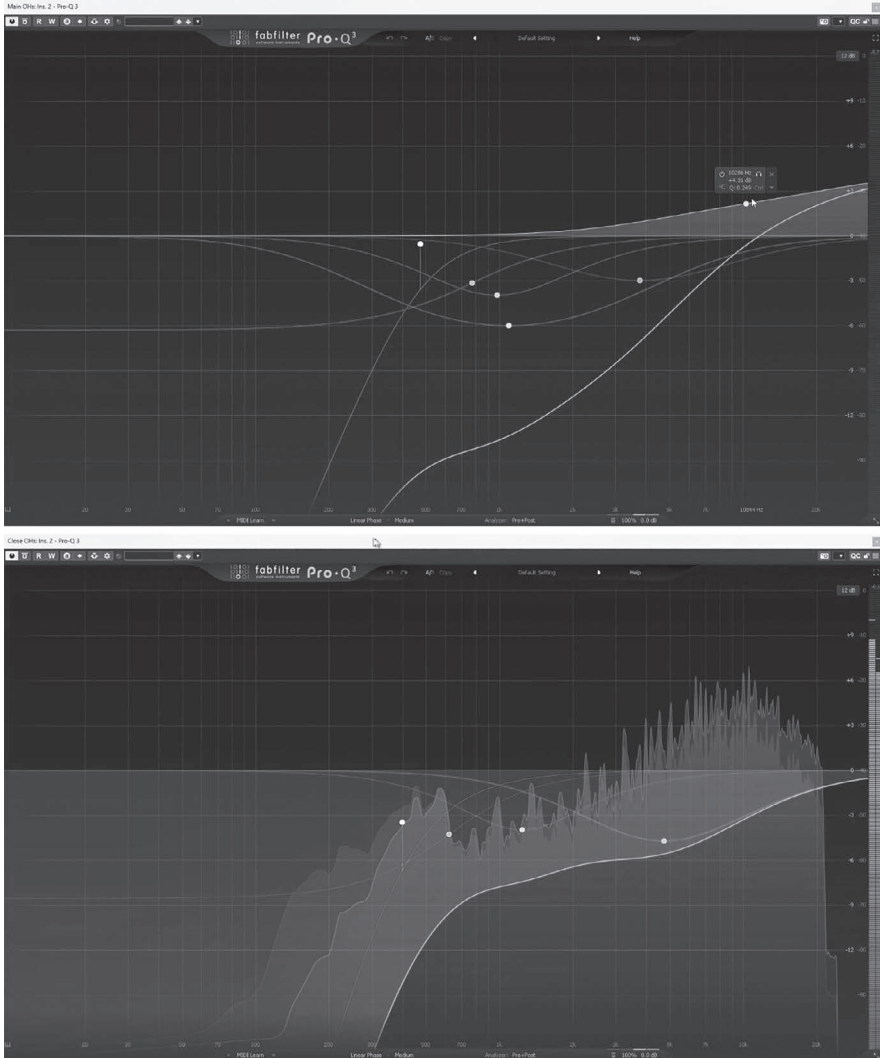


FIGURE 8.23 EQ on the main (top) and close (bottom) overheads refocusing the energy on the high end.

mostly about how much low end comes through; I'm actually cutting a lot of low end out of the main overheads here. I guess it allows me to use EQ to control the amount of shells I'm getting in the main overheads and then be able to be a little lighter on those close mics because they're not going to have as much shell.

There's going to be a lot more signal-to-noise ratio on the instruments because they're right up on it. And then I don't typically—I guess part of it is me being too lazy to go in and try to clean up the close overhead tracks where a lot of guys will go in there. If it's a hi-hat mic, they'll wipe everything that's not hi-hat. I get around having to do that because it's too mind-numbing for me by just splitting them up a bit, I guess.

HiMMP

But your main overheads, you've sculpted quite a lot of low end out, have you?

Dave Otero

Yeah, I typically do. And I think that's mainly because I spent probably ten, twelve years recording drums in really small, untreated rooms. So, it's like the DIY method of like, 'Man, this room does not sound good.' There's way too much bounce everywhere. The shells are so loud on the overheads because it's such a tight room and with not a lot of control that I just got used to really cutting a lot of that low end out. And at this point, it's become part of my flow, and then I pull a lot of that low-end sound back in on the rooms.

HiMMP

So, just the EQ curve one more time on the overheads?

Dave Otero

This is what I'm doing to the main overheads, which is high-passing at about 475 Hz, sculpting some more mids and a bit of a top-end lift. I don't always do this; I just felt that these were on the darker side, so I could use a little more of the sizzle. And then a similar, but not quite as extreme, EQ on the close overheads. So, I'm allowing a little more of that. It's still probably high-passing around the same amount, but I'm allowing a little more of that mids, not boosting as much of the sizzle on these. But then they're also, again, going to this master overhead track, which has some further sculpting of those like a kind of papery upper mids and then another combo of the BX Refinement and the Soothe to varying degrees (Figure 8.24).

HiMMP

Cool. Can I listen to the close and main overheads with and without the EQ?

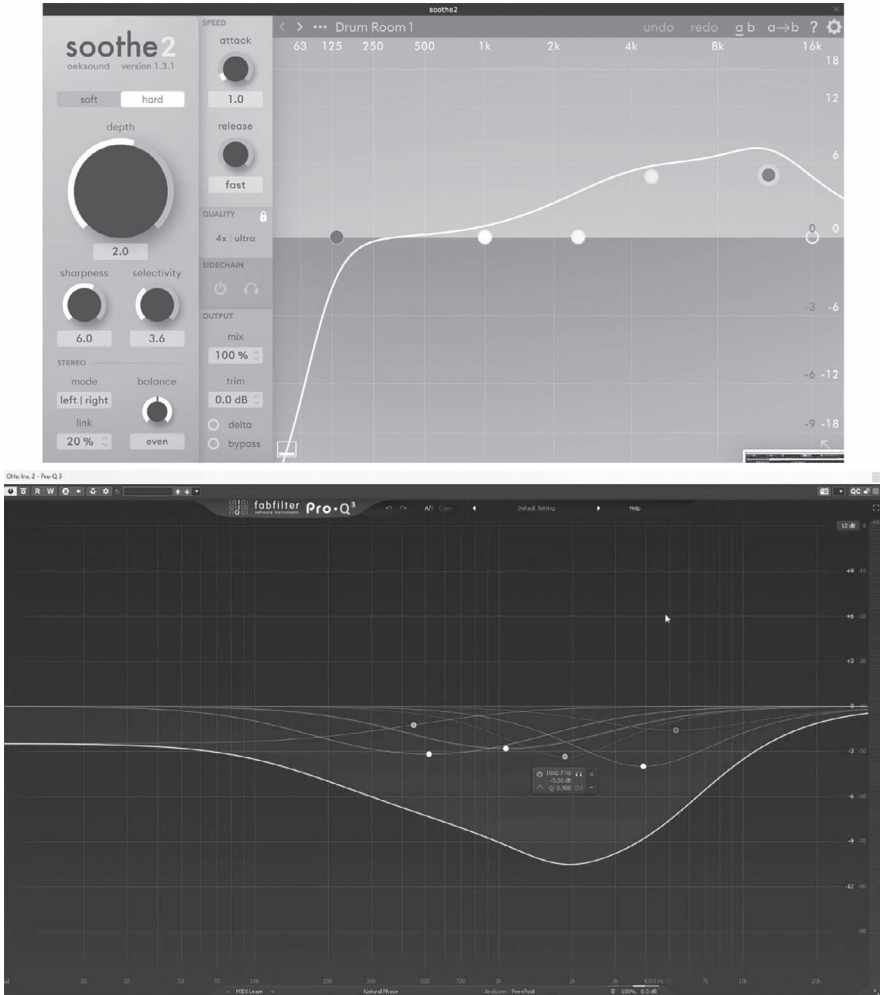


FIGURE 8.24 Dynamic frequency control on the overheads (top) and EQ (bottom) to attenuate the cardboard frequencies in the higher mids.

Dave Otero

So, all of them together with and without EQ. With EQ brightens them up. And then all of these EQs have auto-gain, too. So, if I turn this off, obviously, you get a much bigger level change because of how much we're removing here. But I quite like that feature of Pro Q3 because it allows you to at least somewhat remove the volume change element when you're trying to make decisions on those tonal choices. And it doesn't do the perfect job; it adjusts definitely for high-passing, low-passing; it tends to overcompensate. It's algorithm-based, so it's not going to be perfect, but it still helps you if

you're pulling mids, and it's bringing the perceived volume up. And at the same time, it allows you to really focus on what you're doing in the frequency spectrum rather than having to fight through that volume change.

HiMMP

Absolutely. And do you ever tend to compress your overheads to either bring the snare down or bring the snare out?

Dave Otero

Sometimes. That's a case by case; that's more if it becomes a problem. If I do feel like there's too much snare shell, I have used a similar manner as I'm using as a gate for the toms and snare. I'll use an instance of Pro MB sidechain to the snare. You can really zero in on a band of a dynamic compressor to the snare fundamental and then sidechain it to that snare sound. So, it's only ducking when the snare is hit; that's going to be really transparent. Pro MB and FabFilter are just such good problem solvers because of how universal and capable they are. If you need to fix an issue, the FabFilter stuff is honestly where I'm going to look first.

HiMMP

Absolutely, so you didn't compress the overheads in this?

Dave Otero

Not in this case. Sometimes, if I feel like I need a little more unified sizzle, I'll add an 1176 on overhead. I'd probably use the Purple Audio MC 77; this one is my favourite 1176 plugin, and I just touch it. Typically, almost always, when I'm using an 1176, it's going to be 4:1, somewhere like this faster release, attack somewhere around three. And then I'm going to pull it a bit down, if I'm trying to remove snare, maybe that can be a bit higher, but really just like one to four or five dB of reduction on the metres, just to add a bit of life to them. But on this mix, it didn't feel it was necessary.

HiMMP

And with the drums that we've listened to so far, we got this really incredible ambience with your snare, and the toms are sounding absolutely great. And obviously, you got the two reverbs that you use. What was your approach with the rooms with this track?

Dave Otero

So, we have three separate room mics. It looks like I'm using a mix of all of them, going predominately with the Coles. And I actually don't have any individual processing. I found a balance I like, and then typically, with rooms, I'm going to crush them somewhat. So, it is a really cool-sounding

room already, honestly. Again, I've started with some pretty heavy-handed EQ to pull the low end out, tame the high end, and pull some mids out (Figure 8.25). And even though it's before the compressor, I'm going to make most of these moves listening to the compressed signal.

First, it's going through another instance of Refinement and Soothe (Figure 8.26), like the overheads, just to control some of those resonances to make the room sound a little less ugly. Specifically, since we're going to smash it kind of hard. And then I'm always going to audition a few different compressors. This is actually the first time I've used this guy [SSL Blitzer]. I just got

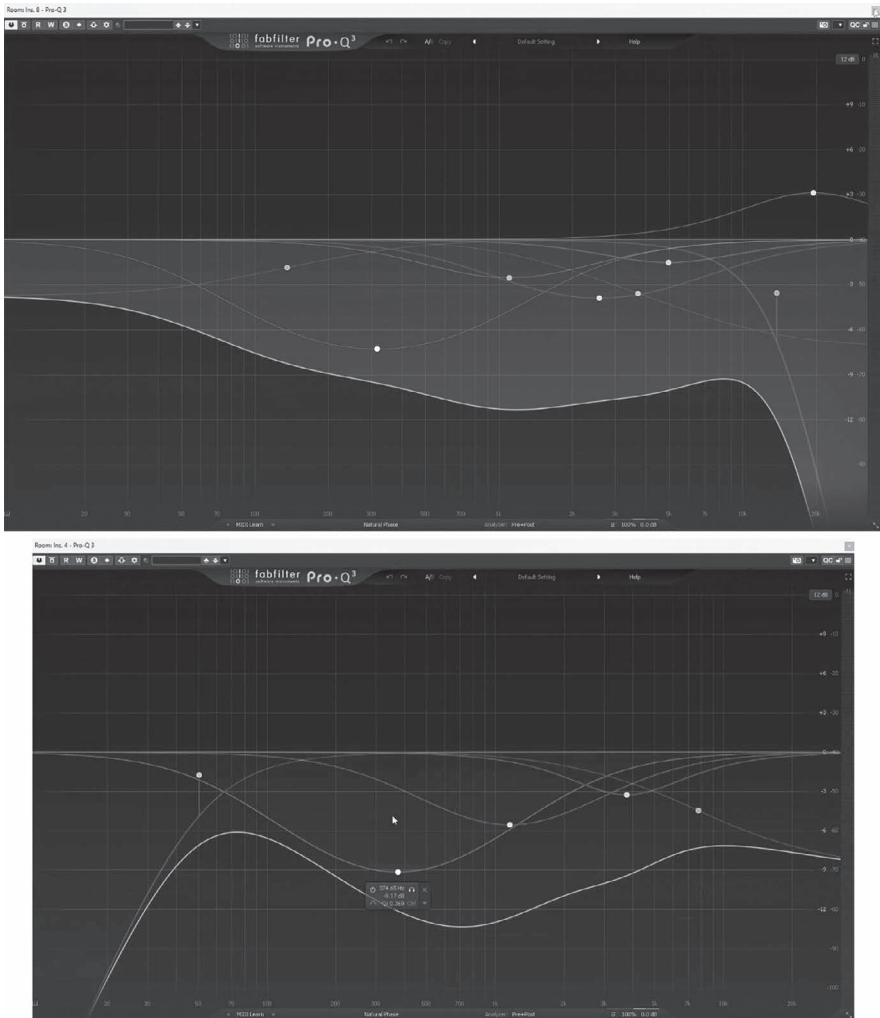


FIGURE 8.25 EQs on the room track attenuating the low end, high end, and mids.

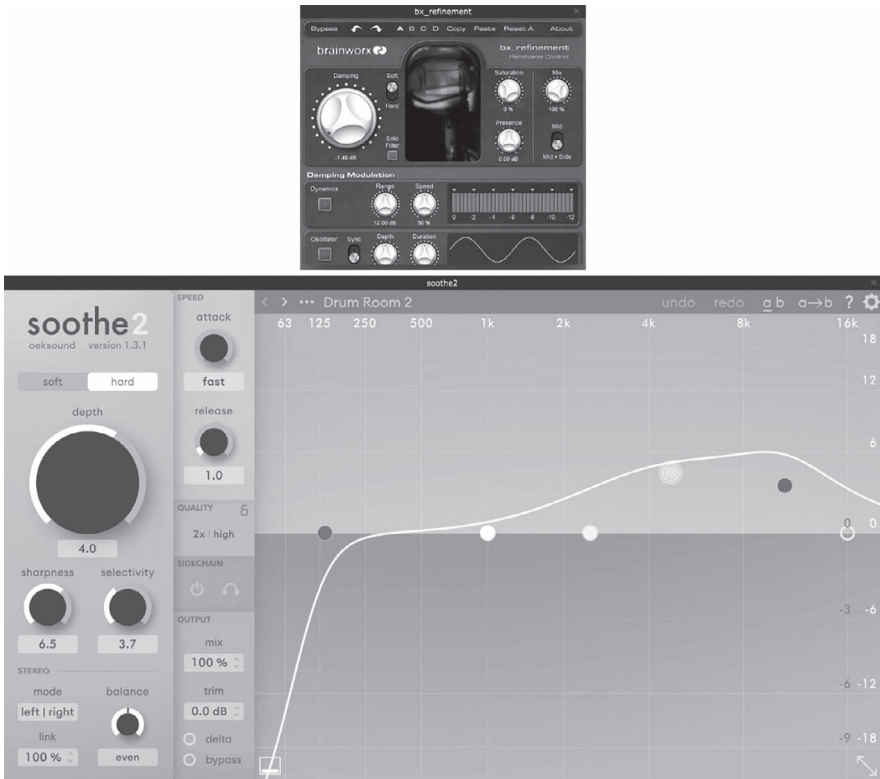


FIGURE 8.26 Two dynamic processors controlling the frequencies and resonances of the rooms.

access to all the SSL plugins because they added that to the Slate bundle. So, in some ways, it's a little overwhelming having to figure out which of these 30 new plugins I want to use when I had maybe three or four of them before.

But this one [SSL Blitzer] sounds really cool (Figure 8.27). This is blitz mode, which is like an all-buttons-in emulation. But some of the other ones I've used—like, honestly, this has probably been my main room compressor for a long time. And it's actually still here on the track from when I was auditioning which compressor is going to serve the song best. And I went with this guy because it sounded fun; it sounded pretty explosive. I get a handful of others that I'll pick from looking for that smash sound.

I'll typically hit it pretty hard and then pull the mix back a bit, 70%; it's pretty average. So somewhere between 50% and 70%. I'll dial it in at 100% first, right where it's on that edge of getting too crunchy, too broken up, and then typically pull the mix back a bit so it's not too pumpy and to add control back there.



FIGURE 8.27 SSL-style compressor on the drum rooms for significant saturation and energy.

HiMMP

And so, with your rooms, you weren't sending to reverb or parallel compression from those?

Dave Otero

Just a bit of parallel compression to the Para Devil to add a bit into that squish. So, it's down 15 dB from unity. That compressor is so aggressive that even 15 dB down from unity is going to be a decent amount.

HiMMP

Can we see the plugin itself there?

Dave Otero

Yeah. I set it pretty moderately because this thing can get out of control. So, it's not doing much. The room mics are tucked a bit anyway, so this is another 15 dB down from this fader level, but it adds a bit of glue (Figure 8.28).



FIGURE 8.28 Another compressor on the drum rooms for even greater compression and saturation.

HiMMP

Can we listen to the drum sound without the rooms and parallel compression, maybe?

Dave Otero

Yeah, the parallel processing is going to make a big volume change because they're a pretty prominent part, but without the room . . . It just fills those gaps.

HiMMP

Yeah, a bit of reverb and dimension.

Dave Otero

You feel it on the snare a lot, and it fills out the cymbals—specifically since I do so much high-passing on my overheads. I rely on the rooms, down a bit, to fill those in and give the whole kit a little more body and roundness. And I may have even used a little more of this if I had stereo rooms. I don't want to mono my drums out too much and only have a mono room mic. The louder you turn that up, the more things are brought into the centre, and I like everything to be big and wide. So that was a limiting factor there, too.

HiMMP

Can we listen to the drums without the two reverbs and then introduce the two reverbs?

Dave Otero

Sure. It's not really doing a tonne.

HiMMP

No, it just makes the snare a little more explosive.

Dave Otero

And then there's some on toms, too. Again, it's pretty minimal, really—just like I don't want to hear too much of that fake-sounding tom verb that was a little too prevalent in the '80s. It's just to help bed them into the mix a bit. In this case, the overheads are pretty lively sounding, and the room sounds good, so you're getting most of what you need out of those.

HiMMP

And lastly, on the drums—on your drum buss—are you sending your reverbs and your parallel channels to the master drum buss?

Dave Otero

No, those go straight to that mix buss because sometimes I'll use these on, like, maybe if I need a room for a guitar layer or a vocal part, I'll go, 'I got a drum room; it's already ready to go. It sounds good. I'll just send it over there.' So, even though they're labelled drum room or snare verb, I may use them in other parts of the mix, and then I don't want them messing up my stems if I'm trying to print a drum stem and, all of a sudden, I have a vocal part come through the reverb. That can get a little messy.

HiMMP

So, all your kick samples, your acoustic kick, the same with the snare sample, and acoustic mics, and your toms are all going to the drum buss along with your metalwork and your rooms, but without the reverbs and without the parallels.

Dave Otero

The parallels actually do feed into the drum buss.

HiMMP

Okay, and do you have any processing on the drum buss?

Dave Otero

I have an EQ that I probably didn't use, although sometimes I will. I have a virtual console buss emulation (Figure 8.29). Again, just small amounts of that crunchy saturation.



FIGURE 8.29 Console saturation on the drum buss for enhanced density and character.

And then I do quite like this guy [Process Audio Sugar], which is a multi-band saturation plugin (Figure 8.30). Again, it's one of those more modern voodoo-style plugins where it's a bit hard to tell exactly what it's doing. But I like the way it shapes everything. It has some smart frequency management features in there that smooth some things out, but it still gives you a bit of control and a few different modes for the saturation and colouration that's adding.

In this case, it's pretty subtle, but I like what it does at the top end. And you can really push some sub-fundamental. You can do a lot if you dig into it more; it's like an exciter but a more controlled one. It gets used on drum buss fairly often. I have it on bass fairly often. And then, very rarely, if I feel like the entire mix needs a little more juice, I'll toss it on the mix buss and use it in a subtle manner. But it's got some saturation built in that's off in this particular case. It's nice; it's just a cool little colour box.

HiMMP

Sure. And am I right in saying that with your drums, there's no use of limiters or clippers?



FIGURE 8.30 Multiband saturation on the drum buss for colour and a more even frequency spectrum.

Dave Otero

I will occasionally clip snare if I'm going really crazy with, say, transient designing, or I'm really hitting the parallel compressors so much, or I'm getting massive snare spikes. Then, I will sometimes use some type of

limiter or clipper either on the drum buss or on the snare buss. But not on this mix.

Bass

HiMMP

Fantastic. Moving on to bass (Figure 8.31). What low-end management techniques did you use on this mix, and do you tend to use when dialling in the lows of the bass sound?

Dave Otero

It depends. If I'm using Neural DSP Parallax, which is probably 70% of the time for me, then that pretty much is most of my low-end management; it just

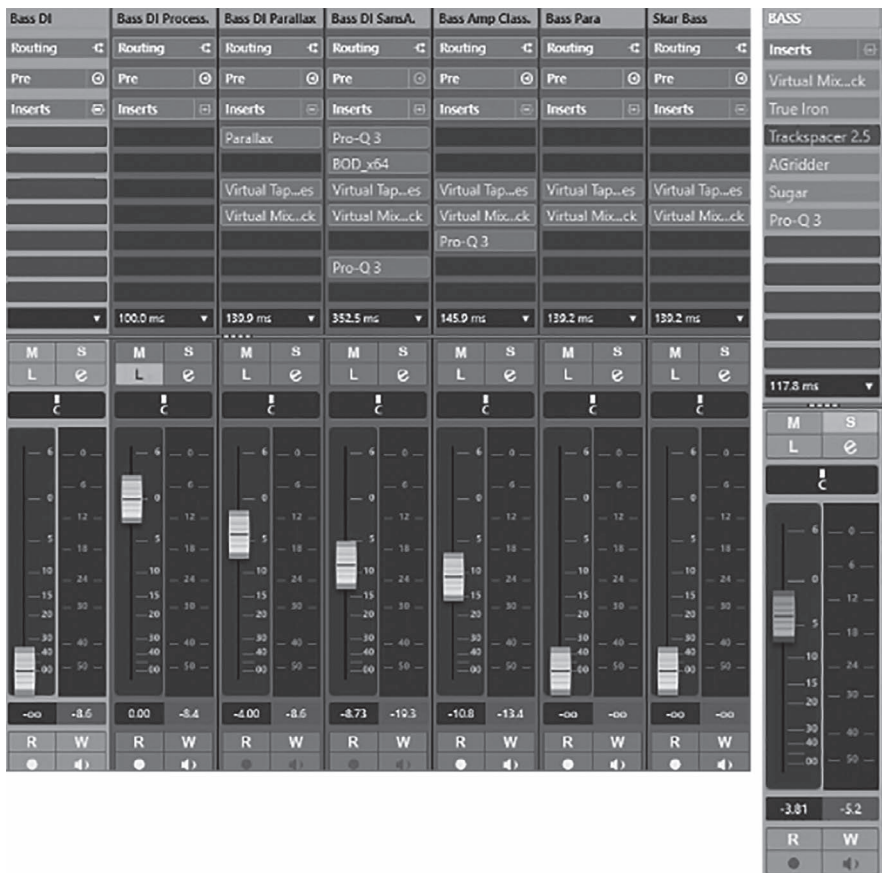


FIGURE 8.31 Bass buss (right) and individual bass tracks (left); the original Parallax and SkarBass tracks were not used in the end.

takes care of what I need to. It gives you that grindy sound. And that's mostly what it does; it's hard to get it to pull back to be really clean. So, if I don't want any of the grind, then I may do more stuff like frequency splitting and use an [Waves] L1 or something like that to really squash a low end. But in this case, we are using just one of the printed amps, which is the classic, which I'm assuming was an SVT Classic.

HiMMP

It was indeed.

Dave Otero

And then I'm using the DI through Parallax and the BOD overdrive emulation. But before it hits, I actually did process the DI through a Distressor and a Pultec to clean up some peaks and bring up the RMS volume of the bass to make it hit those gain stages a little cleaner (Figure 8.32). And to give it a little more bite, a little more bloom, and some tube colouration. So, again, it's actually probably pretty subtle, but I have the DI before processing and the DI after if you want to hear the two.

Here's the DI straight from the session. So, it evens out the sustain, brings that sustain up, still leaves a snappy attack, and then you can hear a little extra top end. Actually, I have this software I use to track hardware settings. So, we can look at exactly how I have these set. So, 61 Hz, which is where I lean on bass a bit. I will use the high-pass on the detector, so it lets some of that low end through.

I usually like the distortion, too, on Distressors for most sources. And then I think I was probably getting up to six or eight dB of reduction on the peaks and then probably going down to zero on some of the sustain. So, it was really just pulling the peaks down, allowing the sustain to come up.



FIGURE 8.32 Analogue-style compression and EQ on the bass DI for more consistent volume and colouration.

And then a bit of that Pultec trick, where you boost and attenuate the same, but I'm still leaning a little harder on the boost, and then a nice wide boost at 8 kHz. And I usually just shave a bit of a tippy top off because I find that smooths out some sources, too, but it's pretty standard. The nice thing with Pultecs is that there are no wrong settings; you can turn everything up, and it still sounds good. They're so wide and smooth that you can't really get yourself into trouble with them.

HiMMP

And even running the signal through a Pultec without it doing anything just sounds better. And again, with and without the processing on the bass DI?

Dave Otero

So, without.

HiMMP

Are you using the DI? You were using the DI processed within the bass sound itself, were you?

Dave Otero

No, the DI isn't any part of this; both of these were down. But that processed DI is feeding the Parallax and the Bass Driver emulation (Figure 8.33). So, it's helping the gain stage, and both of those plugins add a little smoothness; it makes the sustain feel a little more gritty, a little more solid. And when I was actually dialling it in, like the compression and EQ settings, I was auditioning through a bit of the Parallax, so I'm hearing how it's feeding into it. And I've got some input boosted again here to dial in the gain I like.

HiMMP

And could we listen to the Parallax channel? There's not too much drive on this.

Dave Otero

No. But I'm pushing more than you might think with the input. So that's hitting all of it. I typically leave the actual drives down pretty low, but it'll still sound pretty driven. Then, I'm using a bit of EQ, and then honestly, I feel like one of the secrets of Parallax, and if you're using their cab, is this [Sennheiser E] 906 microphone (Figure 8.34). I actually ended up buying a 906 to use on bass cabs because something is magical about their emulation of a 906. It sounds so far and above better than all of the other mics to me; that is pretty much all I ever use. And it's just the 906 straight in the centre with no distance; it shapes the sound just right to sit in the mix. I liked the Parallax a lot when I first got it, but when I was like, all of a sudden, the 906-thing

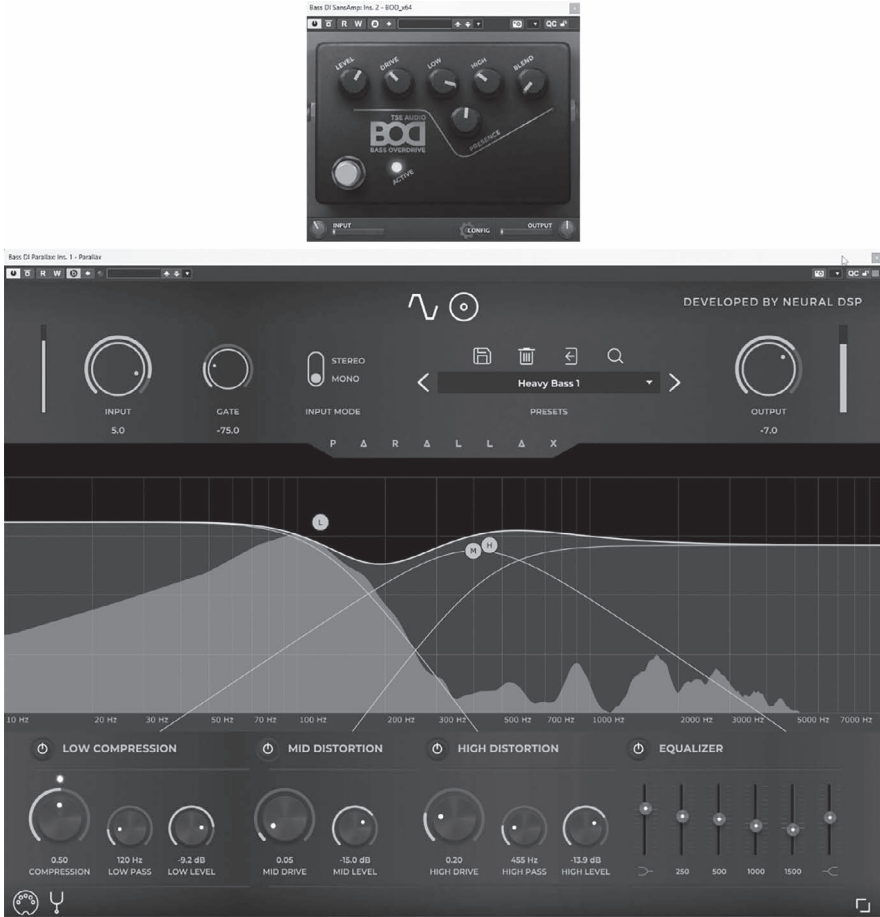


FIGURE 8.33 Two saturation and distortion processors on the bass DI for a saturated tone, consistent level, and ‘smoothness’.

clicked for me, I was like, ‘Oh, this is all I’m ever using’ because it shaped it just right.

HiMMP

And you hit the VTM after?

Dave Otero

After. The Parallax is essentially acting as my amp, and then a little tape, and a little mix buss after, so it’s applying to the amped sound (Figure 8.35).

HiMMP

And then, if we listen to the SansAmp PSA emulation. It’s Bass Driver, isn’t it?



FIGURE 8.34 Cabinet simulation of the Parallax bass DI, allowing tone control through microphone selection and position.



FIGURE 8.35 Console saturation on the DI Parallax track for more colouration.

Dave Otero
Yeah.

HiMMP
And obviously, that's the processed DI going through?

Dave Otero
Yeah, the processed for both; I really liked the attacky nature of it. It gives you some of that classic SVT sound. I think that's when the Bass Drivers were made to emulate an SVT sound. And then I find it's one of the best ways to get a solid low-mid, which is a really tricky part to have come out and not sound muddy on a bass guitar, and the SansAmp, those Bass Drivers just manage that side of the signal in a really natural way and allow it to sit in the mix and fill that void. You don't want zero low-mid on your bass tone, but it's so easy for that to sound woofy and farty and messy. I lean pretty heavily either on this simulation, or I have the actual pedal that, in my opinion, is a special-sounding one because I've compared it to a bunch of others, and it's got a bit of something extra that some of the newer ones don't.

HiMMP
Sure, and you use a bit of EQ to shape it before going into the . . .

Dave Otero
In this case, yeah, I think again, just controlling that low-mid. And it looks like maybe I was controlling the attack and that notchiness at some point, but it's disabled, so I didn't feel like I have the need to (Figure 8.36).

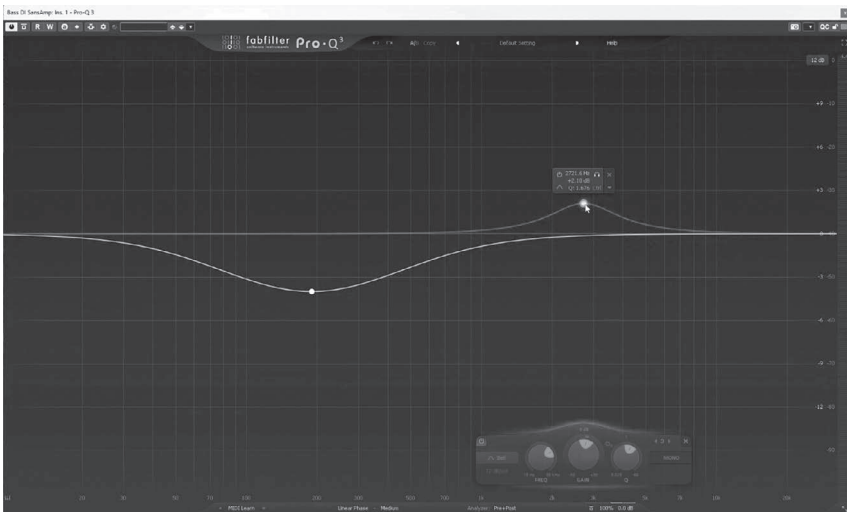


FIGURE 8.36 EQ on the DI SansAmp bass track attenuating the low-mid to reduce muddiness.

HiMMP

And then, from there, you're using the Ampeg Classic. On these tracks, you're not compressing them individually, are you? And then just a bit of EQ on the Ampeg Classic?

Dave Otero

There are some sharper cuts (Figure 8.37). This one did have a bit of pokey resonance on the pick attack. So, if I get out of here and that is soloed, we can hear this before and after EQ. It cleans it up; it gets rid of some of those harsh pick attacks that make your ears tickle a bit.

HiMMP

And then, are you compressing pretty heavy on the bass buss?

Dave Otero

Probably not. Actually, I mean, he has a bit of [Process Audio] Sugar, which adds compression. But really, for most of these sources combined with the compression that I do on the DI beforehand, I don't typically add a tonne of compression to the bass at any stage. Some Soothe as well, just to help. Almost any distorted source I may be blending in a bit of this [Soothe]. It helps to smooth it out, get rid of some of those harsh frequencies, and make things able to be a little bigger, but not hitting it too hard.

And then, there is a bit of the Sugar for the excitement, boosting some saturation, that low end to get that nice and full sounding (Figure 8.38). And let's see what we're doing EQ-wise in here. It's not a tonne; the bass sources are really good on this. The DI tone sounds great, and pretty much all of the amp

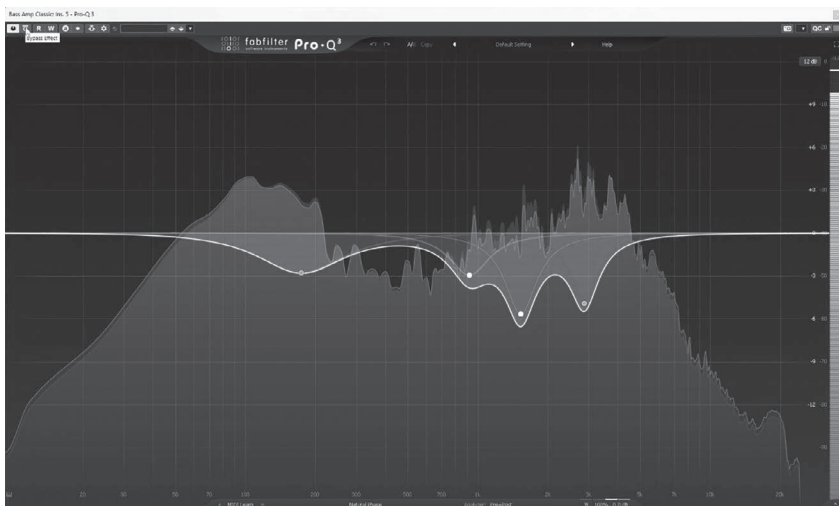


FIGURE 8.37 EQ on the Amp Classic bass track attenuating resonances and harsh pick attacks.



FIGURE 8.38 Multiband enhancer for compression on the bass buss (top) and dynamic frequency control to tame abrasive pick noise (bottom).

choices that you provided sound good. I know I can get the low end I need out of Parallax, and the combination of that with the Bass Driver just gets my fundamental in place. And then I add a bit of the colour from that SVT Classic.

HiMMP

And did you use any stereo-widening techniques with the bass?

Dave Otero

No, I typically don't on bass. I'm always worried about phase stuff, even with some of the phase-safe ones like the [Waves] S1. I mean, there's nothing

stereo in the source, so I want it right down the middle, keeping things nice and tight.

Guitars

HiMMP

Fantastic. Moving on to the guitars (Figure 8.39). You made the decision to re-amp the guitars. You felt that with the guitars, the 6534 and a Mesa [Boogie] on the other side, you wanted a bit more drive and saturation.



FIGURE 8.39 Busses of the two guitar tracks and the guitar sum buss; no processing on the individual tracks.

Dave Otero

Yeah, a little more drive. It's really like the boost. I have definitely gone down the rabbit hole with boost pedals in front of a tube amp that really can control so much about how the performance feels. It's rare that I'm going to hit a tube amp without a boost in front. And then I'll have the different colours. So, I'll pick four or five and put them all in a chain, and I sit there, and I'm going back and forth and tweaking and tweaking. And then I usually find one that suits the performance right.

In this case, I felt like a more traditional Tubescreamer-based boost would be appropriate. On this mix, I actually used a different boost for each amp, which is a rarity for me. I typically will find one that I feel suits the guitar tone and the playing style the best, and then it goes to whatever amps I'm using. But on the 6534, I used a Savage Drive, which is a really great, under-appreciated boost pedal, and then on the Mesa, I used the one that I just got from a really cool German company called Leaked Alarm Audio. It's called the King in Yellow. It's a beautiful pedal, and it's based off a Tubescreamer but has some blending functions, a four-band EQ, and some cool stuff. If you want to just hear the amp tones that were with the project and then dialling the other in, we can certainly do that.

HiMMP

That would be fascinating. With your general approach with pedals, there's the old Tubescreamer trick of dialling it in with no additional gain or level or tone, and it high-pass-filters, just tightens up the low end a bit. Do you go for a bit more drive?

Dave Otero

That's part of it. If I use any drive on the Tubescreamer style, it's going to be just a touch, and I think, actually, I didn't use any on these. The Savage Drive, although it's like in the Tubescreamer lineage, is a different style pedal. So, I am using some of the drive because it's like a combined level and drive; I try the drive down all the way, but there's no output.

So, it's adding a bit of that crunch, but most of it is for the boost, the actual signal boost into the amp. And a bit of the Tubescreamer, obviously, with cleaning up the low end, makes the palm mutes come out in a bit more aggressive manner. So, let's find our riff. Okay, that's a good one; that's a bouncy riff. And then, on my 6534 tracks, it's really just saturating while on those palm mutes. These are the Mesa tracks there, which ended up being a little bright, but they're probably pulled back in the mix. That's the main difference I was looking for. It's just a little more saturation.

HiMMP

And it was a 6534 hard left, hard right, and then you were just bringing up the Mesa . . .

Dave Otero

Yeah.

HiMMP

So, with this re-amping process you went through, you are using a real cab and mic.

Dave Otero

The Mesa behind it, yeah. Also, hard left and hard right. But the different performances because we have quad-tracked rhythms here. So, if we close these and look at the DIs, I re-labelled these 1A DI, 2A DI. So, obviously, one is the roots, and the twos have the harmonies. And then the a's and b's are the doubles of those individual tracks. So, the Peavey is getting both performances—the root and the harmony track. And the Mesa is getting that as well, and then two to the Peavey, two to the Mesa. That allows me to blend the amps without ruining the balance of the two performances.

HiMMP

Were you using just one mic or double mic?

Dave Otero

Just one mic. It's a [Shure] 57. I mean, a 57 on a guitar cab is just a match made in heavy metal heaven. It's hard to get away from that sound. So much so that guys are out there searching for all these vintage 57s, and the Unidyne varieties, trying to get a different flavour on that same type of sound because it sounds so good. I'll occasionally blend a little more.

Usually, if I have a band in here that's outside of my normal mould or maybe using their cabs or a different cab from the Mesa oversize, which I'm using probably 90% of the time, I'll throw some other mics up there. One gives me a little safety blanket in case the 57 is too thin or small, or I feel like I need to get something a little more unique. But it's hard to get away from that sound; it just sounds right.

HiMMP

And Vintage 30s?

Dave Otero

Yeah. Particularly the Mesa V30s, which have their own particular flavour. I know there are a lot of people like Nolly [Adam Getgood] who have gone down the rabbit hole with tracing down the serial numbers and the years and all the different varieties. I just know that I have a Mesa cab that I really like the sound of.

HiMMP

And you were pretty close to the dust cap, were you?

Dave Otero

Yeah, it's usually right on that edge.

HiMMP

And you keep it on-axis?

Dave Otero

Yeah, it's usually on-axis.

HiMMP

Fantastic. Did you print any EQ on the way in?

Dave Otero

No, not on this. Sometimes, I will, really slightly. I've got some old Neve channels pulled out of a desk here. I got these SSL ones, and every once in a while, maybe I'll even go through them without any moves or just a bit of that transformer. But there are so many variables on a guitar tone, and there's enough to think about with dialling in the amp and making sure your levels are coming out of your amp box or hitting the amp properly, messing with your boost pedals, blending multiple amps. It's like there's enough to worry about there.

HiMMP

Were you driving the amps pretty hard, or do you have more moderate levels?

Dave Otero

I would say probably pretty hard. I'm looking for some speaker break-up; it's how I judge that, as I'm almost always using the same preamp for guitars. It's this Crane Song Spider. And I know if I set it with the level all the way up and the input gain at 24 decibels, I need to be right around nine to seven dB under unity. That's what I aim for. So, I've developed that workflow. I was like, 'Okay, this is right where this cab sounds good; it's breaking up just right.'

HiMMP

And then, do you tend to EQ on the individual channels on guitar, the sum, or both?

Dave Otero

On both. So, it really depends. In this case, since I'm mixing two different amps, I am bringing in both of the 6534 tracks on a subgroup and the Mesa tracks on their own subgroup, and then they both sum to one guitar buss. Honestly, I probably started without any of these and tried to find a balance

of the two of them together and then put a little EQ on the master guitar group, and then I would go back and decide, like, ‘Okay, well, the Mesa is a bit too bright.’ I’m pretty sure that’s what I did here. So, I pulled some of this harsh top end out of the Mesa, but you can see there’s no high- or low-pass on these because that’s all happening on the master guitar, so a lot of the big moves on the final group, and then some minor adjustments to the individual amps to get them to play well together.

HiMMP

Can we listen to the individual amps, the 6534s, and then the Mesas?

Dave Otero

Certainly. You can hear the Mesa. Even with a pretty aggressive boost, it still has that slower, softer saturation; I really love that sound. And then the Peavey is a little sharper, a little more mid-forward, aggressive, and detailed.

HiMMP

Can I listen to the 6534s again? What’s the EQ curve on the individual ones one more time? Just a bit of low mids.

Dave Otero

Yeah, cleaning up some boominess and then really taking care of some of the aggressive stuff. Again, doing this for a long time, I know the spots that I hit right away—you’re going to want to clean up some of that low mid-bloom and then pull down some of the notchier mids in a few different spots like the lower stuff on 1 kHz, and then for sure anywhere around 2 to 4 kHz is going to be where that really aggressive, ear-piercing stuff comes in (Figure 8.40). And you got to be delicate in some sense because that’s also where a lot of the tone lives. But almost every amp is going to come in a little hot in that area.

HiMMP

But what I find really interesting is that I’m not seeing any surgical EQ moves for the reason we discussed earlier. It’s all broad EQ, broad general shaping moves rather than the surgical kind of like.

Dave Otero

It’s because of this combo that I love so much; that’s taking care of so much of that, so it’s a good place to A/B this. So, this AudioGridder thing is a tool I use to chain effects together. Mostly, I’m going to use these two in combination. So, this allows me to have the make-up one insert spot, but if we play the same chunk, and I turned that on and off, you’ll hear why I don’t really need to do most of that surgical stuff. Truthfully, a lot of mixers do way

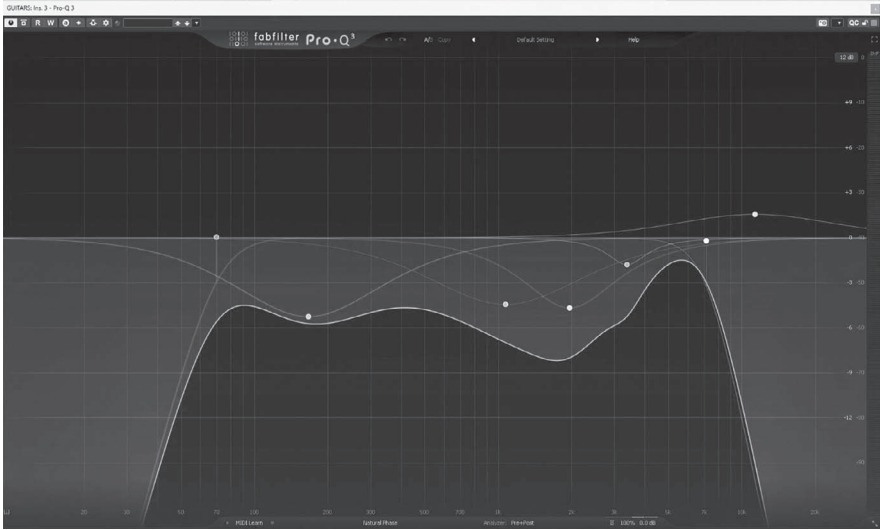


FIGURE 8.40 EQ on the guitar buss, attenuating the high-mid harshness and low-mid mud, as well as high-pass and low-pass filtering.

worse than that. It's still pretty subtle here, but it clears up some of those ratty upper mids without me really having to dive in and do that.

HiMMP

And the EQ on the sum one more time. Are you low-passing your high-pass filters just to take out the rumble and the noise, but there is no additive EQ in the lows and highs?

Dave Otero

No, just this. This is the thing we talked about earlier where I like to massage the end of my shelf, so I'm low-passing pretty low down here, just above 7 kHz. But then, if you feel like it's getting a little dull, you can just put a point up here, and it helps bring in a bit of sparkle in a natural way.

HiMMP

And no dynamic EQ moves or multiband compression for the chugs?

Dave Otero

I sometimes will do that; I didn't feel like it was necessary. Really, the boost took care of most of it, cleaning up the low end. But sometimes I'll end up with one of these guys down here [Soothe] or the infamous [Waves] C4 Andy Sneap trick (Figure 8.41). I probably haven't used C4 for that purpose in about ten years, but I'll most often use a dynamic [FabFilter] Pro Q3 or pull up a Pro MB and handle it that way.



FIGURE 8.41 Two dynamic frequency processors allowing a consistent timbre, especially in the low end during palm-muted notes.

HiMMP

And you're using the [SSL] 4K on the Virtual Mix Rack?

Dave Otero

Yeah, I pretty much stick with the 4K emulation (Figure 8.42). I used to play around with them more, but these days, it just gets what I need. These are pretty subtle. Honestly, you'd hear the difference if I turned them all on or all off. Some of that's volume; they do add a bit of volume. So, you get to listen through that.

HiMMP

They've got a little drive as well.

Dave Otero

Yeah, I do push the drive because I like the saturation, and, with my tendency to go through that clean sound, I find ways to stack in the saturation in subtle manners at multiple points to fill in those gaps.



FIGURE 8.42 Console saturation on the guitar buss for greater perceived loudness.

HiMMP

Sure. And then with the guitars, you've pretty much got them all grouped, and you've not got any reverbs, no delays, you're keeping them absolutely clean.

Dave Otero

Yeah, for the rhythms. This track doesn't really have any other guitar layers. In the case that I'm going to have leads or obviously solos, they're also going to be grouped and probably go to the guitar buss. But in that case, I would have a little more extensive routing where I would have the two individual amps going to a rhythm guitar group and then that rhythm guitar group feeding to the master guitar group. That way, I can treat the rhythm guitars, and then I'll have leads going to a separate group. It allows me to apply processing in a more efficient manner.

HiMMP

Do you have any general principles that you go with when trying to negotiate this sort of sonic puzzle between the bass and the guitars? Can we have a listen to the bass and guitars together?

Dave Otero

That should be fine. I'm assuming you're alluding to EQ moves that I would do every time to get them to fit together?

HiMMP

Yeah, like EQ moves where if there's the low mids on the bass getting attenuated, it gives you a bit of space for a bump at 300 or 400 Hz on the bass that you'd put in. Or navigating space between them. Or do you just use your ears?

Dave Otero

I usually just feel it out between guitars and bass. I'm going to do drums, and I'm going to get my drum sound pretty good before I wrap it, and then I will get my bass set up pretty close to where I want it. And then I'm going to have those in a spot where they're getting close to having the vibe they're going to eventually have while I'm dialling in my guitar tone.

That's the beautiful thing about re-amping. Rather than being stuck with the tone that you track with, you have the ability to do that. You can start crafting your mix. And then guitars are so important. It's such an important part of a metal mix that you can get a head start on things and then dial in that amp just to fit right with the bass.

This track was produced well in the fact that the guitars, performances, and tones already fit well together. So, a lot of that starts early in the process, which sometimes, if I'm just in the role of a mixer, I don't have control over. Sometimes, you're trying to fix problems later. In that case, maybe I'm EQing the DIs of the bass and the guitars to try and create some of that balance there. But in this case, that wasn't super necessary.

HiMMP

Do you ever compress the guitars or have any tricks for bringing more clarity or pick back?

Dave Otero

Not really. I mean, I get pretty heavy-handed on my mix buss, which we'll get to in a bit, so that processing is obviously affecting everything underneath it. But at least for, typically, with stuff that I work on that can be more technical in nature, it's hard to get away with a lot of compression on guitars; it's too all over the place. And it's not that kind of situation where you can really gain a lot of punch on, like, a big open chord.

HiMMP

So, the busses that we've looked at, we've got everything apart from the reverbs going to your drum buss. And then we've got the bass buss and then the master guitars buss; they're all going straight to the master buss, are they, or to an instrumental buss?

Dave Otero

No, straight to the master buss.

HiMMP

Fantastic. And then, do you have any ideas about intelligent EQ techniques? Going back to the bass and kick and the relationship between these different elements we've looked at so far, do you ever try and work out this relationship between your bass and kick and work out, which is the lower in the frequency spectrum or not, or anything like that?

Dave Otero

A lot of people say kick below or above bass or bass above or below kick. I never really think about it like that; I let the sources guide me. What I will occasionally do—I even have it loaded up here, but I'm not utilizing it—is to use a bit of this guy [Trackspacer], which is like a built-in ducker so you can sidechain the kick drum to your bass track, and then do some smart ducking. And then this particular plugin takes care of the frequency spectrum for you. And so, it really looks at those clashing frequencies and ducks those on bass.

But again, for material that's this speed and up, it gets hard to get away with that because double bass pops in, and it's like, okay, well, then you're constantly ducking all the low end out of your bass, so at that point, and again, with most tools like this, I'd rather use them as a last resort or later in the process. I'm going to try to take care of most of that interaction with my tone sculpting before I lean too heavily on a tool like this because I feel like it's more universal. And that's a smarter way to mix, like fix a frequency puzzle first. And then, if you need a little extra push on, like, a slower slammy beat, then certainly dig into something like this guy.

HiMMP

And from what I've seen, would I be right in saying that you've not used any sidechains on this mix?

Dave Otero

I don't believe I have; that would have been probably the only spot. I don't think I have any side-chaining going on right now.

HiMMP

Is that something you occasionally do for some projects?

Dave Otero

The bass/kick thing we just discussed—side-chaining there. Earlier, we discussed that if I need to pull more snare out of the overheads or rooms, you can do some side-chaining there. That's probably about it. Occasionally, if

I have heavy electronic elements, and I need to control some low end, I can have the electronics duck the kick as well if they're burying the kicks. It's mostly low-end stuff, which is where I find the most need for that. And it's usually frequency ducking, that type of stuff.

HiMMP

Did you use a lot of automation on this mix, or was it fairly minimal?

Dave Otero

Fairly minimal. I try to handle it as much as I can without automation. Automation is all going to be for the fun stuff like delay throws and reverbs on snare parts, and it's mostly for the flow of the song. I typically will wait as long as possible to start digging into automation because it gets too messy if you dig into that world too early.

And then I'll typically, for volume automation, try and do most with clip gain rather than automation because it's cleaner for vocals. I can go down and grab a section if I want this part louder. I can easily grab them, use my control surface here, and just clip gain it up and down. I go through a whole song as long as I have printed dynamics on these tracks, so I don't have to worry about clip gaining into a compressor or something, which I'm always going to want to do. I have printed dynamics on vocals. It allows me to level out harmonies and layers throughout a whole song with clip gain. Then it's all in front of me visually. There's no hidden automation anywhere that's clouding things up if I feel the need later to make a fader move on that automation that's written.

Vocals

HiMMP

On the subject of vocals (Figure 8.43), Ralf had printed processing on them. Did you use any printed processing, or did you leave that out on the vocals?

Dave Otero

I printed some 1176 and then again and into the VComp, and I went a little light on them since they were already compressed. But I like the character I get out of that combination and some of the tone shaping. The 1176, in particular, gives me some of that edge. I have a few of the A varieties that are the dirtiest and have the most colouring. That gets used on vocals a lot.

I like the edge it gave Ralf's voice. On some vocalists, I'll swap that up for a Distressor if I feel like I need something a little more neutral. But yeah, that combo kind of pre-mixes the vocals for me in a way that's worth it, even if I'm not using a tonne of compression, and it's worth just sending them through to get a bit of that colour.

them in. It's a little more intuitive to find that sound. I'm moving real knobs rather than virtual ones. And then it's printed, and it's done. Then I don't have to think about it anymore.

HiMMP

Yep. And did you just do that on the lead vocal or the backing vocals as well?

Dave Otero

I just ran everything through. I'll typically do a little pre-leveling using clip gain so I can make sure that the compressors are getting a pre-unified gain across all the parts, and then I queue them all up and start an offline process and go grab a cup of coffee.

HiMMP

Can we listen to the vocals without any spatial processing for the moment?

Dave Otero

Yeah.

HiMMP

And then, with the effects on?

Dave Otero

There's not much. A bit of reverb, and I think I have this quarter-note delay on that's a static process.

HiMMP

So, you got Ralf on his own buss there.

Dave Otero

Yes.

HiMMP

Is that the same buss to which all the backing vocals are going?

Dave Otero

Yeah, right now, everything is going to that buss. And really, on this track, I haven't felt the need to mix those darker. Sometimes, you might leave the lead vocals a little brighter and then tone down the background vocals. But he's just like a balls-to-the-wall vocalist, for lack of a better word. So, I wanted everything upfront.

What I have done is bring in a few tracks that I call ADT 60s and 100s. It's a combo that I utilize a lot. I've used a lot of different processors in the past.

Lately, I've been on this Waves ADT, which I think stands for Automatic Double Tracker. So, it takes your mono source and pans that out left and right. The 60 stands for 60% left and right; the 100 stands for 100% left and right. It adds a bit of static time delay between the two, and then these actually add some modulation to that time delay to keep them from feeling too phasey. And it allows me to get a nice wide source that doesn't have doubles of everything. So, I've picked parts that are doubles or harmonies and put them on these 60s and 100s, so if you listen to them,

So, here are the mono track and the stereo one. It allows me to get a wider soundstage without having to have doubles of everything because it gets a little tricky if you're putting harmonies over here and harmonies over here. Then, things start to not gel together as they're intended when they're tracked. So, when you layer all that together, like the part we just listened to, it feels like you have this nice wide soundstage with panned tracks and whatnot. But really, it's just the automatic double tracker adding that width (Figure 8.44).



FIGURE 8.44 Automated double-tracking emulation for the vocals to enhance density and size.

HiMMP

Do you use it as an insert or parallel, the ADT 60s?

Dave Otero

It's on an insert on only some of the tracks, not on every track, so then you're picking and choosing. When I'm producing vocals, I'll be pretty deliberate. I know what I'm going to want to emphasize with these ADT tracks. And you can be really creative, like emphasizing even just certain words of a line, and they pop out to the sides and have a lot of dynamics.

Singing like Ralf, he has plenty of his own built-in dynamics. But if you're working with a death metal band, and it's all growls, it's not a dynamic instrument; it's all full-on. So, if you want to build some excitement, you can do that with layering. It's one of the tools to make it not just feel like a slog of listening to some guy growl for the whole track. You can build some dynamics not only front and back or up and down with volume but in and out with the width.

HiMMP

Sure, and there's a bit of Soothe on here?

Dave Otero

Again, some Soothe as the same kind of my combo (Figure 8.45); I'm not using the [BX] Refinement here. So, a bit of Soothe down pretty low to control, especially with some of the real piercing high stuff that Ralf does; it can

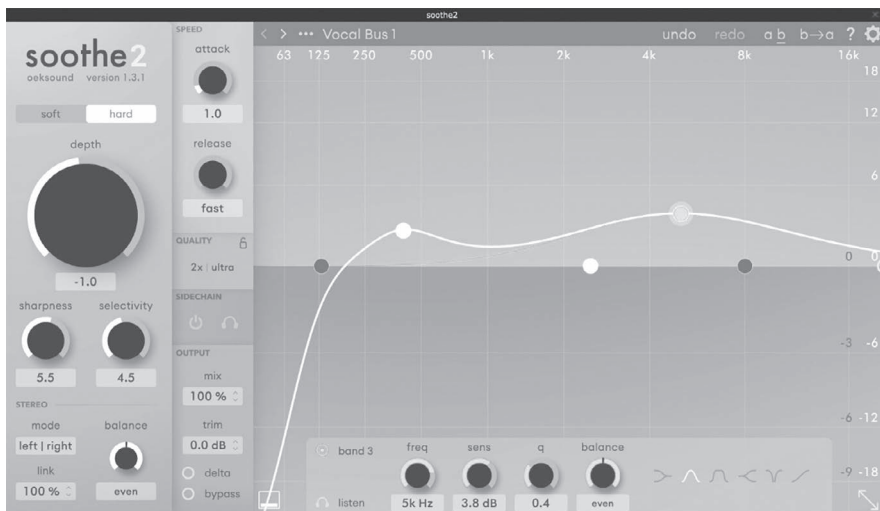


FIGURE 8.45 Dynamic frequency control on the vocals controlling resonances.

get where you got some of those resonant frequencies. And that mic is begging for mercy into the pure power of a heavy metal singer like Ralf.

A little EQ (Figure 8.46). So again, I feel like it was a pretty bright mic. And with his bright vocals, I feel like I needed to tame a lot of this stuff with my mix. We're pulling some high end down that's like 14 kHz. So, there's not much up there. This may look drastic, but 14 kHz is just a bit of some air sounds and whatnot. Then, containing some of this, I probably printed some high-pass when I sent them to the compressors as well. I might tackle that at that time.

And this is just a colour EQ I use on vocals (Figure 8.47). I saw a buddy of mine, George Lever, use this plugin on vocals, and it's got a cool colour to it. It looks like a Pultec, but it's not really very Pultec-y. It's subtle, but it adds a cool mid-range quality. And then I am cutting some low end and adding a bit of 4 kHz.

And then, I use a Pro MB that can add a little excitement again (Figure 8.48). This dynamically controls some low mids, and in this song, that can be helpful. So, it's mostly controlling in these sections. And then it's actually expanding on the top end to add a little pop to the syllables. It's like a vocal exciter. I've been using a variation of this on my vocal buss for a few years now, and it just adds a little excitement and handles some low-mid and some mid-range stuff for me in a smart way. It adds a bit of spice on the start and stop.

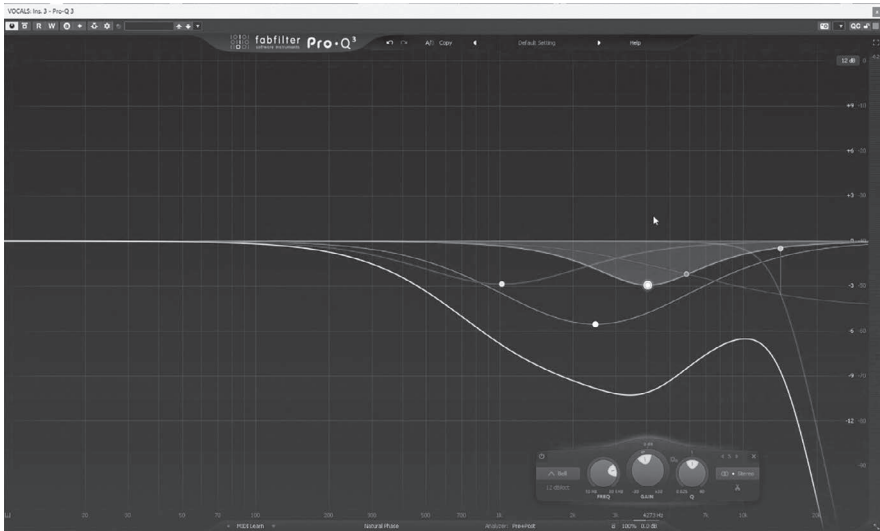


FIGURE 8.46 Vocal EQ for darkening due to the bright vocal timbre and microphone characteristics.

Dave Otero

Yeah, especially after. Or maybe if I've done some de-essing, it'll bring some excitement back to the mix.

HiMMP

How much de-essing is there on this one?

Dave Otero

I probably printed some, but I think it was pretty minimal. I don't have any running on the actual tracks right now. One thing that's on the tracks is, again, the Virtual Tape and Mix Console, and then the tracks with the ADT. So, the de-essing is going to be pretty minimal. I try not to go overboard. You don't want to give anyone a lisp for one. And I've discovered that I'm fine with some esses; it's part of the performance. And if you go too hard on that, it can make things sound dull.

Orchestration

HiMMP

Yeah, absolutely. So, with the brass elements of this track and the string sections (Figure 8.49), how did you approach those as to how they fit in, particularly in the middle section, where they really were pretty prominent?

Dave Otero

Often, when I have sections, I'll print some EQ moves and some leveling on the tracks. And then I'll do some overall stuff on the main group. If I go to my production group here, again, I got my Slate buss, some really clean, wide moves (Figure 8.50). As you've noticed, I'm a fan of that, and then I do have one dynamic low shelf. It helps keep anything in the production from overwhelming the bottom end because it's so dynamic. And then a bit of cleaning out the top end. So, like the brittle nature of some of those strings, they poke over the distorted elements.

And then a bit of a cheat code is this plugin here [Gullfoss; recover 30%, tame 30%, brighten -10%], which does some EQ balancing. I use this in subtle ways on the mix buss typically, and then I often will use it on a track like this. It's just getting everything thrown at it; it's like having a tiny little assistant on the track, mixing as it goes. I'll put this on to start with, dialling into something around 30/30, something that's not doing too much. And then with this plugin, in particular, I like to pull this, like, 'Okay, don't mess with anything above about 12 kHz' thing because it really does like to boost the very tippy top a little more than I would. And then I also bring down the brighten control. But other than that, it's a really cool plugin that does some magical stuff and controls the balance of something like this or every source under the moon. It is going to this group in a balanced way.



FIGURE 8.49 Orchestration buss; no processing on individual tracks.

And then I've done a bit of volume stuff and some balancing there directly on the tracks that's printed on. I'm trying to tuck them in where they're not overwhelming the mix, but you definitely want it to be noticed. And they add a lot to this part in particular.

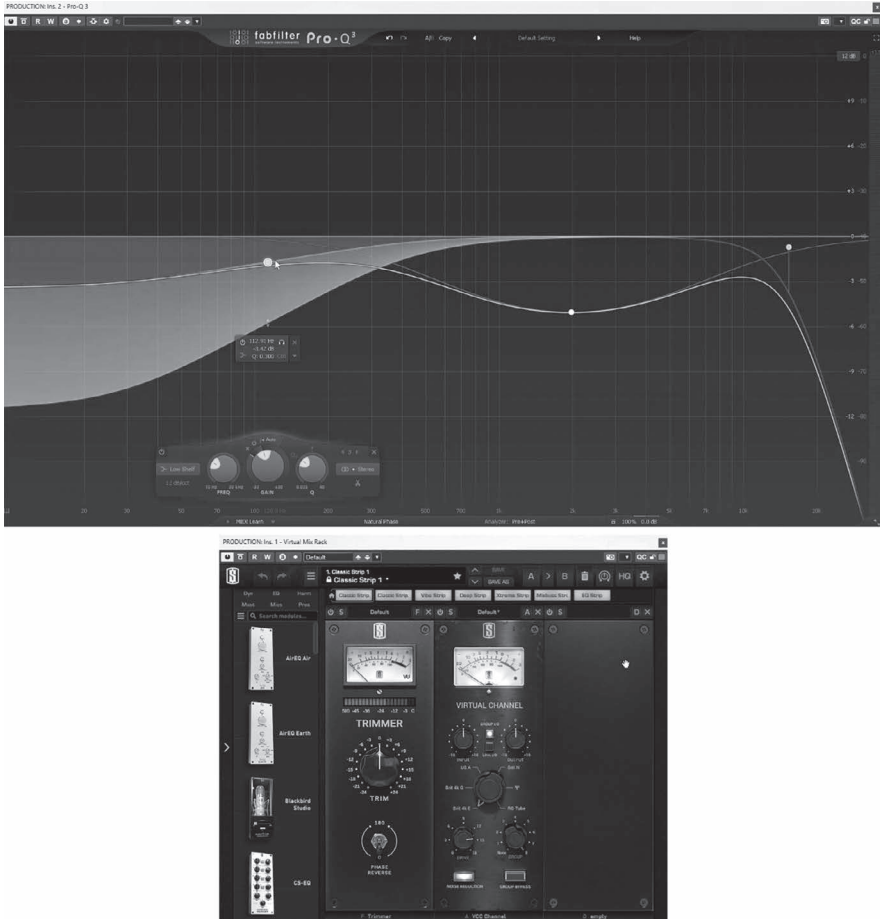


FIGURE 8.50 EQ (top) and console saturation (bottom) on the orchestration bus to create space for other instruments and add colouration.

And then I typically add some reverb; I just reuse that huge verb. This is the same verb that I'm sending the kick and snare to for this particular section. So again, it houses them, and then it gives all of the individual stems a bit of cohesion and width to it, which is what I really like.

Sometimes, I'll use a little [Waves] S1 on these tracks, too [widening of 1.20]. And that helps further separate it from the drums and bass and gives you a little more push on those elements. So, it probably would sound great here. I don't even know if I tried it. But yeah, that's one of those things where you need to constantly check; it depends on how prominent it is in the mix. It's prominent in this section of the song. But overall, it's not a huge part of the song. At least, I didn't think it was. So, depending on where it lands, and

like the hierarchy of the arrangement, it is one when I start bringing it into the mix and decide how much focus I put on it.

Mastering

HiMMP

And then, last but not least, onto your stereo mix buss (Figure 8.51). Everything's going to this: you've not got separate busses for the instruments and the vocals. We got the vocals and all the instruments going straight together.



FIGURE 8.51 Master buss processing.

Dave Otero

Yeah, there's just the subgrouping, like the kick—the kick mic and sample—will go to the kick. And that will go to the drum buss. Everything's final destination is just a stereo out on the mix buss.

This is one of those things; it's like an ever-evolving part of my mixing, and it tends to stay consistent. It's like a sourdough culture where I add more to it. I found something I liked, and I was like, 'Oh, that's cool.' So, I guess if there's one part of my workflow that can be templated, I'm going to end up with a lot of similar types of processes on the mix buss, but it's a constantly evolving process.

So, we're going to hit again one more instance of the buss version of the Virtual Slate stuff and a True Iron (Figure 8.52). So, I'm starting off with a little more colouration. And then I'm actually not doing anything. I always have this loaded up. Sometimes, I'll use it at the very end to control some high end or like, 'Oh, man, the 4k is a little too much,' or these are moves that I might see down here, like this kind of stuff, just once everything's in there. But I didn't feel the need here.

And then this is actually a hardware insert that goes out to my mix buss compressor, which I can conveniently show you because my current mix buss compressor is this really cool West Audio unit that has plugin control. Digital recall, obviously, so it allows me to play around with different settings. And this thing has some cool stuff like an iron mode, none of which I'm using here. But anyway, recalls. Before, when I would use my old SSL tried-and-true, traditional VCA mix buss, it stayed locked in all the time. And I will say I've only had this guy for maybe a few months now. It's not changing a tonne between projects; I'm still generally going with the settings. I like a 30-millisecond attack, usually the 0.1-second release or auto. I go back and forth between those, depending on the style. And then three to four dBs of reduction.

HiMMP

And this is basically a compressor?

Dave Otero

It is. It is essentially an SSL-style quad VCA compressor, just like every hardware company in the world has a version of this mix buss compressor because it's so useful, especially for this kind of music.

HiMMP

And the attack setting there. There are these different schools of thought with the master buss compressor, where someone like Nolly [Adam Getgood] goes very fast attack, fast release to really contain the kick and snare in the production. And so, like, really dug those elements when they're hitting, and



FIGURE 8.52 Two analogue transformers for colouration on the master buss.

then the longer attack times are 10 milliseconds or 30 milliseconds. Do you change it for projects?

Dave Otero

I think I've probably been on 30 milliseconds for the last five or six years. If I use a VCA style on the drum buss, which I occasionally will . . . Actually, I have a dedicated mixed compressor as an insert on the actual drum buss. Then, in



FIGURE 8.53 Master buss compressor for punch.

that case, I typically drop it down to 10 ms. And I like the way that sounds on an individual drum buss. But on the mix buss, I like the movement. I just love punch. I mean, like you can tell when I saw those parallel compressors on drums—it just gets me so excited (Figure 8.53).

HiMMP

They kick your teeth in.

Dave Otero

Yeah, so I'm looking for more of that. And then maybe again, that's like bouncing out some of my natural tendencies with other areas of mixing. I also like big, solid, fundamental bass, so those things tend to override some of the movement forwards and backwards of a mix. So, I try and bring it back with the mix buss. But it's pretty subtle, like, I could turn this off, and the mix isn't going to fall apart by any means. It's just doing a bit, providing a little excitement, a little glue, a little depth.

Then, a little Inflator, which I don't always use; I'm only using 6% on this mix. So, it's really subtle. And then this is the Acoustica Audio version of essentially the SSL Fusion (Figure 8.54). It's funny because I just bought an SSL Fusion; it's actually in my mix buss. But now I just use them both. It's a tiny bit of the drive and a tiny bit of the EQ; it's part of my template. And the real hardware unit has been additive. I don't feel like they're fighting each other. So, I haven't removed it as of yet. But they're really subtle; it's just one more layer of saturation. And I'm actually not even using an EQ, so they're all there at unity now. I could probably turn this off; maybe it adds some colour, I'm not sure.

Then another one of these guys [Soothe] (Figure 8.55). So, this is like my AI section of the mix buss, so I got a bit of Soothe handling some of the final resonance. At this point, I'll crank up the oversampling and resolution pretty



FIGURE 8.54 Master buss inflater/enhancer.

high to make sure we're going full quality on the mix buss. And then a bit of Gullfoss Master, which is pretty similar to the standard version. I've got it at 35% now on both sides. This varies depending on the project; it's just whatever it does. I still don't know exactly how to describe these two functions. It's one of those things: you just got to get the plugin, try it out, and see how it reacts to different material.

HiMMP

It's an incredible plugin.

Dave Otero

Yeah, it's really awesome. And then Virtual Tape again, set to the two-track mode (Figure 8.56). So, all of the other instances of Virtual Tape are set to the two-inch 16-track, or now we're on the half-inch two-track, and they're actually very different-sounding. So that's pretty key elements. And I tend to—again, when I like early, I would maybe mess with the settings a lot more. And lately, most of the time, it's just here and on the FG9 tape style. I just like what it does, adding some saturation to the bottom end. It helps my low end find a pocket.

HiMMP

You take it at 30 IPS all the way, do you?

Dave Otero

Yeah, I leave it on 30 pretty much all the time. And these final few processors . . . This [Wavesfactory Spectre] is like an EQ, but it works with only additive distortion, essentially (Figure 8.57). So, it's like a parallel distortion EQ. But I feel it adds vibe. And I can decide exactly where I want to add that saturation. Saturation is probably a better word than distortion. It gives you a few different modes. And then it's been in my template, and there are variations

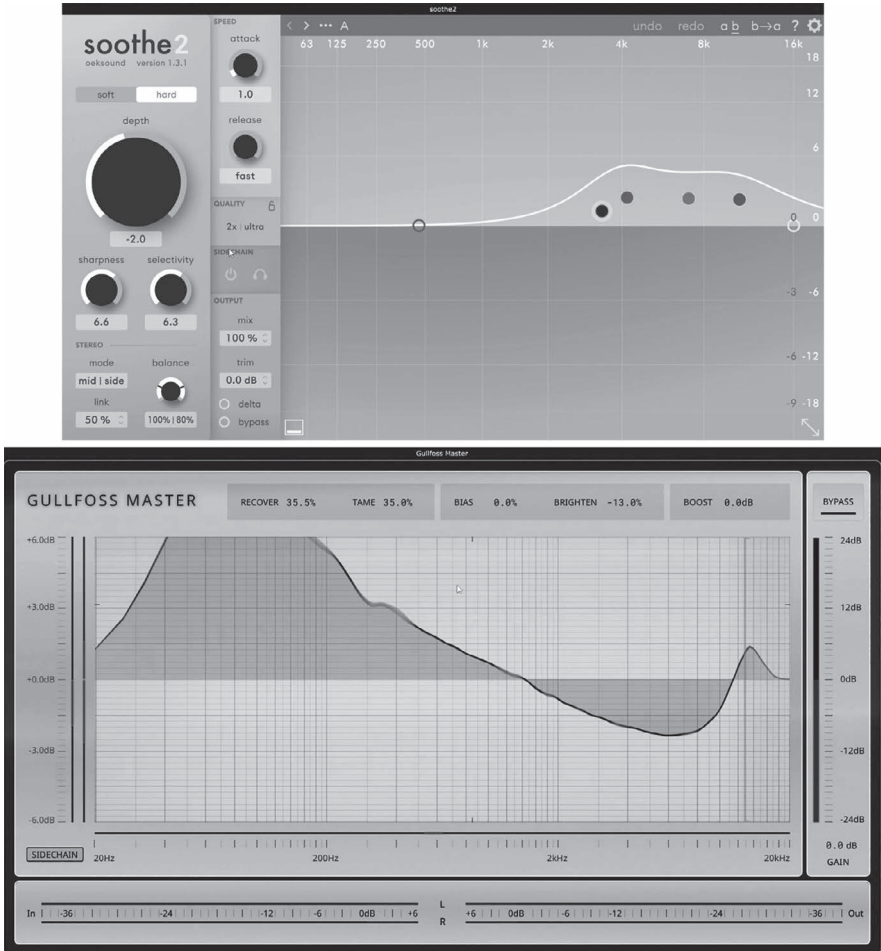


FIGURE 8.55 Two dynamic frequency controllers on the master buss for resonances.

of this. I'll tweak some of these, but they're all very small amounts; none of these are over a decibel.

And then, usually, my final chain is an Ozone 10. I really like the Maximizer. Lately, I've sometimes been using the Flatline Two that I showed earlier on the drum buss. I do like the hybrid mode. So, on every project now, I'm comparing. I've got Flatline Two, but I've been mixing into Ozone Maximizer for ten years, so I'm really familiar with how to hit it. And I like how it adds a bit of glue to it; it's not so pristinely clean. It saturates a bit, and the way that I like it, you have a few different algorithms to pick from. I'm typically on balance crisp for clipping. You can change a character, which is essentially

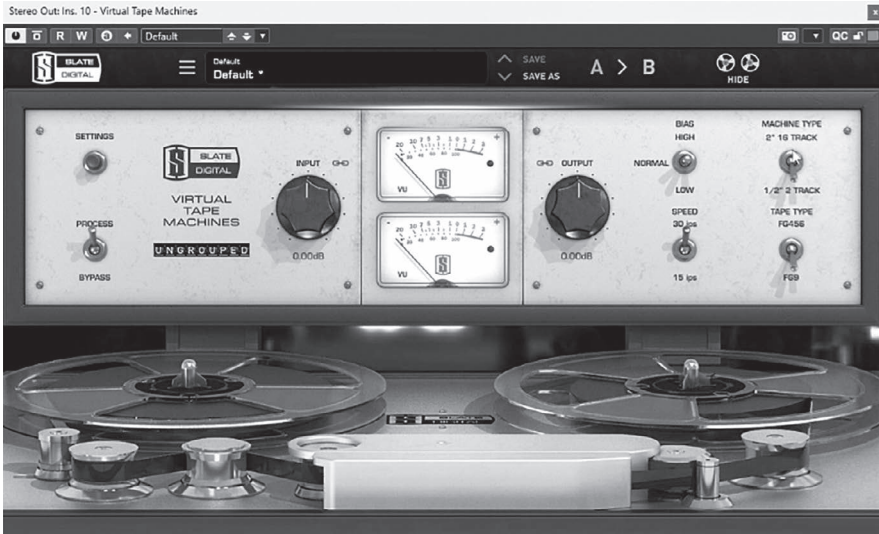


FIGURE 8.56 Tape emulation on the master buss saturating the low end.



FIGURE 8.57 Parallel distortion/EQ on the master buss for ‘vibe’.



FIGURE 8.58 Frequency-specific stereo widening on the master buss.

the release speed. It's got some features I like. I like being able to control the stereo independence of the processor, so I'll bring that down a bit to give me a bit more width, and then there's usually some minor exciter on Ozone.

A bit of this is where I'm going to add a tiny bit of overall stereo widening (Figure 8.58). Lately, I've been monoing everything out under 80 Hz. I use this tool [Imager in Ozone], which helps because a lot of stuff ends up on vinyl, so that helps with final compatibility. And I'm going to leave this area usually untouched again for vinyl compatibility and then just widen these spots a tiny bit more. Sometimes, I'll move around the crossovers and dial it in per project, but . . .

HiMMP

So, you're widening from 600 Hz up and then just a bit more from 7 kHz?

Dave Otero

Both of these are set the same, so they're both at 15, but sometimes I would actually probably boost this one a little more; that's where you can really feel the widening. I mean 7 kHz and up if we solo this, this is pretty much going to be overheads and sibilance. So, there's not too much to widen up there anyway. It's so tippy top, but yeah, there's a good amount of meat here. Again, going pretty subtle. I think that over-widened sound is a bit overplayed these days. So, I try not to make anything sound like it's outside of the speakers or too non-natural, but a little widening never hurts anyone right at this final stage here.

HiMMP

And the exciter just one more time that was doing a little touch in each band.

Dave Otero

Yeah, a touch in each band. Sometimes, I'll dial this in a little more if I feel like I need more saturation. You can almost use this, like, the amounts here are for shaping at the very end. And then again, like per project, I'm going to end up moving these bands around. But I really like specifically the tape saturation model on the Ozone exciter (Figure 8.59). Actually, I run it in mid/side mode. And the mid and the side, typically, I run these the same; I leave them linked. And then, rather than stereo mode, I just like the way it sounds in mid/side mode, even if they're both the same. But this is really getting into the nitty-gritty subtleties.

HiMMP

And then on the Maximizer?

Dave Otero

It depends. I'm going to set a safe level of 0.3 dB ceiling with true peak on to keep the Apple people happy (Figure 8.60). Mastered for iTunes or whatever they keep on renaming it every year now. And then, obviously, the threshold is dependent. I like a nice, loud master. And I like the sound of those on Maximizer when you're smacking it pretty well. It's like the heart of my thing.



FIGURE 8.59 Multiband exciter in Mid/Side mode on the master buss.



FIGURE 8.60 Limiting on the master buss.

I’m not so sensitive; I’m fine with a loud master. But there’s no need to push it for loudness’s sake because the world is on streaming platforms now anyway, so it doesn’t really matter. Like, back in the day, you wanted your CD to sound louder than the next CD in your five-disc changer, but who has these five-disc changers anymore? And everyone’s listening on Spotify or YouTube that are unifying for RMS anyway, so it doesn’t really matter. You should make your choices pretty much based on the result independent of volume.

HiMMP

And how many dB of gain reduction are you hitting on the Maximizer?

Dave Otero

We’re still hitting RMS levels of about five to six. So, it’s still pretty hot. But we do not really need to do much other than shave off some of the snare peaks and the tom peaks and whatnot.

HiMMP

Do you look at LUFs metering when you’re looking at your master?

Dave Otero

Not so much. For me, it’s more of referencing, which I don’t think I actually have a reference set up in this project. But often, I’ll use Metric AB, and I’ll

have a few references up there. I need to make sure it's consistent with other mixes from the genre. I'm not really going for any number.

HiMMP

Just how it sounds.

Dave Otero

Just how it sounds. And make sure it's not too quiet. You don't want it to be much quieter than its mix peers. And these days, a lot of my reference mixes are my own mixes. People typically come to me for a sound. So, it's going to be like a few of my more recent mixes that are out and about in the world and then a couple from the genre. Sometimes, I'll bring in a few competitors, which isn't the right word, but peers of the band in their genre, to make sure it's fitting in that realm. But that's more or less to keep my ears in tune, to keep me honest, and to keep me from getting too far off track. So, I don't know if other people are like this, but it's really easy for me. If I just mix and mix and mix without references, I'll veer off to a realm where I'm like, 'Oh, man, this is way brighter. Oh, this is way dark'. It could be balanced within itself, but then you're having to backtrack and massively EQ things back into place. So, especially when I'm in the early stages of a mix, or maybe the mid stages, I'll be referencing a lot to keep my ears honest.

HiMMP

Thank you so much for chatting with me. It's been fascinating.

Dave Otero

All right. Thanks for coming down.

Discography

Allegaeon (2010): *Fragments of Form and Function*. Metal Blade.
 Allegaeon (2022): *Damnum*. Metal Blade.
 Archspire (2017): *Relentless Mutation*. Season of Mist.
 Archspire (2021): *Bleed the Future*. Season of Mist.
 Cattle Decapitation (2012): *Monolith of Inhumanity*. Metal Blade.
 Cattle Decapitation (2023): *Terrasite*. Metal Blade.
 Cephalic Carnage (2002): *Lucid Interval*. Relapse Records.
 Cephalic Carnage (2010): *Misled By Certainty*. Relapse Records.
 Khemmis (2015): *Absolution*. 20 Buck Spin.
 Khemmis (2023): *Where the Cold Wind Blows*. Nuclear Blast.
 Primitive Man (2013): *Scorn*. Relapse Records.
 Primitive Man (2017): *Caustic*. Relapse Records.
 Visigoth (2018): *Conqueror's Oath*. Metal Blade.
 Wayfarer (2014): *Children of the Iron*. Prosthetic Records.
 Wayfarer (2016): *Old Souls*. Prosthetic Records.

9

ANDREW SCHEPS

9.1 Introduction

Andrew Scheps (b. 1969) is an award-winning US-American mixing engineer and producer. Throughout his career, Scheps has received five Grammy nominations, winning three: Best Rock Album for the Red Hot Chili Peppers' *Stadium Arcadium* (2006), Album of the Year for Adele's *21* (2011), and Best Reggae Album for Ziggy Marley's *Fly Rasta* (2014). A trained recording engineer, Scheps initially worked as a service technician for the Synclavier synthesizer, sampler, and workstation. He also served as a keyboard technician for Stevie Wonder and a live engineer for Michael Jackson, experiences that marked significant milestones in his early career.

Scheps later established himself as a sought-after mixing engineer and producer, collaborating with high-profile artists across a variety of genres. His extensive client list includes Michael Jackson, Diana Ross, Jermaine Jackson, Kenny Loggins, Enrique Iglesias, Alanis Morissette, Johnny Cash, Jay Z, Neil Diamond, Gossip, Adele, Lana Del Rey, Lady Gaga, and Beyoncé.

Operating out of his California-based studio, Punkerpad West, Scheps became well known for his extensive collection of vintage analogue equipment. However, in 2015, he garnered significant attention when he announced his transition to mixing entirely in the box (Avid Pro Tools). He cited the ease of total recall and the creative possibilities afforded by digital technology as key reasons for this shift.

Scheps has also worked extensively with numerous high-profile bands in the rock and metal world, regularly recording and mixing albums produced by Rick Rubin. In the metal realm, Rubin is renowned for producing Slayer's seminal albums, including *Reign in Blood* (1986), *South of Heaven* (1988),

and *Seasons in the Abyss* (1990), as well as later releases like *God Hates Us All* (2001). Scheps' rock and progressive rock credits include serving as the recording engineer for Audioslave's debut album, *Audioslave* (2002), and The Mars Volta's debut, *De-Loused in the Comatorium* (2003). He also mixed Bon Jovi's album *What About Now* (2013) and worked on many Red Hot Chili Peppers albums between 2002 and 2016, including *By the Way* (2002), *Stadium Arcadium* (2006), and *The Getaway* (2016). In the realm of pop punk, Scheps contributed as a recording and mixing engineer for Green Day's *Revolution Radio* (2016), Weezer's *Weezer* (2008), and Sum 41's single *It's What We're All About* (2002). In the metal genre, Scheps engineered several albums produced by Rick Rubin, including Limp Bizkit's debut, *Results May Vary* (2003) and Linkin Park's *Minutes to Midnight* (2007) and *Songs from the Underground* (2008). He also collaborated with the Finnish progressive symphonic metal band Apocalyptica on their album *Cell-0* (2020). Notably, Scheps engineered *Death Magnetic* (2008) by thrash metal pioneers Metallica, as well as *13* (2013) and *The End* (2016) by heavy metal icons Black Sabbath, all of which were produced by Rick Rubin.

Due to his extensive engineering work on notable pop and rock albums, Scheps regularly contributes to various educational platforms, such as 'Mix with the Masters', and frequently holds masterclasses at higher education institutions. He has also been a long-time collaborator with audio plugin pioneer Waves, with whom he has developed three signature plugins: Omni Channel, Scheps 73, and Scheps Parallel Particles.

Primarily a mixing engineer rather than a producer, Scheps does not write music but still plays an influential role in shaping the sound of the artists' songs, effectively bridging the gap between mixing and producing.¹ He pursues an artist-centred approach, avoiding the imposition of his own preferences on the music. This philosophy is reflected in his appreciation for rough mixes, which he uses as a tool to understand and engage with the band's vision. Scheps acknowledges, however, that while the arrangement guides certain mix decisions, iconic bands like Metallica and Black Sabbath bring with them a sonic history that must be integrated into each mix. For instance, when working with Ozzy Osbourne, he remarked: 'You're not going to not put a delay on Ozzy's vocal; he's never not had a delay. So, you have to do that. And finding the right delay for his vocal was a big part of those mixes'. Scheps views these experiences as ongoing learning opportunities that continue to inform and inspire his future mixes.

Heaviness

Scheps has a sophisticated view of heaviness, which he defines as a shift in perception. This shift occurs when songs that were once considered heavy

lose their impact, either because listeners become accustomed to them or because heavier productions emerge. Central to both heaviness and musical emotion is the element of surprise. Scheps argued that surprise is a key factor in the perception of heaviness:

You get used to something, and it's no longer heavy. Some of it has to be that initial rush of adrenaline and the surprise and like, 'Oh my God, I've never heard anything that heavy before'. When you hear it the tenth time, it's not as heavy.

According to Scheps, surprise does not just result in heaviness; it is also the catalyst that makes the music feel heavier than expected, evoking a more emotional response from listeners.

Musically, Scheps highlighted the role of distortion in creating heaviness, noting that it has long been employed in 'heavy' classical music, particularly in the bowing technique for string instruments, where the rosin sound creates distortion. From a production perspective, distortion increases sonic density, which in turn enhances the perception of heaviness. Sonic weight is equally important to Scheps. He emphasized the challenges of mixing contemporary metal, where instruments that traditionally carry the most sonic weight in rock music, such as the kick drum and bass, need to be reduced in size due to faster performances and limited sonic space. In modern metal, the kick drum focuses on precision and click, while the bass primarily supports the guitars. Consequently, the guitars provide most of the sonic weight, with the kick and bass acting as complementary elements. Scheps noted that palm-muted picking is particularly effective in creating heaviness on the guitar, as it emphasizes the low-end bloom rather than tightness in performance. Scheps believes that heaviness is better achieved at slower tempi, as these allow for greater emphasis on the bottom end of the instruments and the overall arrangement, which can be difficult to maintain in faster performances.

Scheps views heaviness as a quality not limited to the metal genre. He pointed to classical music, noting its atmospheres and emotional depth as aspects that can also be perceived as heavy. Certain arrangement techniques in classical music parallel those in metal, such as omitting the third interval from chords to create power chords, spreading power chords across different octaves, and doubling these chords with multiple instruments. He also identified hip-hop as another genre capable of conveying heaviness, particularly due to the substantial low end provided by 808 kick drums, bass lines, and their distorted tones. According to Scheps, any genre that incorporates significant sonic weight and distortion can be considered heavy. He also highlighted the role of songwriting and performance in creating heaviness, citing

the pop-punk band Weezer as an example of how their performances gave their pop tunes a heavy feel.

In Solitude

When mixing 'In Solitude', Scheps considered the slow middle section (the breakdown) to be the heaviest part of the song. This was not only due to the increased low-end weight it allows but also because it serves as a release for the tension built up in the preceding faster sections. As contemporary metal is not his primary area of work, Scheps faced challenges in mixing the track, given the density of the recorded arrangement. His usual distortion-heavy approach resulted in issues with clarity and separation in the dense mix, prompting him to highlight the differences between mixing metal and other genres of popular music. Scheps explained that he prefers distortion over EQ because it provides more audio to work with, making subsequent EQ use more effective and less necessary. However, distortion adds more energy to the mix, causing the sonic space to fill up, which becomes difficult to manage in a dense metal mix.

Scheps noted that regular compression tends to reduce transients (downward compression), so he began using it less frequently. Instead, he favours parallel compression, which raises the quieter elements (upward compression), allowing him to maintain transients, add length, and achieve sonic glue. Scheps also prefers parallel distortion to shape textures, as it provides more control over the material's temporal envelope, whereas parallel compression helps balance the overall sound.

The drum processing involved compromises and automation (such as volume and reverb) to accommodate the changing arrangement, from the sparse intro through the faster sections to the slow breakdown, with other instruments entering and leaving the mix. True to his mixing style, the drums underwent significant direct and parallel distortion and parallel compression to sculpt their tones and waveforms. Automation was employed to make the drums sound bigger, particularly in sparse sections like the breakdown, while parallel distortion served as an alternative to reverb. This approach enhanced the drums' mid-range frequencies, increased their presence, and lengthened the attacks of the snare and toms.

To make the kick feel bigger without adding excessive low end and to better integrate the snare into the mix, reverb was applied to the drum shells. Both the kick and snare received direct distortion to reduce their dynamic range without the need for compression, creating a fuller frequency spectrum for equalization. The toms were enhanced with frequency-specific reverb, and their volume was controlled using a limiter. Interestingly, Scheps chose not to use samples to enhance the kick, snare, or toms, opting instead to

rely on the recorded acoustic tracks. Overhead and room tracks provided the drums with significant reverb. Scheps explained that since the guitars largely covered the drums and made them less audible, the reverb helped increase their perceived size. He ultimately decided against using any drum buss compression and instead applied parallel compression to all instruments and vocals to achieve cohesion across the mix.

The bass signal in Scheps' mix featured a DI for attack and low-end stability, paired with an amplifier for tone. A key aspect of Scheps' low-end management involved the phase relationship, balancing a solid low end with a pronounced mid-range to help the bass cut through the mix. Scheps opted for the latter, arguing that a pronounced mid-range created more space for the kick in the low end. He did not use sidechain inputs to duck the bass during kick hits, explaining that side-chaining is not part of his workflow. Additionally, he refrained from compressing or limiting the bass signal, instead relying on distortion through an amplifier emulation on the bass buss, which he considered a four-band saturator. This amplifier smoothed out the dynamics and added mid-range energy, allowing the bass to cut through the dense mix. To further even out the dynamics and tone, de-essers were applied in the low-mids as an alternative to dynamic EQ or multiband compression.

Instead of re-amping the guitars, Scheps worked directly with the four provided guitar tracks. His processing focused on enhancing note clarity, utilizing mid-range EQ boosts to bring out definition, and employing de-essers to attenuate harsh frequencies. The processing was relatively straightforward, with additional overdrive processors and compressors used to add saturation and even harmonics, filling out the mid-range to allow the guitars to compete with the distorted drums. Scheps applied clip gain and automation to ensure the guitars maintained their presence during arrangement changes. He explained that he avoids multiband compression or dynamic EQ to control the guitar's low end, as these processors are not phase coherent at the crossover points and can cause phasing issues.

The vocal processing followed a variation of the '90s East Coast vocal production approach, which involves removing the low end, boosting the high end, compressing the signal, and then reintroducing both the low- and high-end energies to enhance presence. Unlike the original approach on the tracks themselves, Scheps applied this technique in parallel. He noted that this processing created a dense mid-range that was easy to hear without increasing the level or altering the tone of the vocals. Regarding the orchestration, Scheps significantly reduced its frequency spectrum to create space for the heavily distorted guitars and drums, which occupied most of the sonic space.

Scheps did not master the mix but applied some mix buss processing. Unlike the other producers, he dislikes the sound of compression; therefore,

no stereo buss compression was used. The final processing includes stereo widening and a tone-match EQ.

9.2 Conceptual Interview on Heaviness

HiMMP

First question: how would you define heaviness?

Andrew Scheps

It's a moving target and an evolving target. First of all, I remember when 'Back in Black' (AC/DC 1980) came out. And that sounded like the heaviest thing I'd ever heard in my life, sonically. And now, it's almost a pop record compared to what's going on. That's the first thing; I really do think it changes. But the things that stay around are distortion. First of all, that's a very obvious thing that is part of most heaviness, except you can have heaviness in classical music. But usually, the bowing instructions are to get more of the rosin sound, which sort of sounds like distortion, so it's bringing that up. But I'd say that low end is a huge part of heaviness. And I think that's just something that happens in humans' heads. If you say heavy, that's weedy, that's low end, things like that.

More specifically, I think when you have palm mutes, it's the bloom of that low end as the guitar stops, which is heavy, as opposed to just tight. But strangely, in terms of metal and certain modern metal, the drums don't necessarily carry that low end. The kick is much more about the precision and being able to hear what's happening. It's much more about click; they're usually scooped. And there's some low end and things like that. But it's not about getting a heavy kick drum or even necessarily a heavy bass. To me, it's more about the guitars because they are such a big part of the production. The bass is generally doubling the guitar lines; it's not doing its own thing like you would get in more of a rock context. And people like Chris Chaney or Robert DeLeo, who were playing countermelodies, or Flea [Red Hot Chili Peppers], who's almost doubling the vocal melody in the Chili Peppers stuff. In metal, it seems to be that you get a more homogenous riff. So, it's the low end, I'd say.

But again, I'd argue that we've had heaviness for hundreds of years, not recorded and not necessarily classified as heavy, but I think classical music has been heavy for a really long time. I mean, just one specific example, and it's not necessarily done as heavy, but it feels this way in the context of what's going on: the last movement of Mahler's Fourth Symphony (1902) is sort of a folk song set, and there's a soprano who's singing it. There are these pauses, and in the pauses, the orchestra plays two chords. And if you look at the score, they're power chords, its roots and fifths spread out over

four octaves, and that's all it is. And I think that's your clue to the musical side of it. You can go major chord, not heavy; minor chord, heavier. If you leave out the third entirely, that can be even heavier because you aren't even defining it; you're leaving someone in space to realize: well, it's not happy, it must be super heavy, like there's something going on with that. And that's more in terms of just chord structure and arrangement and all that kind of thing. But then there's the sonic element of it in the recorded music we're talking about.

And I really just think that it's a matter of progression. It's something that is heavier than anything you've heard before then. Again, 'Back in Black' is a great example of that. It sounded super heavy when it came out. And now it does not. It sounds great, and it's still a fantastic record, but it doesn't sound too heavy anymore. Meshuggah sounds heavy, but that doesn't. So, it's this progression, and it's also the hearing something for the first time. It's the being surprised by it because 'Oh my god, could you do that?' Well, they've just done it, so yes. But on multiple listens, you get used to it. And so, part of the heaviness, I think, is the surprise of it. And that doesn't always last forever.

HiMMP

You mentioned classical music there and heaviness in classical music. Do you have any perspectives on this idea, this perceptual heaviness in other genres and other musical forms? In addition to classical?

Andrew Scheps

Well, trending towards minor chords instead of major chords—that will sound heavier, not necessarily just to do with the instrumentation. But obviously, you've got sad pop songs that don't necessarily sound heavy. But in hip-hop, absolutely. The amount of low end and the 808 basses they are using, distorted 808 basses, they can sound ridiculously heavy. There's a Damian Marley track from years ago, something about traffic; I can't remember the title of it. And the low end is insane; it makes it feel incredibly heavy. So again, it's just the weight of it. And that can happen in pretty much any genre.

HiMMP

In addition to that weight, from a mix perspective, what are the components that, when you're mixing, deliver heaviness to the listener?

Andrew Scheps

Other than EQ, it's tough because, like I said before, when you're in metal, modern metal, there's something that's faster. Not the first couple of Black Sabbath records, but in more modern metal, the drums are very much

about precision, but at the same time, when you get to the toms, you have to have this low-end thing to them, and the kick, obviously, has to have some low end.

I don't do a huge amount of work in the genre. I mean, I've mixed records for Metallica [*Death Magnetic*, 2008], but they are very much their own thing. And Lars' [Ulrich] drum sound is very specific. But it is still part of it, I guess. I feel like it doesn't come as much from the drums. Whereas mixing rock, that's where I find a lot of the wheat of the track would be from the kick drum and the bass and figuring out who rules the low end. Whereas, especially on the song we worked on for this study, it really was trying to get it to come from the guitars because they are so much louder. And in this very simple guitar arrangement, two guitars left and right, you're not dealing with trying to make countermelodies happen within other parts. Other than eight or 16 bars, they're playing exactly the same thing. You just have this stereo thing that wants to carry the weight of the entire mix.

HiMMP

You mentioned the speed of the performance there. You've mixed Black Sabbath [*13*, 2013; *The End*, 2016] as well, and Metallica [*Death Magnetic*, 2008], and the track that you've mixed here that's got really fast blast beats at 200 BPM. Do you have any observations about the space that is available for the sonic weight for the low end with these drum performances?

Andrew Scheps

It's tough. It's tough because, in most of those blast beats, you need the snare to have enough top end to be heard with the click of the kick. You can't make it heavy, that sort of 220 Hz thing that you'd bring up on a Neve to make the snare fat because it's going way too fast for that, and there are cymbals involved. So, the kit almost rises up. And when this goes to the halftime section, it actually feels heavy to me. I don't really get the heaviness except in the guitars with the riff when it's going fast, and that's just my perspective as a listener. But it's also part of just my personal taste. I like slow, dark, sad, distorted things. And when they speed up too much, it's hard for me to settle into it. That's why I love the halftime part of this. That's, to me, when the track just drops and gets really heavy because, again, you have the room in the mix. You're not trying to hear things as much. It's obvious what the drums are doing there.

HiMMP

In the section that you mentioned, the breakdown in the middle of the song where there's more space, there are also some orchestral elements. Do you see orchestral elements contributing towards this idea of perceptual heaviness?

Andrew Scheps

I think they definitely can. I mean, interestingly, we talked about I don't work in this particular genre a huge amount. And I find, especially the higher strings take away from the heaviness; it doesn't really work for me, but that's just a me-thing. I don't think that's a general thing. But in that section, the guitars go away, so the low end can only be the kick drum and the strings. And so, at that point, they are the heaviness.

But to me, the heaviness came more from slowing down, this release of all the tension that you've built up all the way through. It's a tension-and-release thing more than a heavy thing. But the tempo helps, and then when the guitars are back in, you've got the slow, heavy, dirgy riff, which is what I respond to.

HiMMP

The performance elements that we're discussing are obviously core components of heaviness, but moving away from performance and moving more towards technology, obviously, over the past half a century, we have had all these technological developments that have largely facilitated heavy production. So, increased track count, drum sample implementation, and modern valve guitar amp technology. From here, where do you see it going? Are productions getting ever heavier? Or have we reached the end game? Or how do you see technology developing to facilitate it any further?

Andrew Scheps

I don't know. I think it's more driven by the taste, and the technology responds to that. People develop things that people want. And every once in a while, you have visionaries who develop things like the LinnDrum that came out of nowhere, in a way, because the technology can do it, but I don't know. I mean, it's a fact that now you can sidechain 70 things in a session, and they're all time-adjusted, so it works and all that. That definitely opens up possibilities if you're working, especially in this genre, at that sort of tempo.

But I think it's more that you always think, like I said before, with 'Back in Black' (AC/DC 1980). You thought, 'Well, that's it; we've now hit the heaviest thing ever'. And it really does. It sounds amazing still, but it sounds like a pop record. It does not sound like a heavy record. And I think it also goes in different directions. So, you get the heavy versions of what could be pop songs.

And I think in metal, there may not be as much of it, but when you go to a band like Weezer, they're writing almost pop songs, but they play them heavy. So that happens where the heaviness is introduced into different song-writing veins. But then it's also just changing perception. You get used to something, and it's no longer heavy. Some of it has to be that initial rush of

adrenaline and the surprise and like, ‘Oh my God, I’ve never heard anything that heavy before.’ When you hear it the tenth time, it’s not as heavy.

HiMMP

Interesting. And continuing from that perspective, when you get used to hearing something, it no longer is heavy. Do you feel that some lo-fi productions or production techniques can be perceived as heavy and deep? Do you use lo-fi production techniques yourself, or are high-fidelity production techniques generally perceived as heavier and with greater clarity?

Andrew Scheps

I don’t know. Again, I think that’s really personal taste. I personally find some of the lo-fi stuff heavy, just to use the word to describe it. And I’m a fan of . . . I didn’t do it on this track. No, actually, I did use some parallel distortion on the drums because that really makes the mid-range dense. And I feel like when it’s a wall, that’s heavy. Now, there are definitely other people producing metal who feel like the precision is more important. So, having the cleaner sounds with space in between is what makes you hear what’s going on.

And I feel, with my mix, it’s sort of a problem. I’ve built it up more like my rock mixes, and there isn’t enough space for everything. And it’s why the strings and the horns aren’t doing maybe the job they’re doing. There’s stuff I hear in my head that is not happening yet. But I couldn’t really get there in a timely fashion. I just thought, well, I don’t want to relearn how to mix to try and make this happen. But I do think some of it is just personal preference.

HiMMP

And from those personal preference perspectives, when you’ve mixed Sabbath, Metallica, and Linkin Park, what are your core approaches and what are you trying to achieve? And how do they vary between each project? We talked about the guitars, and we talked about the harmonic distortion, but between each of those bands, how does your aesthetic of what you’re trying to achieve change? How is that affected by the performances and the speed of performance or the textures involved?

Andrew Scheps

Well, I think, for me, every mix is about the songs. I’m following the lead of what the arrangement is. But when you’re working with a band like Metallica or Black Sabbath, obviously, the history has to be part of how you mix. You’re not going to not put a delay on Ozzy’s vocal; he’s never not had a delay. So, you have to do that. Finding the right delay for his vocal was a big part of those mixes, to the point where it actually made me think about slap delay more. And so now, slap delay is a big part of what I do with vocals in general.

Sometimes, it is just being reminiscent of something you've heard before, which is different from hearing the same thing a lot of times because . . . I realize I'm almost contradicting myself in a way. So those bands have a history in the sound. But in general, it is because of the things I like about music, which is the sad, dark, distorted, slow, all that kind of thing. I'm always looking for those elements in any mix, from Beyoncé to Lana Del Rey to everything. So, it is about how I can make this low end just swamp you without killing the song. It's always serving the song, but I am seeking out those elements that make me feel like it's compelling. And you'd want to come back. And to do that, I feel like it has to be surprising. And the way to surprise people, for me, is to make things heavier than they would expect.

HiMMP

And those bands with the history that you talked about, you know, referencing the slap delay on Ozzy's vocal—you've also worked with a lot of other producers through the years, Rick Rubin as one example of those producers that you've worked with. Which of their production techniques have had a real influence on you when you've worked with these producers?

Andrew Scheps

Everybody you work with has an influence on you. And the good thing is, you cherry-pick—you take the things you like, and you leave the things you don't. And it's interesting, though, because I would say Rick, when he's in the mixing process, is very much about the precision and being able to hear everything, and that's it. But that's on everything, that's on every genre; it doesn't matter if it's Johnny Cash or Metallica. What he's looking for is to hear everything about it. Whereas other producers are not necessarily about that, and they are more about just the overall picture of how this can fit together and explode out of the speakers. Yeah, I've learned stuff from everybody about everything.

HiMMP

And looking back on the albums you've produced, which are the albums that have been the most challenging to you and presented numerous challenges, and how did those albums turn out? And then also, which were the most straightforward albums with the least challenges, and how did they turn out?

Andrew Scheps

Every album is full of challenges, especially because, for the most part, I've not produced multiple records with the band, so you don't have the history. The first few days of actually being in the studio are all about learning what's going on. There's a band called Fathers from Switzerland, where

it went really smoothly. We had twelve days in a studio to record twelve songs. And we decided very early on that we are not going to do two days of drums and a day of bass. We said we're going to start every single day with pre-production on the song that we will finish that day. And we actually managed to do it. Other than background vocals, everything was done by the time we stopped that day. And then, the next day, we started up a new song. And because somehow we just got into the groove of doing that, it ended up going really well. We were on the same page, and the sounds that we got first worked. And we were switching things up between songs, which is something you normally don't do. You're tracking twelve songs of drums; you've got a day and a half, and you don't change stuff. But this was every morning. You're fresh, you've just had some breakfast, and you don't mind going out there and moving microphones and putting some tape on some stuff. And, like, let's try that guitar amp. But you do it really quickly. And then you're in the flow of it. And it works for that song; you're not worried about other stuff.

There's also a band called Motorcycle, who is one of my favourite bands from Norway from Trondheim. And it was really difficult because I've been a huge fan of theirs for a really long time. And in my head, I had the versions of the records they'd already made. Like, wouldn't it be great if it sounded like this? And it's arrogant to think that somehow they hadn't achieved the sonic thing they were looking for. But now I have the chance to work with them, and I will give them what they want. They were absolutely getting what they wanted. So, it was really challenging for me to completely shift my perspective on what the end product was going to be while tracking with them for the first time ever. I had only talked to them once after a show, did not do pre-production because we couldn't be there in Norway, I was here, and to just show up in the studio and have a . . . And also we're trying to record, I don't know, 70 minutes of music in ten days or something like that. So that was difficult, but also incredibly rewarding when you get to the end of it. I mean, I don't know if difficult is really the word. It's just a lot of work sometimes. But even the Fathers' record was a tonne of work. But I feel like we all were on the same page immediately and just stayed there.

HiMMP

We were chatting before about the way that you look at the low end of modern metal albums. Sometimes, it's not really the kick drum that's in the low end—it's the guitars, and the kick is providing space for the guitars. What are the trade-offs and limitations of some of your mix tactics? In other words, does increased drum cohesion result in less clarity? Or, for example, with thicker, denser guitar tones, it's also difficult for other instruments' clarity. What are the trade-offs that you're trying to negotiate with mixing rock and metal albums?

Andrew Scheps

I think with the rock albums, it's okay to be dense and for the guitars to be more mid-range. But in metal, like we were saying before, where the bass is generally doubling the guitars, the bass ends up with presence in the mid-range because of the distortion and things like that. But their low end is just being borrowed by the guitars in a lot of ways because they're playing the same parts most of the time.

So, on this mix, it was the same thing. I was struggling with, 'Oh, I can't hear the bass. I can't hear the bass. Well, let me turn up the distortion.' And that's fine. But I still can't hear the bass, and then you mute the bass. And it's like, oh, right, yeah, I can hear the bass, no problem. It just doesn't separate as much. And again, I think one of the problems with what I usually do is my mixes are very dense, and there isn't a lot of room, which means there isn't space around things, which means that the entire mix is taking up more space where what I really wanted was for the guitars to take up more space.

And for me, because of the way I mix, it was really difficult. I never really even got there. I don't feel like I managed to give enough room for the guitars to be as important as they're supposed to be. Instead, they're a bit louder, but they're not necessarily as full-frequency as I'd like because I can't leave the drums that clean. It just bugs me that I can't do it. The distortion on a drum kit starts filling things up that you don't want it to fill up.

HiMMP

So, continuing with that theme of the distortion on the guitars and potentially saturating the drums—you've got the [Waves] Scheps Omni used, giving quite a lot of saturation. How would you approach saturation, distortion, and clipping as processing approaches with mixes? Obviously, it's very dependent on the textures involved. But where do you see distortion and saturation? Do you see them as textual? Or do you see them as creating more cohesion between the drums and guitars?

Andrew Scheps

We can talk specifically about drums for a second because there's parallel distortion on the drums; there is also direct distortion on the drums. And with that, it came from, and I've no idea what mix it was, but there was a mix where the drums felt too tight. And they needed more, not more space; they needed more length; they just needed to feel like they were in a better-sounding room than they were recorded. And I tried things you can do to room mics—like the UAD Ocean Way plugin is fantastic for that because it does, I mean, it's still reverb, but it does what they call 're-miking'. And it does feel a little bit more like the microphones were in a different room rather than reverb. But everything I tried just sounded unnatural and weird; it just sounded like reverb.

And then I thought, what can lengthen these drums? Well, distortion because it takes longer to go away afterwards; it has a shape to it. And so I came up with some parallel distortion chains and really tweaked one over the course of the next four or five mixes. And now it's in my template. It is usually just used in choruses. I think in this song, it might be all the way through, but it's generally used to beef the drums up. But then, away from the drums in general, harmonic distortion gives you more audio to work with when you're EQ-ing. So that's why I like it. You can do a half dB in the mid-range on something that's distorted. And that is a gigantic difference. And without the distortion, it's only the notes that have things close to that frequency unless you're doing a really broad EQ. But then that's the same as turning it up, and why would you do it?

So, to really be able to make things poke out of a mix, you can be much more specific with the EQ and tighter on the Q [bandwidth] itself because there is more information at all frequencies. And so that's what I like about it. But the trade-off—and with that, and parallel compression—is there's just a lot less space in the mix. My mixes are very dense, to the point where it upsets me sometimes because it'd be so easy if I had more room, and I turn all that stuff down, and I just don't like it. So, it comes back up.

HiMMP

And that principle with the distortion, lengthening the drum sounds to almost getting more sustained out of them, is that a similar principle with parallel compression? Is it more about texture, or is it more about transient design?

Andrew Scheps

It's more about texture; parallel compression is more about the envelope of the sounds. But then again, a lot of my parallel compression, I will be smashing it. So, as I bring that up, there's some distortion in it as well. But it is more about just the difference between serial and parallel compression; the normal thing is that I want to bring the quiet stuff up and leave the transients, especially in drums, of the loud stuff alone, whereas straight compression would bring those transients down.

So, it doesn't work exactly like that. But in my head, that's how it works. And it does feel that way where I can keep that almost surprisingly loud transient of the snare but then give it more length because you're bringing up the decay of it. And by sharing the parallel compression between the entire drum kit, you don't just make the snare do something that is now covering up the next kick drum or something like that. Every drum hit will drive that compressor, and it just helps glue things together, the way I hear it, but again, it also has detrimental effects of taking up way more space. And it doesn't leave space for other stuff.

HiMMP

And the idea that we're discussing here of transient design and textures, lengthening the drums to provide more density and more impact . . . From chatting with you previously, you have said that you're not a particular fan of room mics, feeling that there's not enough phase coherence to the room mics.

Andrew Scheps

It's not necessarily the phase relationship of the room mics; it's more the delay, not in terms of phase but in terms of smearing the transient of the snare. What I will do sometimes is take the room mics and actually line them up to the snare. If I can get rid of some of the low end because, unfortunately, the kick and the snare don't ever seem to have the same delay in the room mics. How that is possible, I've no idea. But generally, I will line them up to the snare, and then they act like a reverb because this transient is there. What I don't like is smearing the transient by having that delay.

HiMMP

And when you're creating drum samples from the kit used for tracking, you quite often favour creating drum samples in the kit used for tracking with different mixes of those sources to create the drum samples. Do you therefore tend to stay away from the room mics or try different combinations?

Andrew Scheps

No, actually, the way I do it is right after we're done tracking. I then have the drummer play the drums, a couple of velocities, nothing crazy. But I just record the multi-track. And what those are for is when there's a miss-hit snare, or they didn't get the rim on that hit, I will actually cut the entire drum kit to put it in. And if there's a cymbal that I don't have or something, then I'll cheat by keeping overheads or whatever I need to do. But sometimes, one snare hit will sound weird, and it has nothing to do with the snare track. So, I will keep all of those multi-track. I almost never mix them down and make samples for me to use somewhere else—every once in a while, but not very often.

HiMMP

Brilliant. We've discussed all the ideas about perceptual heaviness and different genres and performances, and how that contributes to the perspectives of perceived heaviness. I think it'd be great to look at the mix and the challenges that were presented with this multi-track.

Andrew Scheps

Great. I mean, there were definitely some challenges. It's very dense. There's a lot going on. There's some stuff I don't feel like I got quite right, not what I was hearing, but let's see what I tried to do.

9.3 Mix of 'In Solitude'

Central Challenges

HiMMP

We've chatted about the overarching challenges with mixing metal music. And you've talked about some of the approaches that you've used on previous productions. When it came to this mix of 'In Solitude', what were the central challenges here? And how did that inform your mix focus?

Andrew Scheps

Well, we'll just go top to bottom, and I'll remember as we look. One of the things that was really difficult is that the very intro has the blast kick with nothing else, and then that one snare hit. When they're exposed, they have to sound great. Once you're in the track, they just need to do their job in the track. You may think they sound great, but you're only hearing a little bit of them. So, having those exposed was difficult; I can see that I'm automating something just for that first kick; I'm adding this 4 dB sort of very wide, 100 Hz (Figure 9.1), just for the first four hits because, inside the track, there's no



FIGURE 9.1 Channel strip of the kick buss with a 4 dB 'thump' automation for the intro.

way in hell they can have that much low end. It's just that they take up too much space, and it gets messy. But for those first two bars, it just sounded thin without it so that the snare hit afterwards; I'm turning it up. I still feel like that didn't quite . . . because it needs to be 'drrr, bam'. And it's not quite the blam yet. But when I pushed it more, it sounded out of context and weird.

So, that was one of the things; that's a really small detail. The use of reverb on the snare (Figure 9.2): normally, I would try and get it by crushing room



FIGURE 9.2 Primary snare reverb.

mics or distorting in parallel, which I'm doing quite a bit of; there's quite a bit of distortion going into the kit. But this, especially because there is an orchestral arrangement and you have the breakdown, you have to use reverb; you just have to do that. It doesn't work to just have a roomy drum kit then. I've got two different reverbs going. One is relatively short. I've got one just for the snare. But then I've got a big snare reverb that is just in the breakdown in the very end when we come back to that sort of arrangement.

The fact that the guitars drop out in the breakdown in the very end, like the most important, loudest thing in the mix, is now gone. So, what do you do? That's difficult. Obviously, the bass sound needs to change when other things go away. But that's kind of standard stuff. It looks like I only took out about a third of the strings, but I did change the strings because I felt like as you put the arrangement together, it's always trying to look for contrast between sections, but also more about energy between sections. A lot of times, I will automate the parallel distortion on the drums. I think I mentioned that earlier; I just bring it in the choruses.

But this is just up all the time, except for those breakdowns. So, it needed it all the way through. I don't have the ability to make the drum kit bigger because it can't get bigger. What I ended up doing instead was to actually use the strings as a bit of a lift because they're above the guitars. So that high, mid-to-treble sustain became the way stuff lifted. And then, also, by getting rid of it in the verses, I didn't have to bring the vocal up more because I felt like there's so much great guttural tone in the vocal, you don't want to highlight that. You can tuck it in, and it will still cut through. So, to be able to do that, I didn't want the strings covering up the vocal during the verses. Even with the background vocals, they're mostly supportive. You've got the growl vocal down here. And that all works really well. But you've got one line where the background vocals take over. And like, 'Well, come on, man, you're barely there, you're supporting, you're making stuff sound thicker, and now you're the lead vocal for two bars'. So, how do you make it sound okay for them to take over but not out of context? And the way they're singing is almost operatic in that spot, which is very different from the way the lead vocal is most of the time. So that was difficult as well.

We talked about the brass earlier, and the brass has this great low end to it, but I couldn't really make room for it. So, they ended up in there a little bit but were not featured, maybe the way the orchestrator was expecting them to be. But I think that's also a personal preference. And it's why I got rid of strings, and it's why I tried to not use reverb on the drums. That's just my thing like that. It's not pop, but it's a pop thing to put reverb on drums, and I'm just so unused to it that it always sounds really foreign to me, whereas the reverb I use on the snare, which I mentioned earlier, is pretty short. It's under a second. And it's pretty bright. And it's an ambience rather than a hall

or something like that. So, its decay is pretty quick. Again, it's just length rather than reverb.

But then, in the breakdowns, you need the cinematic reverb for the snare. That's been automated. There are lots of little things, and then I am also just trying to get all of the weight from the guitars. Fortunately, like we talked about, the basses doubling the guitar, so I could grab a bunch of low end from them. But there is something about the low-end cabinet bloom on a guitar that is completely unlike what happens with the bass. It's nothing like it. It's on the 'dum, duck, duck, ducke duck, dum'—like all of those shorter things have this low end, almost like an explosion, as soon as the note itself stops, trying to get that to come across without just swamping everything else. So those, that's what I can remember; there's probably more than that.

Stereo Dimensions

HiMMP

As far as stereo width, are you going for more maximum width or more of a realistic aesthetic? How do you go about the extremes of the panorama?

Andrew Scheps

I'm not afraid to hard-pan; I'm fine with it. And one of the reasons is that on the mix buss, I use this, which is basically a mastering EQ, and it's in MS [mid/side] mode (Figure 9.3); it has the most transparent stereo width. So,



FIGURE 9.3 Mid/Side equalizer on the mix buss with a stereo widening function.

I'm actually widening the mix by 20%, whatever that means. But what that means is, and it doesn't really come up in this mix very often, but if you hard-pan something and then listen in headphones, it actually hurts because your brain likes crosstalk. There's nothing in nature that you would only ever hear in one ear.

And that's why it feels so uncomfortable because your brain is immediately starting to test the eardrum in the other ear, like, 'I'm broken. What's going on?' because of using any stereo spread. The way it does it is by taking some sort of phase relationship, changing it, and putting it into the right speaker. So, if I pan at 93% or something like that, that's what gets it just into one speaker. But I never do that. I can hard-pan things, and there's just enough crosstalk to make it comfortable on headphones, which is a big deal because a lot of people listen on headphones now.

HiMMP

And with your cymbals, are they fully wide? Are the guitars fully wide?

Andrew Scheps

The guitars are absolutely fully wide. And I played with the panning when they're not playing the same part because it's only this one section in the song where one of the guitars starts playing more of a chugging part, and the other one is playing the riff. Again, that was really difficult. I think I've managed to make it work. But I first started thinking like, 'Well, okay, I'll take the two guitar mics, it's playing riff, and I'll split those. And then we'll take the other guy and make a mono, and we will try and find space'. But the guitar tone changed so much that it was actually more distracting than just letting them all of a sudden play different things.

But getting that level right was really difficult because you lose half the riff. So, you need to turn the guitar that's left up, or it sounds like everything dips. But you can't have it feel like, 'Oh my god, that guitar just came up a bunch,' because then that's super distracting. And the chunky part had this very dense, low-mid thing. That's like, well, that's not great. But then there are some things in the middle of it. And I think this is the section, and I'm doing some clip gain just within what it's playing when it goes between chunks. And there are some chords in the middle, and getting that right took a really long time.

But yes, they are hard-panned all the way through. I'm sure the overheads are all hard-panned. Yes, overheads and room. No, the room I brought in a little bit. And the reason for that was the cymbals. There's a cymbal on the left that I found really distracting. And it's just getting hammered on in some of the sections of the song. And by bringing that into the middle a little bit, it doesn't call as much attention to itself because it's not all the way in the outside. So that was a very specific decision to do that. But normally, yeah, I just leave all that stuff hard-panned.

HiMMP

Do you ever apply width processing to the bass in the upper frequencies for this mix or any other mix?

Andrew Scheps

No, never. I will do it to guitar solos; they always get a little bit of something, but it's not a stereo-width control. It's a weird thing. I stole it from Chad Blake, basically. It's an incredibly slow flanger [Waves MetaFlanger], first, that's moving really slowly, followed by [Waves] Mondo Mod (Figure 9.4). This is basically panning, but it's panning with ultra-stereo-width processing. It's trying to be like the old; what was it called? It's not the Pan Scan. There was a hardware single rack space panner that I can see that blue type on it. And it had some phase processing that would make it go in circles. It never really felt like that, but it was different than just going hard left, hard right.

This is doing that really slowly. And what it gives you is this smearing, and you put just enough in so that everything feels wider, but you never actually

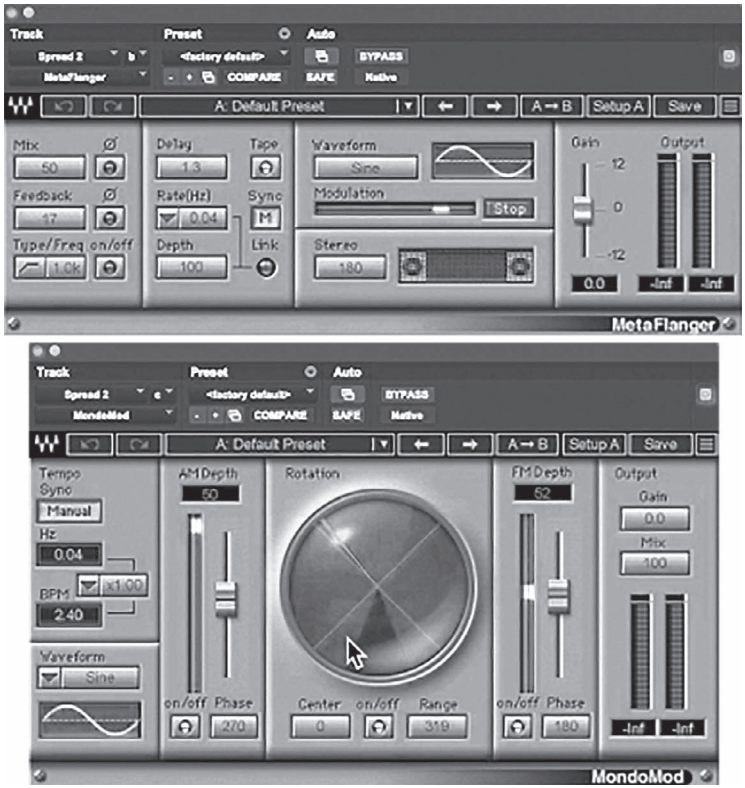


FIGURE 9.4 Two modulation processors used for stereo widening.

hear it do its thing. If you turn it up too much, you hear the flanger. You hear it panning, but just a little bit, and then I'm even widening it after the fact a bit more. Not because that makes it wider but because you're messing with the phase so much that you just can't tell where it's coming from. That is sometimes used on vocals and sometimes on guitar solos. I don't know that I even used it in this mix, to be honest.²

Reverbs

HiMMP

Moving back to reverbs on this mix. You've got a fairly short ambient reverb on the snare, and then we've got a separate toms' verb, which is also fairly short.

Andrew Scheps

Yeah, it is, in fact, the exact same reverb, but it's turned down. I think it was in my template. I believe it's a little longer. And the difference, though, is that it has some micro-shifting on it. It's not stereo width but actually pitch shifting. And this came up; I think it was on a Green Day record where it felt like I wanted to go kind of stadium with the toms. How do you do that? Flanged reverb was a big deal in the '80s, going into the early '90s, for those sorts of pop rock records (Figure 9.5). And I felt like I wanted to get this weird combination of punk because I keep the Green Day thing, but they play stadiums. So, when Tré's [Cool] playing a drum fill on his own, like, how can I do it? And this worked a lot better than a flanger because if you hear the sweep, then you know it's there, whereas this is just constantly doing it. And it just makes the reverb on the toms a little special in a way.

But back to the challenges. Getting the toms to feel like part of the kit was difficult because you need them to be big and present but at the same time, the kick and snare present. But you don't have a sense of the kit in the same way that you do with a regular rock mix. Getting the level right and the amount of reverb was something I spent a lot of time on and kept going back to because one of the fills would pull my ear while I was doing something else. Yeah, those reverbs and then the long guy in the breakdowns.

HiMMP

And then you've also got a feed from the drum aux to the swell.

Andrew Scheps

Yeah, and this is pretty low. I mean, the output's at zero, but the send, I don't remember what the send is. Oh no, it's up. It's up pretty high, but it ends up not being that loud in the mix. This is just a room (Figure 9.6). And it's a very good-sounding room. What's interesting about it, though, is this particular



FIGURE 9.5 Processing for a flangy reverb on the toms.



FIGURE 9.6 Drum reverb plugin with a filter, applying reverb only on the mid and high frequencies.

plugin; the Liquid Sonics guys are amazing. It's got this very low-frequency reverb control. If you take it all the way down, basically, the low end gets no reverb. But as you bring it up, it's like a super wide room for the kick drum. So, you can make decisions about how you want the kick.

I decided, just because there's not that much low end in the kick because the bass and the guitars are taking over that job, that I could just leave it up. And it would just help make the kick feel a little bigger without having to add more low end. But again, this is not a gigantic part of the drum sound. The only other reverb is on the mix buss (Figure 9.7). And this is something I do all the time. It's only mixed 15% wet. So, you're mostly hearing the fact that this is getting distorted a little bit, but it's only getting mixed in a little bit. This gives me the smearing you would get with a compressor, but I don't like the way compressors sound on mixes anymore. This was like my thing. And this is on because it's in my template, and I tried it, and it helped out with this particular mix, but it's not something I built for this.

HiMMP

Of interest are the pickup points that you use for all your reverbs, but always from the auxes. Do you always take your pick-up points from the aux and never from the individual channels?

Andrew Scheps

Pretty much, and it's because I'm lazy. The auxes are in my template. And the other thing is, well, if I'm combining the four snare tracks you gave me, plus the sample I'm adding, why would I want reverb differently off of those tracks? Like, I'm making a snare sound, so I want to send that to something. It doesn't make sense to me.



FIGURE 9.7 Parallel reverb on the mix buss as an alternative to compression for glue.

Now, every once in a while, I will change my mind, and I'll do it, but not usually on drums. So, I will have reverb sends on individual tracks. What's this going to? Yeah, I built a reverb for the piano. So that's there. But in general, I pick them off where it's already in the template. And then, if it doesn't work, I'll spend the time, but it is literally because I'm lazy. They're there. They're always there. The level is set along with the return. It's all tweaked how I normally like it, and it's my starting point.

HiMMP

There are some producers, like Andy Wallace, who opt just to take the clean samples to reverb and use that as a reverb send-in.

Andrew Scheps

Yeah, exactly. I mean, he triggers the reverb as if the reverb were a sample. And believe me, when I found out he did that, I tried it. And then, a few years later, I remembered he did that and tried it again. I can't get it to work for me. But yes, he's the king of it.

HiMMP

Yeah, I think he did it on [Nirvana's] *Nevermind* (1991).

Andrew Scheps

I think pretty much everything—that's the way he treats drums—is to trigger the reverb with samples that you don't even necessarily hear. They aren't necessarily the samples that get blended in. They're just there to set off the reverb.

HiMMP

Faders down, sends pre-fade to reverb. It just got this bright white noise of the sample.

Andrew Scheps

Well, the rest of the mix is built for that to work. The context is so different in my mixes; it doesn't surprise me it doesn't work.

HiMMP

And lastly, on the subject of verbs, you've put gating on your snare and toms reverb returns.

Andrew Scheps

That's [standard Pro Tools expander/gate] just for noise. On the way in, it's because this is on the way into the reverb on the snare reverb. This is to keep the hi-hat out. That's all. I only want the snare to get in there. And the tom verb has it on the output because this micro pitch is noisy. And so again, the threshold is really low, slightly longer release time so you don't hear it shut down. Fastest attack time just to get it. It's about noise. The snare one is about separation. I don't want the hi-hat going to that reverb because it's kind of bright.

HiMMP

On that subject, do you ever use spill as a cohesive component in your mix? We notice here that you've used the waveform-edited toms. Do you ever use tom spill? Or perhaps snare spill?

Andrew Scheps

Yeah, absolutely. I mean, this came to me edited, and there is a playlist with them on it. And obviously, I could have just dragged them all out to see what it sounded like. And that may have worked, but I'm lazy again. I just figured, well, I'm not going to do that if you guys bothered to chop them. Like, the last thing in the world I wanted was more of that cymbal on the left. And I thought, well, that's going to be into the tom I like the least.

And gating doesn't always work for me. There are times I'll use the Drum Leveler plugin because it's just really good. You don't have to tweak it for the gate and things. It basically will work; you might have to filter the sidechain. I'll do that just to increase the dynamics between the drum that you're mic'ing and the spill. But generally, I love the spill. That's what makes the kit feel like it's in a room and feel natural to me, and that I really like most of the time.

Low-End Management

HiMMP

Moving on to low-end management, and so a little bit more on to EQ. What low-end management techniques do you typically employ between kick and bass, and bass and guitars?

Andrew Scheps

I don't. I mean, it's just, does it feel right? No. Is it feeling right now? Oh, that's good. That's what happened on this particular mix. With the bass Para track, I was having trouble, and even on the first mix I sent you, this was not done. And I just was having trouble with the bass. It was easy to get the mid-range to poke through because there are some great distortion sounds on some of these tracks. So that part was easy, but I just felt like the bottom wasn't solid. It would be there and then would disappear.

And also, like we said, the bass is doubling the guitars. So, you've got to have the low end in the bass because it's going to lend itself to the guitars and extend them down. And I flipped the phase on this just out of curiosity. I think I dragged this plugin up and down every track trying to see what happened, and all of a sudden, the mid-range wasn't as cool, but the low-end just happened. So that was part of the bass management. I also knew because of how busy the kick was, it can't drive the low end because it's going to be really obvious when it wasn't playing. So, that couldn't happen. It had to be the bass. I mean, but that's as far as that goes. I never sidechain things; I'm sure I should. I just don't.

HiMMP

Moving onwards. Do you have any general tendencies with down-tuned guitars like this, where you're looking at the lower frequencies and the way that

we've talked about the low end of the bass and the guitars? Do you have any ideas about how to get the note definition in with the bass, clearing the bass away from the low end, or scooping the guitars out and letting the bass pop its head out?

Andrew Scheps

I generally don't think about that between instruments, but on guitars, I'll find the frequency that is the note. Normally, this would be around 1.4 kHz. But obviously, tuning down to C, it's dropped to about 1 kHz. So, I'll sweep that until I get the honky note where you're near the fundamental, but it's not painful, and it's also below the vocal. And turning that up will make it sound like the guitar is louder because that frequency is something that will really poke out, and you hear the pick on the strings, which, to me, makes the guitars easier to hear.

HiMMP

Yeah. And we talked earlier about the de-esser on the Scheps Omni plugin, that you use that almost like dynamic EQ.

Andrew Scheps

Yeah, absolutely. Like on this guitar, on all the guitars, I am sucking out 4.2 kHz very narrowly. And it was only because something was bugging me. It's like, 'Man, there's a frequency that's constant, and it's hurting my ears; go hunting for it,' and then get the threshold to where it happens. I mean, something like that with the distortion on guitars that are just playing the whole song, I probably could have done it with EQ. But I'm very used to sucking out those frequencies using de-essers. I love them; they're loved at their full frequency. I actually use them in the low mids, probably as much, if not more, than I do in the upper frequencies.

HiMMP

And with the guitars, you've not got that much processing on the individual channels; you just got a little bit of saturation taking place.

Andrew Scheps

There's nothing on the individual tracks, and then I've split them into left and right. There's no saturation on there; there is just some EQ to bring out the note. Then the two guitars are going into an aux that's getting some saturation. And the even [harmonics] normally, I'm all about the heavy because you get a lot more harmonic content. Obviously, there's already a lot of distortion, but there was something about the mids that just didn't feel filled up enough for lack of a better phrase, probably because I'm adding distortion to the drums (Figure 9.8). That takes up mid-range room.

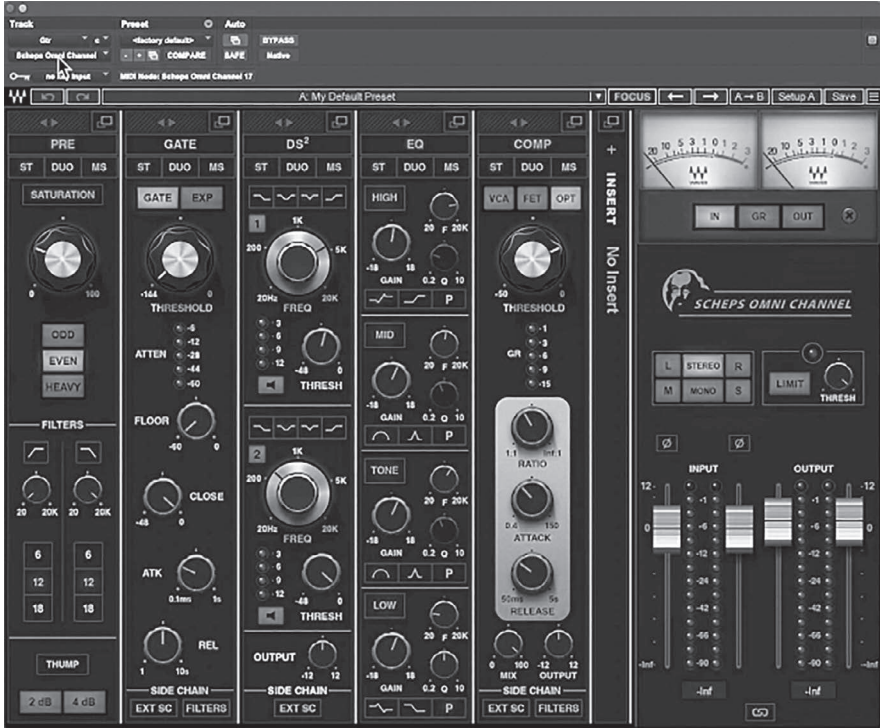


FIGURE 9.8 Guitar buss processing. Busses for guitars 1 and 2 have similar settings, except no saturation and VCA instead of Opto compression.

Therefore, I needed more mid-range out of the guitars so that they get the boost, but I wasn't getting enough out of the boost. So, I added a little saturation, then this Opto compressor; it's probably not even compressing. It's more than makeup gain that comes up when you drag that threshold down. And I'm just really used to it. So, I use that for some gain and then actually just use the output to bring the gain up because I'd already done rides. And I could have done trim automation or used the output to bring it up. So that's just a balance thing.

HiMMP

And staying with the guitars, do you ever use either multiband compression or dynamic EQ to control those chug thumps the way that they bloom with the down-tuning?

Andrew Scheps

No, I don't. One of the reasons is that any multiband thing has crossovers in it. And they're not phase-coherent unless you use something with, like,

a second and a half of processing time; I'm exaggerating. But to get linear phase crossovers in a plugin, the delay through the plugin has to be very long. That's how you build; there's no other way to build a digital phase-coherent crossover.

And I hear that phasing, especially in guitars, because they've got a tonne of information at every frequency. You're never going to find the crossover point which doesn't disturb the guitar. So, never. And I don't use a lot of multiband compression ever because of that. But also because I don't directly compress that much stuff. It's usually parallel, which means you're blending it in, so you can't have non-phase-coherent things in something you're blending.

HiMMP

And your EQ again, similar with the drums, where it's mainly on the auxes, you tend to apply it on the aux rather than the individual channels?

Andrew Scheps

Yeah, I mean, the snare mics got EQ and a lot of saturation to try and just give me more to EQ, both snare tops (Figure 9.9). I didn't need to on the



FIGURE 9.9 Channel strip for the snare top with saturation.



FIGURE 9.10 Channel strip for the snare bottom without saturation but de-essing around 1 kHz to control harshness.

bottom ones (Figure 9.10); they're just sort of used however they're used. But yeah, mostly on the auxes. Though with drums especially, I will go in and EQ certain things. But the toms, I didn't really need to; they just needed overall stuff. But I will do that, too, because the toms are all about balancing them.

So, because there are a few fills that go around all four toms, and I've got them really wide because I think that's appropriate for the song, and they've got a lot of attack, they have to be balanced right. And that's not just the attack; each one has to have as much tone as the other. But because of the recording, I was able to just do it with some overall stuff.

HiMMP

And from that perspective, about balancing the tones, you feel that when the toms are all balanced, you'll take the reverb send from the toms' aux?

Andrew Scheps

Exactly. Why would I do it separately? They're going to end up with the same level anyway. I'm making toms; I don't need to put reverb individually on each tom. They're all going to get it.

Vocal Processing

HiMMP

Yep. And an interesting approach is the vocal processing. Am I right in saying you've used a Pultec to drive certain frequencies into an LA2A and that you attenuate those frequencies afterwards?

Andrew Scheps

It's in my template, and I've used it for years. I'll bring up all three plugins so you can see. This is the processing order. This is actually like a '90s East Coast pop vocal thing. And this would be directly on the vocal, but I do it in parallel. Basically, what you do is you get rid of all the low end, you boost the crap out of around 8 kHz, then you put it into a compressor. And hardware-wise, they usually used LA2As. This way, you're compressing only based on the mid-range; it doesn't turn it into a multiband compressor (Figure 9.11).

And I think when people are learning, they think like, 'Oh, you're EQ-ing into that, it's like a multiband compressor.' No, because there's no low end, so it won't compress based on low end on the vocal; it'll just hammer it when there's mid-range, which is most of the time. And then, after that, you add a bunch of low end back in. And then I'm actually adding 20 kHz on top.

And this was pointed out to me because Pultecs are weird. It works in triangles. Those three work off that frequency, so you get boost and attenuation at that frequency. This triangle is the boost for mid-range. It has bandwidth and a boost in that frequency. This attenuation gets that frequency. But I had this set up. . . I thought, great, adding the 8 kHz back. And then, it was pointed out to me that I'm an idiot and was doing it wrong. And so, like, okay, fine, I'll put this down to 10, and I hated it. I just left it at 20.

But that's it. You basically EQ the vocal a lot as if you had a sidechain EQ on the detector circuit on the LA2A. I mean, that's basically what you're doing, and you don't, but it works very differently from anything else. But the point is that that's just being blended into the vocal. So, it's a parallel compressor but it's basically just the mid-range. It makes the vocal very easy to hear without having to turn it up and without really changing the tone. And there's only a little bit. I mean, it's -14 [dBFS], which is a little bit higher than normal.

Saturation and Dynamic Range Treatment

HiMMP

Superb. And then moving on a little bit. Generally, regarding your approach with saturation and distortion, we've briefly talked about the guitars where



FIGURE 9.11 A combination of Pultec EQ (top and bottom) and electro-optical tube compression (middle) to achieve the '90s East Coast pop vocal sound.

there's quite a lot of distortion anywhere. So, you went for the even harmonics with the saturation. Continuing with the theme, you actually use the Devil Lock on the drum aux.

Andrew Scheps

And there's more than that in the one session that I sent you. Yeah, there's a lot going on. The first thing is off of here: there's a send to the Drums Dirt (Figure 9.12). This is blended in; it's very quiet. But this is the

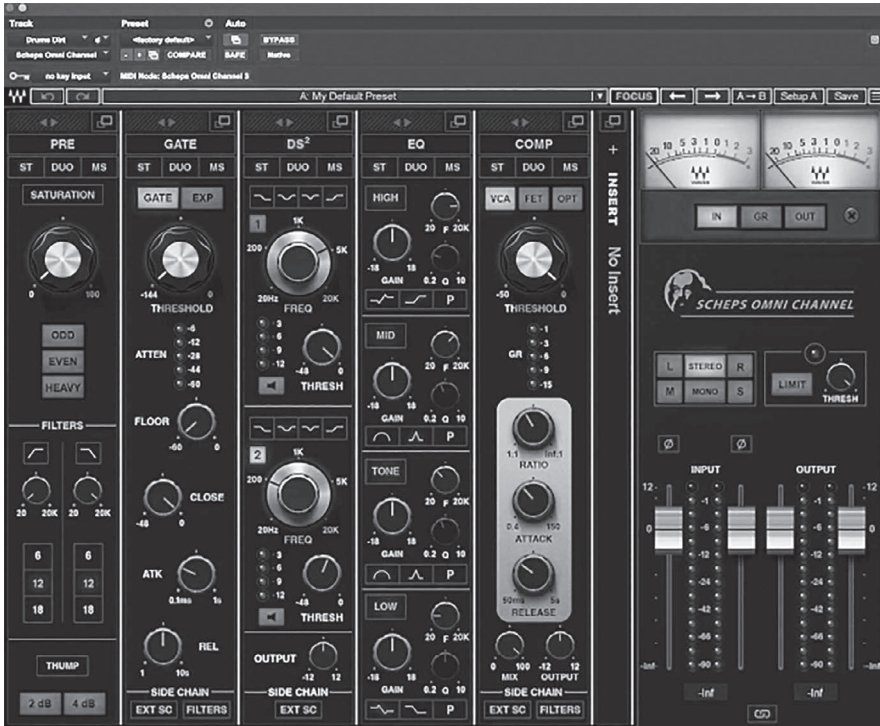


FIGURE 9.12 Channel strip on the Drum Dirt track for glue.

just-glue-stuff-together thing. This is what I was talking about before, where reverb doesn't do it.

So, distortion does because it's got all that mid-range stuff, and that is distorting the crap out of it. It's [iZotope] Trash 2 (Figure 9.13); it's in crazy mode.

And then it's just got lots of EQ going out and some EQ going in (Figure 9.14). That's a parallel thing, along with a bunch of parallel compressors and stuff like that.

Then there's the Devil Lock (Figure 9.15). Now it's mixed almost completely dry. There's only a little bit mixed in; it's less than one. But it has a very distinctive sound. Nothing else sounds like it, and this doesn't sound anything like the Level Lock because Level Lock, which is what this is based on, has a microphone-level input. The impedance is different, like everything about it is different. But this is something that just has a great sound. A tiny bit of it, again, just helps mush the drums together, but then I've gone nuts here.

So, I've got two more distortion boxes. One of them is on a multiband split. This is the Waves Studio Rack plugin (Figure 9.16), which is great; you



FIGURE 9.13 Lo-fi distortion on the Drum Dirt track.

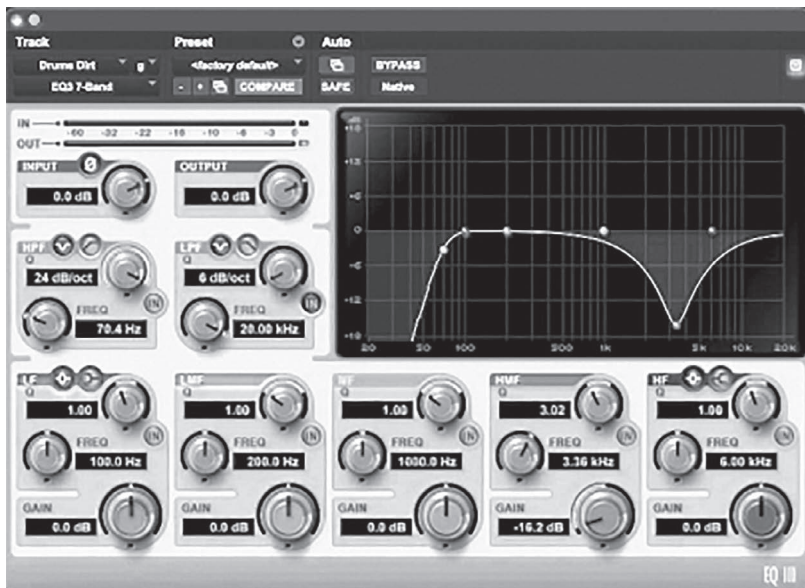


FIGURE 9.14 EQ on the Drum Dirt channel, removing low end for clarity and high-mid frequencies to counter the build-up of energy through distortion and saturation.



FIGURE 9.15 Parallel distortion on the Drum Dirt channel for tone and glue.

can chain their plugins and things. But they've got built-in either frequency splits or parallel splits. I've got a multiband split that's set at 85 Hz. Below 85, nothing gets processed at all. And then I've got this, which is one of their newer plugins, and it is awesome on drums. It's just distortion with two different types. And then top-end tweaks on the way in and the way out. After that, I've got a parallel split, where the entire full-frequency drum kit goes through.

And then I'm blending in this Pie Limiter set on stun (Figure 9.17). I mean, this is crazy town, but it's blended in very low. This is it, -23 [dBFS]. It's just a tiny bit of it as another parallel compressor to go along with all the other parallel compressors I've got. But this one is more about that, like an 1176 with all buttons in or when you really slam a limiter. That's what this thing is doing, and it is just being brought in. It's all about having the very clean kick and the very separated snare but still glueing them into the rest of the drum kit. That's the goal with all this stuff.

HiMMP

And on the subject of limiting, you've used an L2 Ultra Maximizer on the toms, but you've not used a limiter elsewhere on the drums?

Andrew Scheps

No, this is purely for level. That's it. It was just like, well, I want to leave the toms fader zero probably because what if I want to automate them? I'll just put an L2 on there because it's pretty transparent. And I don't usually mind if I'm taking off a little bit of the transient with the toms. But, like I say, this is almost never actually limiting. It's just a fader, more than anything.

HiMMP

And coming back to the bass, there's no compression or limiting on the bass on this mix, if I'm not mistaken.

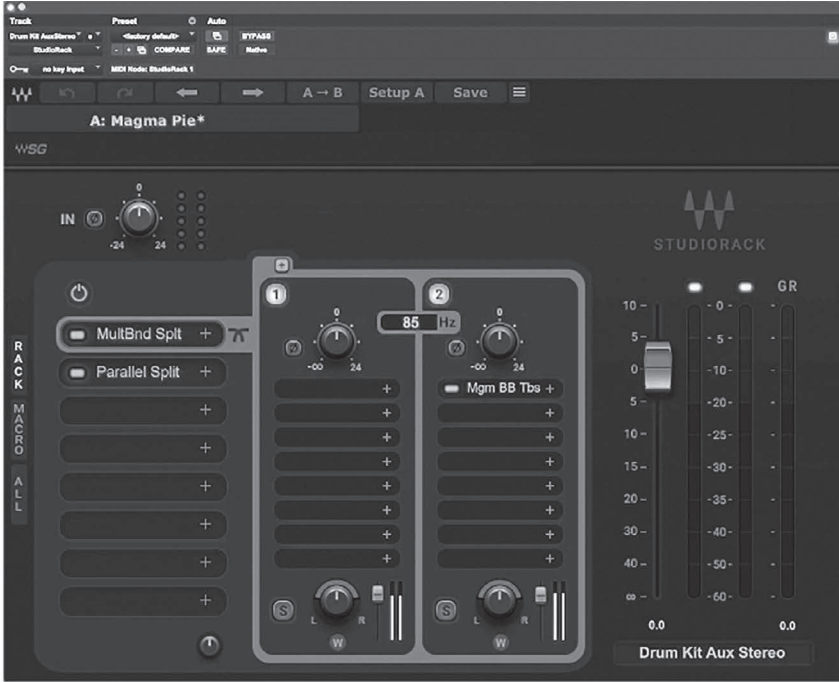


FIGURE 9.16 Parallel distortion above 85 Hz on the Drum Dirt with a tube circuit.

Andrew Scheps

Correct. A little bit of that de-essing I was talking about, sucking out a tiny bit of 170 Hz (Figure 9.18).

HiMMP

And that's because you feel the bass is dynamically stable enough already due to the distortion?



FIGURE 9.17 More parallel distortion above 85 Hz on the Drum Dirt with a limiter.



FIGURE 9.18 De-essing on the bass buss for tone-shaping.

Andrew Scheps

Well, for two reasons. One, once I found the phase relationship on the Para track, but then also because the entire bass track is going through the SansAmp (Figure 9.19). This is like a four-band saturator, in a way. The buzz is nothing but low end, and then you work your way up to drive, and it doesn't work exactly like that, but they are focused on these different frequency ranges. And this, even if you're not distorting—it didn't need more distortion, really—it does help even things out. I almost never compress, but the bass and guitars, keyboards, and vocals are all going to a parallel compressor that is shared between all of them. So, they are getting compressed in parallel. But no direct compression.

HiMMP

That's the rear buss.

Andrew Scheps

Yeah.

HiMMP

And the rear buss, does that tend to change? Because it is something—some more density in the mid-range.

Andrew Scheps

Yeah.

HiMMP

How do you use that? Do you tend to change how much you drive it compared to how much you drive the 1176?

Andrew Scheps

No, there's a VCA somewhere where I could. There's a rear buss master down here at a master fader, so I could pull down what goes into it. I never ever do it. It's just I've got a VCA at the bottom of the session, which is called



FIGURE 9.19 Bass saturation as an alternative to compression to even out volume.

Parallel. That's the return of all the drum parallels, return to the rear buss, return with a couple of the vocal things. And I just pull that up and down until I like it, and then, later on, I move it up and down until they like it, and that's it.

Buss Processing and Mastering

HiMMP

Let's finally move on to master buss processing. You've got some quite detailed master buss EQ whereby you've got some dips in the lows and 409 Hz and . . .

Andrew Scheps

It's changed a little bit since you saw it. The first thing is I think I still had the SSL compressor on when I sent it. That's now gone. I hated that. This EQ had a bigger dip at a lower frequency. The reason this exists is really odd to me. But basically, I was sent a mix to mix, but every mix comes to you already mixed, and now you have to mix the mix. And they had a UAD ATR 102 plugin, which is a great-sounding plugin, but people go nuts with it, and then you can't undo it. Like, it's impossible to undo because it's doing so much. But there was a time when I thought, 'You know what? I don't like what it's doing'.

But the EQ shape of it changes so much when I take it out that I first used the Q-Clone from Waves, but then you have no control over that. I thought, well, no, I need to be able to tweak it a little bit. I use the EQ matching on the FabFilter Pro Q3 (Figure 9.20), which is an EQ that most people use, like, on everything. This, I never use it; I only use it for brick wall filtering if I need it, and for this. But I got it to match, and you'll see there are a bunch of bands up top that were crazy. And I just got rid of all of them and ended up with this EQ curve. And this is like a mastering curve, basically; that's why this exists. I was trying to match the tone of the ATR without any of the harmonic distortion, weird tape artefacts, and all that stuff.

HiMMP

Interesting. And from here, you mentioned that you've taken off the SSL G buss compressor.

Andrew Scheps

Yeah.

HiMMP

What was the reason for that?

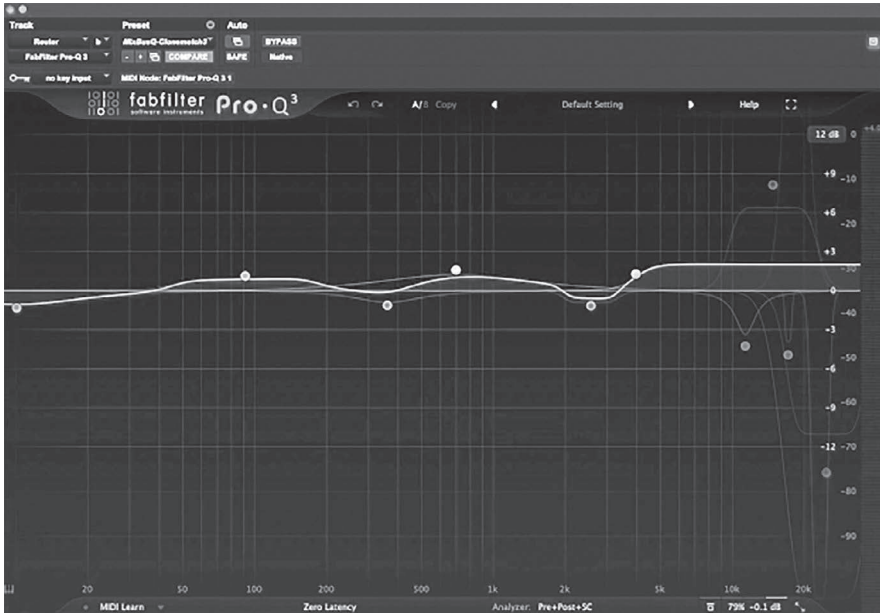


FIGURE 9.20 EQ on the mix buss for general tone-shaping based on a tone-match for mastering.

Andrew Scheps

Nothing sounds better than volume, right? That's the first thing. You could put up a Neve 1073. And I mean, I don't know what, but something is not great. And if there's something not great, even half a dB louder than the Neve . . . Unless the not-great-thing really sucks, you're going to want the thing that's louder. That's it. I try to be very good about matching the makeup gain on the SSL, which is something I used on a project, like three or four records ago; I got something I actually really liked and thought, okay, cool, let me put that in the template because maybe I'm going to start liking compression again. When I did this mix the first time, I messed with some things and realized, actually, it was just making the mix louder. I matched the makeup gain, and, like, no, it's gotta go. I didn't like it.

HiMMP

Interesting. That is all the questions from here. I'm just wondering whether you want to play some different audio tracks and talk us through any processing.

Andrew Scheps

Yeah, just let me know what you want to hear.

HiMMP

Let's just have a listen to the drums. If we solo the drums and then mute certain things and discuss some of the gestures that you're applying, it'd be great.

Andrew Scheps

Well, here's some drums. You can hear that reverb is crazy, but the guitars eat it completely. That cymbal sounds very in context here. But again, the frequencies around it get eaten to the point where all you're left with is kick, snare, and that cymbal. You don't get this kind of picture of the kit, which I think you're getting now, like the processing with a distortion. And I'll show you that. If I take off the [Waves] Pie [compressor], it's not going to change a huge amount. It kind of contains the snare a little bit; that's its main job. But this guy up here, the Magma thing, is.

And then if we take out the Drums Dirt, it's very quiet on this one, so it's not doing as much. But again, you can hear in the attack of the snare and the attack of the toms that it just makes the attack a bit longer. And I mean that reverb—the amount of it—just sounds absolutely crazy to me with the drum solo, but put the guitars in, and it's gone. And that's why it exists, actually because what happens is, especially with a drum bounce like this, where the kick needs to be as pointy, everything starts to feel separated. You need the length on the snare to get you to the next kick drum. That's the point of it.

HiMMP

Absolutely. And then with the parallel processing?

Andrew Scheps

So, this is just kick and snare. This is usually the thing; it's just tickling the threshold. But if we solo up the kick and snare, you barely hear different things. Again, it drives the snare a little bit. I mean, it is the level as well. It's also multi-mono, and kick and snare. It doesn't matter on a rock track, but when you're doing stuff with more programming, things can really start leaning one way or the other. I generally tend towards multi-mono compression. It's kind of irrelevant on this particular one.

Then, on the entire drum kit, there are three more parallel compressors. What am I going to do? I guess I'll just take out all of them, and then we'll put them in one at a time. That's the Devil Lock. Again, its presence. But the thing about this is the Devil Lock absolutely destroys things. What's important is that the send to the Devil Lock is barely on because that way, the Devil Lock will only grab on transients, whereas if you turn it up at all, it just says woohoo, and it smashes the crap out of it. And I didn't want that. I actually started using it on a very quiet record that had a lot of detail in the snare, and

I really wanted to bring up all of these amazing roughs and all the detail that was going on in the performance.

And then I found that it worked on everything, as things do, so I just kept it in the template. The next two are much more standard parallel compression compressors. Again, they all kind of do the same thing. But when you blend them in, they have different frequency things. So, Fairchild (Figure 9.21); who doesn't want to put a Fairchild on drums, right? Then the next one is a Fatso. I got really sick of the Fairchild at one point; I built a Fatso one. And then I got sick of the Fatso, and I was too lazy to build the third one. I thought, well, what if I bring this thing back, and we use both? Okay, that works. So, individually, they all are doing the same sort of thing. But here's all of them. And with all of them gone? It's energy. To me, especially with the drums, it's about the energy, and it just feels like the drummer is leaning forward. So that's what those do.

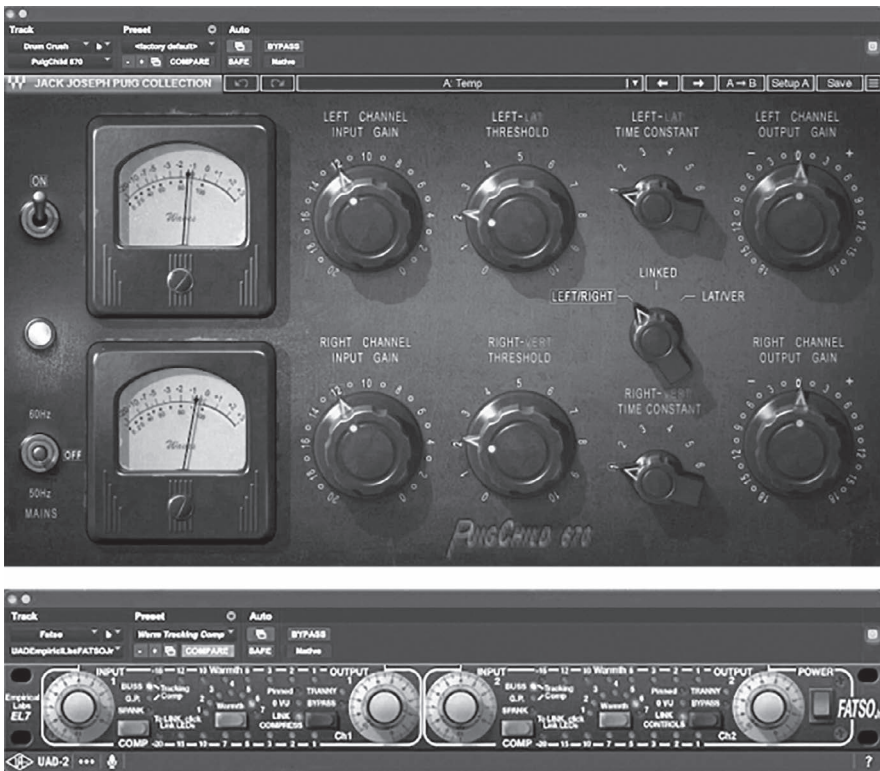


FIGURE 9.21 Two compressors, Fairchild and Fatso, on the ‘Drum Crush’ track for parallel distortion to create energy.

HiMMP

Then, on to the bass, if we just have a listen to the blend of the different signals that you've gone through here with the different tracks.

Andrew Scheps

This is where I ended up. So, the clean DI, it's really just for that sound of the attack more than anything. You wouldn't think that this track would affect the low end as much as it does. It's insane what a difference it made. But that's that guy, so it's a little quieter. This one I really like. This is that grinding sound that I love. And then you got the amp itself, which is actually cleaner than you would think because a lot of that is the sound of the bass. It's not distortion on the low end because it's in every track.

So together, though, what I ended up doing was that I felt like the low-end was just not consistent. I was going through tracks, figuring out if it was a phase problem, and I phase-flipped the Para track. And this is with it the other way. The mid-range is better, but the low end just happens. And especially in the track, you can hear it. So, that's the blend on that and the processing. Again, this will actually change the tone quite a bit. And it's a lot of level, as it turns out.

HiMMP

And then the drums with the bass?

Andrew Scheps

I'm also sucking out a little 170 Hz. This was done before I had flipped the polarity on the Para track, so it could be that I don't need this anymore. But what that was is that the low end was so inconsistent, and it seemed to be inconsistent at around 170. I just tried to decrease the importance of that frequency.

HiMMP

And then look at guitars?

Andrew Scheps

So, guitars. It's tough. What was interesting to me is that there's this feel to them on the rough mix that you did and on a lot of albums that is hard to explain. It's almost like this rubbery thing that feels really natural and awesome. And instead of being like 'rrr', they get a little bit more of a personality, and I can't recreate it. I don't know why it's in the rough and not in my mix, and I can't do it. I just decided to go for the raw version of it.

There's, again, not a huge amount of processing. There is nothing on the tracks themselves; they're hard-panned. I've got that little bit of EQ that I talked about at around 1 kHz to bring out tone (Figure 9.22). I have a



FIGURE 9.22 EQ on the guitar buss to bring out tone by boosting in the 1 kHz region.

feeling I just option-dragged [copy and pasted] this one here and didn't end up changing anything I thought that I might. And then on the auxes, on both of those guitars is another one of these guys. And that's giving us that even saturation, a tiny bit of compression for level, and adding more of the same a little bit higher—1.2 kHz—followed by . . .

Oh, right. This is very similar. It is what gave me the idea for the thump here. But the thump didn't work on the guitars. I went to the thing that had inspired it, which is the Helios EQ, where you just switch the circuit in. There's no gain at 60 Hz. It is an EQ, but it feels like it's just sort of

resonating. I don't know if we'll hear it or not, but there's just this tiny bit of extra here, which is that whole cabinet thump I was talking about earlier. And I think if I take out all three of these EQs, you'll hear the presence disappear, which maybe that's what I'm doing wrong to get the feel of the guitar.

But now that it made the drums so much more dense, I needed it to bring it up. A lot of level there. So, it's 1.2 kHz and then 2.2 kHz, and some more low end. So, I'm doing this parametric and boosting it at 105 Hz. A tiny bit of shelf, a bit 6, 7 kHz, so it feels like level. And this is something I tell students all the time: EQ is better than a fader because if you just make it louder, it's louder at all the frequencies it has, which is going to cover up other stuff. Whereas EQ is having a fader just at those frequencies. And I don't think people think about it. They think that the EQ is shaping the tone, and then they'll balance, and I won't do that at all.

I'll balance, and then when the balance isn't right, I start EQ-ing once everything's in. Every once in a while, you really want to push something or bring it down a lot. But generally, what you want to do is bring it up where there's room for it without destroying everything else about your balance. That's the way I use EQ quite often.

HiMMP

Interesting. And can we look at the parallel processing on the vocal with the Pultec going into the LA2A?

Andrew Scheps

Again, it's very quiet on this mix. It's right in that growling range. And I think in the track actually is where there'll be a bigger difference. It just sinks, whereas this makes that mid-range just a solid block, and it never goes away, and it's above the guitars.

HiMMP

Perfect. Andrew Scheps, thank you very much indeed. That was fascinating.

Andrew Scheps

Well, thanks for having me.

Notes

- 1 <https://abbeyroadinstitute.nl/blog/scheps-masterclass> (accessed 19 March 2024).
- 2 In addition, Scheps uses a Waves S1 Stereo Imager set at 1.35 width.

Discography

- AC/DC (1980): *Back in Black*. Atlantic.
 Adele (2011): *21*. Columbia.

- Apocalyptica (2020): *Cell-0*. Silver Lining Music.
Audioslave (2002): *Audioslave*. Epic.
Black Sabbath (2013): *13*. Vertigo.
Black Sabbath (2016): *The End*. BS Productions.
Bon Jovi (2013): *What About Now*. Island Records.
Green Day (2016): *Revolution Radio*. Reprise Records.
Limp Bizkit (2003): *Results May Vary*. Interscope Records.
Linkin Park (2007): *Minutes to Midnight*. Warner Bros. Records.
Linkin Park (2008): *Songs from the Underground*. Warner Bros. Records.
Marley, Ziggy (2014): *Fly Rasta*. Tuff Gong Worldwide.
The Mars Volta (2003): *De-Loused in the Comatorium*. Universal Records.
Metallica (2008): *Death Magnetic*. Warner Bros. Records.
Nirvana (1991): *Nevermind*. DGC Records.
Red Hot Chili Peppers (2002): *By the Way*. Warner Bros. Records.
Red Hot Chili Peppers (2006): *Stadium Arcadium*. Records.
Red Hot Chili Peppers (2016): *The Getaway*. Warner Bros. Records.
Slayer (1986): *Reign in Blood*. Def Jam.
Slayer (1988): *South of Heaven*. Def Jam.
Slayer (1990): *Seasons of the Abyss*. Def Jam.
Slayer (2001): *God Hates Us All*. Def Jam.
Sum 41 (2002): *It's What We're All About*. Columbia.
Weezer (2008): *Weezer*. DGC.

10

LISTENING GUIDE AND CONCLUDING REMARKS

10.1 Introduction

Although metal music has existed for well over five decades, we are only now beginning to gain a comprehensive understanding of what heaviness is and how it is manipulated in recorded formats. The HiMMP project set out to provide unprecedented insight into musical heaviness by asking eight of the world's top metal engineers and producers to mix the same multi-track, 'In Solitude', and describe their concept of heaviness. Anyone expecting eight similar mixes would be sorely mistaken, as the results differ significantly in nearly all respects.

Focusing on some of the key qualities of a metal mix, this final chapter compares the producers' mixes and the reference mix provided by the research team. We examine aspects such as dimension (the sense of proximity, depth, and width), overproduction and hyperreality, drum panning and cohesion, orchestration, and mastering. These comparisons are intended to complement the first volume of this book, *Heaviness in Metal Music Production: How and Why it Works*.¹ Based on these comparisons, we guide and encourage readers to engage with the mixes themselves. What aspects are worth paying attention to? How can listening be guided to recognize the differences among the various mixes?

Although the primary focus will be on the final (semi-mastered) mixes, the same principles can be applied to the individual stems (drums, bass, guitars, vocals) to understand the producers' decisions and craftsmanship. According to the producers, they rarely listen to individual sounds in isolation, as the broader context of the mix informs their processing. However, for non-specialists, studying the individual stems can be insightful. The best results are achieved

by comparing the loudness-matched stems and discerning how the processing of instruments and vocals complements each other (for example, by soloing some of the original loudness-matched stems, such as drums and bass, from the individual producers). Moreover, our observations reflect general tendencies. Attention should be given to how automation and dynamic or section-based processing respond to the various performance styles in the song, ranging from slow, doomy riffs in the breakdown to fast blast beats in the pre-chorus and chorus.

At this point, we must emphasize that comparing these mixes is not intended as a competition. Rather, a closer examination of the mixes illustrates the production techniques that have been effective for these eight highly respected, Grammy Award-winning producers, each lending a unique sonic identity to their work. The approaches, methods, and gestures that work for one producer may not necessarily apply to another. Each of these producers has developed a mixing methodology that is successful within their own framework.

There is a saying that ‘reality is not as it is; reality is what we are’. This saying holds some truth, as individual experiences influence our perception of heaviness. Perception can be defined as the observation and interpretation of sensory information that forms internal representations of the external world (Volák 2022). We each have our own way of hearing the world. For producers, some may hear differently due to impairments caused by mixing at high volume levels, which can result in albums with a significant amount of brightness. Therefore, when we listen to the mixes of ‘In Solitude’, we must remember that everyone has a different perception of sound and musical qualities, including heaviness (Xhignesse 2024). With this in mind, we leave it up to the reader to judge which mix is the heaviest.

10.2 Mix Comparison

Dimension and Realism

We begin by comparing the sense of size and dimension in the mixes. Similar to real life, recorded music exists within a three-dimensional space (Figure 10.1). This space, sometimes referred to as the ‘sound box’ (Moore, Schmidt, and Dockwray 2011), can be shaped by the mixing engineer. The height perspective is typically constrained by the frequency range of human hearing, which spans from 20 Hz to 20 kHz.² The placement of sound sources is influenced by their frequency spectrum; emphasizing bass frequencies tends to lower an instrument’s position in the mix, as seen with the kick drum, while highlighting higher frequencies shifts its position upward. Since the width and depth dimensions are more pronounced than the effects of

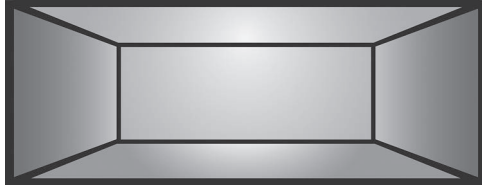


FIGURE 10.1 Empty sound box giving a visual representation of the three-dimensional sonic space in a mix, modelled after Dockwray and Moore (2010: 184).

processing on the height dimension, focusing on these aspects will offer more valuable insights.

The guitars are central to the sound and heaviness of metal productions (Herbst and Mynett 2022: 18–19). In metal, the width of the overall soundstage is often determined by the guitars, as they are the primary instruments occupying the mix. While it was an unwritten rule for Mike Exeter to pan the guitars fully wide, some producers adopted a different approach. Josh Middleton and Fredrik Nordström panned half of their four guitar tracks (preferably the darker pair) slightly inwards, with Nordström arguing that this technique increased the perceived width. Others, including Jens Bogren and Adam Getgood, enhanced the width by applying stereo-widening processors. The sense of width becomes clearer and more pronounced through headphones, making it easier to compare the effects of different panning approaches on the guitars across various mixes.

Stereo width varies not only due to panning settings but also because of the selected tones. The producers had several guitar sounds to choose from, with four performances available. As mentioned earlier, these choices can affect the stereo width; some argued that a broader width is achieved when two of the four guitars are panned slightly inwards, while others saw greater width with all guitars panned fully wide. No producer opted for just two guitars; only Buster Odeholm chose three rhythm guitars, assigning one to each side, and one to the stereo centre. All other producers opted for quad-tracking. Another significant decision concerned re-amping;³ Bogren and Nordström re-amped two guitars, while others re-amped all four, either with hardware devices (Otero) or by using amplifier simulation software (Getgood, Middleton, Odeholm).

An even greater width can be achieved by recording different guitar tones for the left and right channels. Some albums, like *At War with Reality* (2014) by At the Gates, feature the same sound on both sides. Conversely, some bands and producers intentionally vary the sounds on each side to create a greater sense of width, as exemplified by Lamb of God's self-titled album (2020). Regardless, this is a creative decision that leads to a distinct aesthetic.

While none of the producers chose fundamentally different guitar tones for the left and right channels in their mix of 'In Solitude', both Mike Exeter and Andrew Scheps equalized them differently to enhance the width.

Although it may be less obvious, the depth dimension is equally important for an effective and heavy metal mix. It pertains to the perceived proximity resulting from the brightness of the sounds and the amount of reverb, either captured during the recording stage or introduced in the mixing process. These two qualities differ noticeably between the mixes. Regarding brightness, Buster Odeholm's and Andrew Scheps' mixes demonstrate a spectrum that ranges from very bright to very dark. In Odeholm's mix, the brightness across all instruments, particularly in the guitars—which are among the brightest—creates the most aggressive and 'in-your-face' sound. This level of brightness and proximity is sometimes referred to as 'hyperreal' (Mynett 2019). Hyperreal productions are larger than the underlying performances and fundamentally rely on technological mediation. One way of understanding hyperreality is through the concept of 'sonic cartoons' (Zagorski-Thomas 2014: 49–69). These allow certain elements, such as size, low-end weight, and transient energy or 'punch', to be enhanced, while other components are reduced to optimize the sound in a way that is beneficial or appealing, depending on the intended aesthetic. In many metal music productions, instruments and vocals are rendered extremely close and larger than life (Mynett 2019, 2020, 2022). For some listeners, metal music sounds best when it is clear, powerful, and hyper-realistic, while others prefer a more organic, natural sound and perceive hyperreality as artificial. These differing preferences are reflected in the producers' mixes. Buster Odeholm, Josh Middleton, Adam Getgood, and Dave Otero take a modern, hyper-realistic approach, while Andrew Scheps and Mike Exeter lean towards a more natural aesthetic. Jens Bogren and Fredrik Nordström occupy a middle ground.

Hyperreality can manifest in various production elements but is particularly noticeable in terms of brightness. Modern hyper-realistic productions feature significantly brighter tones. Aside from the brightness of the guitar tone, which covers much of the available frequency spectrum from 60–80 Hz to 10 kHz and higher, another strong indicator of hyperreal metal productions is the 'clickiness' of the kick drum. Despite the general emphasis on low frequencies, this clickiness adds brightness to the sound. While the electric guitar tone can be brightened at the source using overdrive pedals and amplifier settings, achieving an equally enhanced brightness in the kick drum requires electroacoustic enhancement. Even with plastic beaters and click pads, this level of brightness does not naturally exist in the real world. Hyperreal kicks, as featured in the mixes of Buster Odeholm, Dave Otero, and Adam Getgood, seem to jump out of the mix due to their larger-than-life brightness. Leaving authenticity aside, it is worth considering the listener's perspective: does this hyperreal sound-sculpting enhance the listening experience? Does

the kick drum's clickiness improve the experience, or would a more natural kick level and sound be preferable? Comparing the various mixes allows us to reflect on these questions and determine what degree of hyperreality is subjectively beneficial for heaviness.

Besides brightness, reverb plays an important role in the depth dimension of a mix. There are notable variations in the amount and type of reverb used across the mixes. As with width, headphones accentuate these differences, making them easier to hear. The varying use of reverb is most noticeable in the vocals and drums, while rhythm guitars and bass in a metal mix are typically kept dry to maintain a direct, clear, defined, and punchy sound.

Some producers opted for dry drum sounds, particularly on the shells, while applying reverb or spectral processing to the cymbals instead. This technique creates a sense of depth, emphasizes the proximity of the kick and snare, and carves out space in the middle and higher frequencies for other instruments and vocals. Amongst the driest drum mixes are those by Adam Getgood, Buster Odeholm, and Josh Middleton, with Middleton relying solely on samples for the shells and Odeholm using them to a considerable extent. Consistent with these considerations, Odeholm's drum sound is the most hyperreal. By keeping the cymbals in the background with lower relative volumes and reduced high-frequency content, his drum mix features larger-than-life, close-sounding shells. Both the drum shells and the guitar wall are positioned as close to the listener as possible. At the opposite end of the spectrum is Andrew Scheps, where the entire drum kit is placed behind a wall of guitars, with only the snare in the foreground. In the mixes by Dave Otero and Mike Exeter, the shells take centre stage while the cymbals recede into the background through a combination of low levels, reverb, and darker tones. The most natural drum sound can be found in the mixes of Jens Bogren and Fredrik Nordström, who achieve a more balanced loudness ratio between the shells and cymbals, resulting in a cohesive sense of proximity. However, compared to Andrew Scheps' more rock-oriented drum mix, their mixes still exhibit a certain level of hyperreality.

Regarding reverb and delay, the producers employed varying approaches to the vocals. To keep the vocals prominent in the mix, Adam Getgood and Josh Middleton opted for shorter delays and minimal reverb. Fredrik Nordström similarly used a delay but placed greater emphasis on reverb, a technique also utilized by Buster Odeholm. Jens Bogren and Mike Exeter focused more on longer delays than reverb, likely because delays do not push the vocals as far back in the mix as reverb does. In contrast, Andrew Scheps concentrated on reverb rather than delay. Listening to the vocals in the context of the mix, it is clear that the lead vocals in Scheps' mix have a noticeable air of reverb, positioning them further back in the virtual soundstage.

Although Jens Bogren created the 'wettest' vocals, they are still the most present and well-integrated into the overall arrangement. This clarity can be

attributed to his approach to spatial processing, brightness, and the relationship between the vocals and guitars. Bogren created space for the vocals by subtly ‘ducking’ the guitars when the vocals entered, allowing the vocals to sit forward in the mix. Conversely, when the vocals pause, the guitars slightly increase in level. This technique enhances the clarity of the vocal presentation, a distinction that becomes evident when comparing Bogren’s mix to that of the research team. Both mixes feature distinct vocal sounds influenced by the very different ways the guitars are presented.

These observations lead to the following considerations when evaluating mixes: how do we perceive the vocals within the performance space created in the mix? What kind of performance space is the band in? Does it resemble a natural live stage? One fascinating finding from this project is that our perception of heaviness is influenced not only by sound but also by our personal experiences as human beings. We have all accumulated acoustic impressions, such as frequency spectrum, clarity, and loudness, alongside visual impressions from various environments, such as concerts and events. These experiences are ingrained in our subconscious and shape our hearing. Consequently, past experiences in live environments can influence our subjective perception of heaviness based on the qualities of those settings. Some productions may sound more like live performances than others. Additional factors, such as artwork, logo design, the band’s image, interviews, and album reviews, can also affect how we perceive heaviness (Zagorski-Thomas 2014: 215). While these visual elements are not directly tied to this mix comparison, they are always worth considering, as they contribute to our perception of music as heavy. It is not just about sound alone.

Low End and Sonic Weight

Along with width, proximity, and depth, sonic weight is a crucial component of perceptual heaviness (Herbst and Mynett 2022: 19–21). Focusing primarily on the kick and bass, as well as the guitars and orchestration, differences in the punch and presence of the low end become apparent across all mixes. For instance, Andrew Scheps’ mix features a considerably lower kick drum level, placing the kick further back in the mix and giving it more of a rock feel than a traditional metal sound. In contrast, the mixes by Buster Odeholm, Dave Otero, and Josh Middleton feature louder kicks and more prominent low-end frequencies due to choices such as a greater emphasis on drum samples that are not derived from the recorded kit, whereas Scheps used no samples at all.

Similar to the previously discussed clickiness of the kick, the low-end weight of the kick drum is enhanced by audio processing, surpassing what could be achieved with an unamplified acoustic kit alone. It is interesting to observe how much the producers relied on the recorded kick drum and the

use of additional samples from another acoustic kit. Notably, none of the producers used kick samples from the original kit or programmed a synthesizer kick for sub-bass support. However, the number of additional kick samples varied, ranging from one (Nordström, Odeholm) to six (Exeter), with differing levels of integration relative to the acoustic kick. It is worth noting that the number of samples does not clearly correlate with the resulting low end of the kick, likely due to phase interactions. Some mixes, such as that by Buster Odeholm, which included only one additional sample, exhibit the most pronounced sonic weight in the kicks.

Another important quality in the low-end region of a metal mix is clarity. Metal requires significant sonic weight in the kick, toms, bass, and guitars, which can easily lead to masking (Mynett 2017: 9–21). To avoid muddiness, the kick and bass must complement each other. Despite its spectrum extending into the sub-bass range of 30 Hz, Fredrik Nordström's mix provides a clear bottom end for the bass guitar. With more mid-range presence due to additional distortion in this area, Otero's bass tone is quite similar. Andrew Scheps' mix also features a clear and present bass guitar, but it occupies a slightly higher position in the spectrum, around 100 Hz, resulting in a different impact and tone, with less distortion, attack, and punch compared to the others.

Adam Getgood's bass tone is particularly noteworthy. He crafted his sound using five signals, allowing it to gel smoothly with the guitars and creating a cohesive 'meta-instrument' that is almost inseparable. This approach contrasts with the more distinct separation of roles between guitar and bass in Mike Exeter's mix. A noticeable layer of distortion surrounds the bass that separates it from the highs and reaches relatively low to connect with the guitars. To balance the brightness from the distortion, Getgood emphasized both bass and sub-bass frequencies. Buster Odeholm's bass also features significant distortion, with a strong presence in the higher frequencies. It possesses a robust low end, particularly around 60 Hz, that enhances the impact in the sonic weight region. This contrasts with Josh Middleton's bass tone, which is relatively raspy and focused on the higher mid-range. Like Odeholm, Middleton balances the higher frequencies with an emphasis on the lows, achieved through a gentle high-pass filter that still allows considerable low end to pass through. Mike Exeter's bass, too, has a pronounced low end with significant energy in the 40 Hz region. Jens Bogren's bass tone is arguably one of the most balanced, likely due to having the least amount of low-frequency energy. Nevertheless, it maintains sufficient low end, offering unmatched note clarity and string presence.

Considerable differences in saturation and distortion within the low end of the bass are evident across all mixes. Buster Odeholm adopted a unique approach by distorting the low frequencies of the bass guitar. In contrast, most other producers, as well as the research team, kept the low end clean,

opting to distort the mid-range or high frequencies to provide presence and cohesion with the guitars while ensuring clarity in the low notes. Odeholm's mix demonstrates that distorting the low frequencies of the bass can be effective without muddying the tone. When comparing the mixes, it is worth paying attention to note definition, which relates to how clearly the notes appear throughout various sections of the mix, such as the clarity of bass runs. Note definition is not only a result of the bass sound itself but can also be influenced by automation, used to emphasize areas of interest within the mix. Mike Exeter's mix stands out for its extensive use of automation, including the introduction of a programmed sub-bass synthesizer, a technique distinct to his mix.

Another aspect worth considering is the guitar's low-end weight, its level in the mix, and the balance of its frequency content. The guitar significantly impacts not only the other instruments but also the vocals, a crucial yet often overlooked aspect. Attention should be paid to how guitar processing enables the vocals to take centre stage or whether they blend in with the guitars. Jens Bogren's approach exemplifies this, ensuring that the guitars do not obscure the vocals. Equally important is how the guitar tone allows the kick, snare, and bass to punch through the mix.

Regarding guitar tone, the research team's mix differs from most others due to its distinct emphasis on the middle frequencies, which are important for clarity and definition. This difference creates an opportunity to compare how scooping the guitars—that is, cutting the mids or boosting the lows and highs—affects the other elements of the mix and the perception of heaviness. Overall, the research team's guitar tone is mid-frequency-centred and 'full-est' compared to the other mixes. Buster Odeholm's guitars are very bright, with surprisingly little low end, given his intention to maximize sonic weight, which he primarily achieves through the kick and bass (Odeholm refers to this as a 'low-end hierarchy'). Dave Otero's guitar tone also leans towards brightness, featuring pronounced higher mids and considerable low end, which produces tight palm-muted notes. Josh Middleton's guitars resemble a less fizzy version of Otero's while maintaining similar low-end clarity in the palm-muted sections. Fredrik Nordström's guitars have a comparable degree of distortion and fizz to Otero's, but their sonic spectrum is noticeably lower without losing clarity, partly due to the bass guitar's significant contribution. The guitar tones of Jens Bogren, Mike Exeter, and Andrew Scheps are among the less distorted and fizzy, yet they remain defined, percussive, punchy, and still full of weight. These mixes highlight how producers tend to prioritize either sonic weight and size or definition and punch in their guitar tones. Each of these qualities lends itself differently to various types of riffs and the broader context of the arrangement, whether in the slow, palm-muting-focused verses, fast choruses with higher string parts, or the slower breakdown.

Overproduction and Drum Mix Cohesion

Much could be said about the drum sound, but we will concentrate on cohesion and overproduction, expanding on previous discussions regarding the drums' depth, brightness, and sonic weight. Cohesion refers to the extent to which the various elements appear to belong to the same environment or share similar tonal qualities (see also Yang 2024). For example, the drums could sound like a natural kit played by a drummer in the same room as the listener, or they could resemble the distinct components of a drum machine. Creating cohesion involves making the drums sound like an organic instrument and considering how the parts of the drum kit—comprising around ten to fifteen elements, such as the kick, snare, hi-hat, ride, three rack toms, floor toms, small splash cymbal, china cymbal, and various crash cymbals—are presented within the overall mix. How these elements are portrayed as part of the same environment is a key consideration for the producer.

While a degree of cohesion is necessary for natural-sounding mixes, some producers and artists choose not to prioritize it. These producers focus solely on achieving maximum sonic impact, a style that is sometimes criticized as 'overproduced'. However, this criticism is not universally shared. For example, Buster Odeholm does not believe that metal music can be overproduced, arguing that every instrument, vocal, and sound should be optimized to create maximum sonic impact. When listening to the various mixes, it is helpful to focus not only on how each drum component sounds individually but also on how the entire drum kit sounds as a whole. In this respect, significant differences are apparent.

Jens Bogren, for instance, closely matched the brightness levels of the kick and snare, creating a strong sense of cohesion between the two. Both exhibit equivalent punch and brightness, which creates a degree of cohesion. In contrast, Mike Exeter's mix lacks some cohesion; the kick focuses heavily on low-end frequencies, while the snare is mixed at a much lower volume and has a higher tone. Ultimately, it is up to the producer and listener to decide what feels more natural, heavier, or less heavy. As previously mentioned, Buster Odeholm's drum sound is one of the most hyperreal, with every instrument in the kit maximized for sonic impact, resulting in less cohesion. One distinguishing characteristic of Dave Otero's mix is the presence of air frequencies. His drum mix features controlled yet prominent air frequencies from 10 kHz upwards, particularly around 12 to 13 kHz, which give the cymbals an open sound and suggest a greater sense of space in the high end. Comparing these upper frequencies to the drum mixes of Mike Exeter and Andrew Scheps reveals clear differences, as the cymbals in their mixes sound more congested and less expansive.

Mixing metal drums presents specific challenges, as it requires balancing sonic impact and coherence across multiple instruments with a broad

frequency range that spans the entire spectrum of human hearing. For example, a 24-inch kick drum tuned low can reach frequencies as deep as 30 Hz, while smaller cymbals can extend up to 18–20 kHz. These wide-ranging frequencies necessitate careful panning across the stereo field and integration within the broader context of the band. The producers varied in their approaches to contextualizing the drums within their mixes. In the mixes of Dave Otero and Buster Odeholm, the drums, particularly the shells, are highly prominent, somewhat separating them from the cymbals and reducing overall cohesion. This aesthetic contrasts with the mixes of Jens Bogren and Adam Getgood, where the kick and snare are also present, but the cymbals are noticeably louder, giving the impression of a kit in a room, albeit with the hyper-realistic enhancement expected in contemporary metal. The mixes by Mike Exeter and Andrew Scheps prioritize the guitars, as well as one drum instrument, either the kick or snare. Although their drums sound cohesive when isolated, the dominance of a single drum instrument diminishes the overall sense of cohesion in the mix.

Cohesion is also influenced by the use of reverb, which helps to glue together close-mic'd instruments, overheads, and room tracks. A smaller amount of reverb, resulting in a drier sound, makes the drums appear more upfront and 'in-your-face'. In contrast, a more prominent reverb creates a subtle barrier between the listener and the sound, as the drums, unless they share a similar type and ratio of reverberation with the other instruments, are placed further back in the mix. We have already compared drum reverbs in relation to the mix's depth dimension, so we will not revisit this topic here.

Reverb is influenced by every other element in the mix, meaning its impact on cohesion cannot be assessed in isolation. For example, the guitars affect the sound, depth, and cohesion of the cymbals, kick, snare, and toms. Similarly, the processing of the drum instruments in relation to one another contributes to the overall sense of cohesion. The shells will exhibit greater cohesion if the toms share similar spectral characteristics with the kick drum. A dark and punchy kick in the low frequencies requires the toms to exhibit similar attributes; conversely, if the kick is clicky and bright, the toms should mirror those qualities. The snare is slightly different, as it is the only component of the kit with wires, but the kick and toms benefit from having similar brightness levels to achieve cohesion. A good place to analyse the cohesion of the kick and toms is during the post-chorus leading into the second verse (1:05–1:14). In this respect, the mixes by Jens Bogren, Adam Getgood, Fredrik Nordström, and Dave Otero demonstrate a high degree of cohesion. Even though Buster Odeholm primarily used drum sample replacements, his mix remains cohesive, albeit to a slightly lesser extent. The mixes by Mike Exeter and Andrew Scheps show the least cohesion between the kick and tom tones; Exeter replaced all toms with samples, while Scheps applied reverb to the toms, placing them in a different perceptual room than the kick. One

noteworthy observation is that Dave Otero's tom sound is significantly drier than in all the other mixes.

An interesting aspect is how the toms are panned. Most producers took the 'audience perspective', as if one were looking at the drummer. For a right-handed drummer, with an audience perspective, the toms are panned from right (high) to left (low), mirroring a live performance. Half of the producers (Bogren, Exeter, Nordström, Scheps) chose the audience perspective, while the other half (Getgood, Middleton, Odeholm, Otero) favoured the drummer's perspective. In addition to the perspective, the automation of the toms is worth noting. For example, Mike Exeter altered the panning of his toms for nearly every fill, optimizing the stereo width depending on the number of toms in the fill. Equally notable is the positioning of the floor toms. In all mixes except Otero's, the floor toms are placed to the side of the stereo field; Otero positions them near the centre. While these panning decisions do not significantly impact perceptual heaviness, they represent different aesthetic choices that might be meaningful to the producer and can make music more interesting.

Orchestration

The orchestration in 'In Solitude' was designed to incorporate various elements: strings and synthesizer pads to create atmosphere and horns to provide sonic weight in the breakdown section. The breakdown is particularly interesting in terms of heaviness because the brass introduces substantial low end, presenting challenges in managing the sonic space. Each producer likely had their own ideas about how the brass and string sections would contribute to, or detract from, the mix. Individually, these sections can sound quite heavy, but space must be carved out for them within the mix, affecting the balance of the core instrumentation.

The breakdown section is thus ideal for highlighting the orchestration, particularly in the parts without vocals (2:51–3:08). Fredrik Nordström relied minimally on these orchestral elements, allowing the strings to come through only occasionally and opting not to feature the brass. Given Nordström's experience with symphonic black metal productions, such as Dimmu Borgir, this lack of emphasis on orchestration is worth pointing out. Jens Bogren, on the other hand, allowed the strings to shine through with their staccato and pizzicato lines, while the brass made occasional appearances, mostly on high notes. This decision suggests that Bogren found little space for the brass in the low end or felt that its impact on the core instruments was not worthwhile. The strings in Mike Exeter's mix are not as bright but still manage to cut through, particularly since their level is relatively high (though not as high as the brass). Josh Middleton, like Adam Getgood, chose not to feature orchestration prominently, with only the strings being barely audible to avoid

detracting from the guitars. Unlike Middleton, however, Getgood did use both the strings and brass to some extent. Dave Otero and Buster Odeholm kept the strings in the mix but did not bring them to the foreground, although Otero gave the brass more space than most other producers. The strings in Andrew Scheps' mix are comparatively audible, but the brass is not featured.

This breakdown section offers listeners an opportunity to assess the impact of orchestration on heaviness (or the lack thereof) in a metal context. While the orchestration sounds huge in isolation, featuring it prominently in dense metal mixes can require sacrificing space for core instruments, making it often unfeasible to retain this sense of size or weight. Therefore, engineers must carefully evaluate how much each element contributes to the production.

Buss Processing and Mastering

The final point to consider is the master buss, which can be likened to a funnel into which all the individual tracks are fed. It is important to note that the producers approached the master buss and final mastering differently during their mixing process. Some, like Fredrik Nordström, created the final master within the same project used to mix the multi-track. Others, such as Mike Exeter, limited processing to gentle compression for additional cohesion but otherwise left the stereo buss relatively unprocessed, allowing the mastering engineer to enhance the mix. Meanwhile, producers like Buster Odeholm use a routing template that plays a significant role in their sonic signature. Odeholm routes all instruments (except for the synthesizers and orchestration) to a buss, where they are distorted without affecting the vocals, resulting in a distinct sense of aggression and brightness. These varying approaches to mastering have led to differences in loudness levels (measured in Loudness Units Full Scale, or LUFS), ranging from the quieter masters of Andrew Scheps (-10.4), Adam Getgood (-9.6), and Mike Exeter (-8.7) to the 'hot' masters of Josh Middleton (-7.6), Dave Otero (-7.5), and Buster Odeholm (-5.6). These programme levels impact dynamic range, with the hotter masters leaving less room for dynamic variation, a difference that is evident when comparing the waveforms of the individual bounces.

In this context, it must be emphasized that neither the mixing decisions discussed in the interviews nor this comparison should be viewed in isolation. Instead, they should be understood in relation to how they shape, and are shaped by, the rest of the mix. It is helpful to examine the signal flow from the individual tracks, through instrument groups, to larger summing busses, and ultimately to the final master or stereo buss. This flow can be thought of as a metaphorical funnel through which all the elements ultimately pass. Just as the master buss influences each instrument or vocal, the processing of each sound source also impacts the master buss.

The mixes are mastered to varying degrees, resulting in considerable differences. We recommend focusing on these differences, analysing them, and taking it a step further. For anyone who can identify and compare the mixing approaches employed by each engineer, it becomes possible to align the outcomes with the processing methods of the original producers and adapt them in one's own engineering work.

10.3 Concluding Remarks

Heaviness is a musical characteristic that originates in composition and arrangement, is conveyed through recorded performances, and is further enhanced by audio engineering. It is shaped not only by what is audibly perceived but also by prior experiences, familiarity, conventions, expectations, conversations, and many other factors. Regardless of our understanding of its musical and non-musical components, the perception of heaviness is inherently subjective.

Through various publications, videos, and media products, the HiMMP research project has uncovered numerous sonic components and their interactions, all of which influence the subjective perception of heaviness in multiple ways. Furthermore, perceptions of heaviness develop and change over time and in different contexts, making it impossible to generalize which sound or aesthetic is the heaviest. What makes this project unique is its valuable insight into how some of the world's top metal producers conceptualize heaviness and implement these concepts in their mixes. The mixes themselves serve as a testament to the diverse forms that heaviness can take in metal music production. These artefacts provide fans, listeners, and producers of metal music with the opportunity to experience different interpretations of heaviness, encouraging reflection on which aesthetics and mixing approaches resonate most effectively.

Notes

- 1 For more practical guidance on recording, mixing, and mastering metal music, we recommend reading Mark Mynett's (2017) *Metal Music Manual*.
- 2 The height dimension is also restricted by the medium, such as CD, vinyl, or digital file formats, according to their sampling rate (in digital media).
- 3 Re-amping is the process of creating new tones based on DI tracks by either re-recording them with microphones or processing them with amplifier simulations.

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APPENDIX

Overview of Media Packages

The media package associated with the HiMMP project can be accessed freely under this link: <https://huddersfield.app.box.com/s/8gren2ma4kesvf5vwip2axzz1v8sawur>

The package includes the following media:

1. Project Song ‘In Solitude’

1.1 *Mix Files*

- 1.1.1 ‘In Solitude’ Multitrack Input List: Track list that was used when recording the multitrack.
- 1.1.2 ‘In Solitude’ Multitrack: Audio files, MIDI tracks of kick and snare drum, tempo map. Some of the tracks are pre-mixed and summed, such as strings, piano and brass, FX stems, and vocal doubles and harmonies. This is the package that was provided to the professional producers.
- 1.1.3 ‘In Solitude’ Drum Samples: Multiple hit samples of kick (spot and overhead), multiple hits and multiple velocities of snare (spot and overhead), and single hits of toms (spot and overhead).
- 1.1.4 ‘In Solitude’ Non-Waveform Edited Tom Tracks: These are alternatives to the waveform-edited toms included in the standard multitrack.
- 1.1.5 ‘In Solitude’ Guitar DIs: Clean DI tracks for all four rhythm guitars for re-amping or using guitar amplifier simulations. The bass DI is included in the standard multitrack.
- 1.1.6 ‘In Solitude’ Orchestration MIDI: Separate MIDI tracks for horns/brass (1 and 2), piano, synthesizer, viola, violin lower, violin mid, and violin upper. These files were not provided to the professional

producers, but can be used to customize the orchestral tracks for sound design and learning purposes.

1.1.7 ‘In Solitude’ Individual Vocal Tracks: Individual tracks of lead, harmony, and guttural vocals. These were not provided to the professional producers by default and were only made available on request.

1.2 *Sheet Music*

1.2.1 Full Score

1.2.2 Guitar Parts

1.2.3 Bass Parts

1.2.4 Drum Parts

1.2.5 Vocal Parts

1.2.6 Orchestration Scores

1.3 *Reference Mix*

1.3.1 Research Team Reference Mix: Audio bounce of the reference mix of ‘In Solitude’.

1.3.2 Pro Tools Project: Final mix and master of the research team reference mix.

2. Producer Mixes of ‘In Solitude’

2.1 *Original Volume Masters*

2.2 *Original Stems for Comparison*

2.3 *Loudness-Matched Masters for Comparison*

2.4 *Loudness-Matched Stems for Comparison (Drums, Bass, Guitars, Vocals)*

3. Producer Interviews

3.1 *Video Interviews*

3.1.1 Conceptual Interviews of Heaviness

3.1.2 Mixing of ‘In Solitude’

3.2 *Interview Transcriptions*

3.2.1 Conceptual Interviews of Heaviness

3.2.2 Mixing of ‘In Solitude’

4. Research Team Videos

4.1 *Walkthrough of the Research Team Mix*

4.2 *Producer Mixes Comparison Video*

5. Miscellaneous

GLOSSARY

- A/B** A listening comparison between two different materials or versions of the same audio material, ideally at the same volume level, to compare processing or to obtain a better sense of audio quality through context.
- AB (recording technique)** Also known as Spaced Pair, AB is a recording technique that captures a stereo image through two microphones spaced apart. Metal engineers use this technique for overhead drum recordings to create a wide stereo impression.
- Air** Describes the upper end of the frequency spectrum from about 12 kHz to the human hearing threshold at about 20 kHz.
- All-Buttons-In** Also known as ‘British mode’, it is a setting of the UREI/Universal Audio 1176 *Compressor* with a high ratio (12 or 20:1) that produces an *over-driven* and *saturated* tone.
- Amplifier Simulation** A software *plugin* that simulates the behaviour of hardware amplifiers (typically of valve devices), cabinets, loudspeakers, microphones, and sometimes also effects pedals.
- Attack** Means mainly two things in audio technology: (1) the initial phase of a waveform that contains *transients* important for timbre and *punch*; (2) a setting in a *compressor* unit to control the onset behaviour of the device, enabling engineers to shape the waveform, tone, and dynamic behaviour of the source material.
- Automation** Modifies the volume or any other processing (*panning*, effects levels, or settings) throughout the course of the source material. In a digital audio workstation, automation can be programmed with the mouse or ‘recorded’ and performed live.
- Auxiliary (AUX) Buss** A buss or channel that contains a mix of the auxiliary signals sent by the input modules in a mixer. It serves various purposes, from sharing effects between channels to *summing* tracks in order to process them together.
- Band-Pass Filter** A filter in an *equalizer* or as a standalone unit that allows a frequency range to pass but sharply attenuates frequencies outside the band.
- Bleed** *See Spill.*
- Bottom End** Refers to the lower frequency region of a spectrum without defining it precisely in terms of frequency range. *See also Low End.*

- Brickwall (Limiter)** A dynamic processor that prevents the audio from exceeding a certain *Loudness* threshold. Applied in mastering chains, it ensures the output level does not exceed the limit and creates unpleasant artefacts or *distortions*. It is also used for individual instruments or instrument groups to control dynamic range and tone.
- Buss** See *Auxiliary Buss*.
- Channel Strip** Device traditionally used for the processing of a single mono or stereo track in a mixing console, which includes volume, *panning*, solo, and mute functions as well as optional further processors, such as *equalization* or *compression*. Channel strips in digital audio workstations either *emulate* popular analogue mixing consoles or have unique features to apply various processing in a single *plugin*.
- Chorus** Refers to a time-based effect in audio technology in which a signal is combined with a copy that is delayed by about 15 to 35 milliseconds to create a shimmering effect.
- Click** Mainly refers to a metronome or the higher middle-frequency portion of a drum kick instrument that provides clarity in a metal kick drum sound.
- Clipping** A dynamic range and wave-shaping technique (or the result of unintentional processing) in which the peaks of a waveform are clipped or flattened to achieve audio *distortion*.
- Compression** A processor used to reduce the dynamic range and change the waveform of a sound, thereby altering the tone of the signal. Common features are *attack* (the time it takes for the compressor to become active), *release* (the time it takes for the effect to end), ratio (the amount of dynamic reduction, such as 4:1), and threshold (the point at which notes are affected). Compressors are used in series or parallel for different effects. They can be broadband or *multiband*, with the latter allowing frequency-specific dynamic treatment.
- Crosstalk** Unintended *leakage* from one sound source to the recording of another source when recording with several microphones.
- dB** Abbreviation for decibel, a measure of *loudness*.
- dBFS** Decibels relative to full scale. Measures the relative *loudness* in a digital system with a defined maximum peak level, typically 0 dBFS.
- De-essing** A signal processor that removes excessive *sibilance* by *compressing* high frequencies around 3 to 10 kHz. Traditionally applied to vocals, it is also used on instruments in metal music production.
- Delay** The time interval between a signal and its repetition. It is a popular effect in (metal) music production, especially on vocals. Among its many types is pre-delay, an effective way of staging distance between sound sources relative to each other and to the listener. Slap-back delay is a shorter delay of around 60 to 250 milliseconds, familiar from rock'n'roll and rockabilly productions, which has a distinctive sound and thickening effect.
- Distortion** Describes the change in an audio waveform, intentional, unintentional, or undesirable. Depending on the cause, distortion produces harmonic or inharmonic sound components, each creating a different sonic impression. Distortion is typically produced by exceeding the maximum volume of an audio unit or processor. Other possible forms are bit crushing or sample rate reduction.
- Direct Injection (DI)** Recording an electronic instrument directly into the input of a sound card or mixing device (directly or via a 'direct box') to capture an unprocessed source.
- Double-Tracking** Recording and blending two recordings of the same performance, most common with guitars.
- Drum Samples** Pre-recorded and sometimes pre-mixed recordings of individual drum shells or cymbals. Drum samples can be blended with recorded drum performances to enhance or reinforce them by adding complementary tonal

- features and/or providing dynamic consistency. They can also completely replace recorded (or programmed) drums, providing tonal and dynamic consistency at the expense of tonal and dynamic variety.
- Dry** Refers to the fact that no effects are applied to a sound source or the degree of such processing within an effects processor.
- Ducking** A process in which the volume of a sound source is lowered when another sound exceeds a threshold. Requires *sidechain* processing to another signal source in order to respond.
- Dynamic Equalization** A mixture of *equalization* and *multiband* compression. Frequency bands can be attenuated or boosted but with additional settings known from conventional *compressors* (threshold, ratio, *attack*, *release*) to control excessive dynamic variation that otherwise produces tonal imbalances in the source material. An example is *palm-muting* on a distorted guitar, which causes a pronounced boost in the low frequencies compared to regular picking.
- Emulation** A broad term for processors that emulate the sonic behaviour of a variety of devices, including mixing consoles, effects processors, and amplifiers.
- Envelope** Phases in a dynamic waveform of a sound. A common categorization is ADSR: *attack* (onset), *decay* (drop in volume until the sustain phase), *sustain* (consistent volume), *release* (reducing of the volume to silence).
- Equalization (EQ)** The adjustment of the frequency response to alter tonal balance or attenuate unwanted frequencies. Equalization is typically applied to individual sound sources, groups, and the entire audio programme, using subtractive (removing frequencies) and additive (boosting frequencies) techniques. EQ is central to shaping the sound of instruments and vocals in metal music and carving out space for each sound source and reduce *masking* to improve clarity, definition, and intelligibility.
- Exciter** A processor that uses a variety of processing techniques (*equalization*, *phase* manipulation, synthesis) to improve the sound of a signal.
- Expander** Works opposite to a *compressor*; instead of reducing the dynamic range, expanders increase it. By raising the level of louder sounds in a signal, noises are made quieter. That is why expanders can be used as an alternative to *noise gates*.
- FET Compressor** An analogue-style compressor that uses transistors to *emulate* the sound of a valve. A popular model, often used in metal music, is the UREI/Universal Audio 1176 compressor.
- Fizz** Often used in the context of distorted guitar sounds to describe the abrasive qualities in the higher middle and lower high frequencies.
- Flanger** A modulation effect that resembles a *chorus* and has a similarly distinctive tone, often described as a swooshing sound.
- Frequency Bracketing** This technique processes only some frequencies of an instrument, voice, or group by removing frequencies above and below the desired range. It allows for the *distortion* of the middle frequencies of a bass without losing clarity in the *low end* and creating abrasion in the high end, for example.
- Gain** Refers to the ratio between the input and output voltage or power in amplification systems. In a guitar context, gain is sometimes synonymous with *distortion* level.
- Gain-Staging** The process of setting optimum levels in an audio system. It produces the cleanest level above a noise floor and below the *clipping* threshold.
- Gate** See *Noise Gate*.
- Ghost Notes** Quiet notes performed for expressive reasons, such as quiet snare hits by a drummer.
- Glue** A term referring to *compression* or *saturation* processing. Glue is a common objective in audio engineering, as it increases the cohesion between instruments and/or voices.

- Harmonic (Overtone)** An overtone whose frequency is an integer multiple of the fundamental frequency. It is often generated by *saturation* and some types of *distortion*.
- Harmonizer** A signal processor that artificially adds harmonies to a signal through pitch-shifting and delay effects.
- High-Cut** See *Low-Pass Filter*.
- High-Pass Filter** This filter allows frequencies above a specific frequency to pass and attenuates frequencies below this frequency. It is also known as a *low-cut*.
- Impulse Response** An audio file that contains the acoustic properties of a device or *room*. It is commonly used in *reverb* plugins and guitar *amplifier simulations* that integrate the sound of real loudspeakers, cabinets, and microphones to achieve a certain complexity and authenticity.
- Inflate** A psychoacoustic processor that makes a sound appear bigger through a variety of processing.
- Insert** Refers to the usage of a *plugin* directly on a track. The opposite is a *send*, where the signal is sent to an *auxiliary buss* to be processed there.
- Keying** See *Sidechain*
- Leakage** See *Spill*.
- Limiting** See *Brickwall (Limiter)*.
- Low-Cut** See *High-Pass Filter*.
- Low End** Refers to the bass area of a frequency spectrum without being precisely defined in terms of frequency range.
- Low-Pass Filter** A filter that allows frequencies below a certain frequency to pass and attenuates frequencies below that same frequency. It is also known as a *high-cut*.
- Loudness** An alternative term for volume that is more subjective because it considers the perceptual factors of the signal characteristics.
- LUFS** Loudness Units relative to Full Scale. A standardized measure of audio *loudness* that considers human perception and electrical signal intensity.
- Masking** Refers to a *multitrack* recording in which sound sources overlap in certain frequency areas. Masking occurs when some signals dominate others and impair the clarity and intelligibility of the mix.
- Master Buss** A buss (group) on which all tracks and group busses come together. It is the final stage of *gain* adjustment and other corrective or improvement measures before an audio export is created for release (CD, vinyl, digital format).
- Match Equalizer** A match EQ captures the frequency response of a signal that can be transferred in full or in part to another sound source.
- MIDI** Stands for Musical Instrument Digital Interface, a communication and control protocol for and between synthesizers, drum machines, computers, and digital *plugins*.
- Mid/Side** Refers to the splitting up of a stereo signal into its side and mono centre components to process them differently. It is most used in mastering.
- Modulation** Refers to various time- and pitch-based effects in an audio context.
- Mud** See *Masking*.
- Multiband** Refers to a range of processors like *compressors* and *saturation*. In contrast to broadband *compressors*, processing is applied only to some frequency bands or to multiple bands but with different settings or amounts.
- Multitrack** A project within a digital audio workstation that allows processing on the individual tracks of a recording, rather than just *stems*.
- Noise Gate** Cleans up the signal by removing quiet noise components below a threshold, thereby turning off a signal when the amplitude falls below the threshold level.
- Non-Linearity** Occurs in audio devices or processors where *distortion* is generated and a signal is altered.

- Opto Compressor** An older approach to compression based on an optical approach that produces a smooth and musical sound with some *saturation*.
- Overdub** Refers to a recording and production technique in which a new musical part is recorded on an unused track in synchronization with previously recorded tracks.
- Overdrive** *See also Saturation and Distortion.* A form of harmonic distortion that generally alters the sound more than the saturation created by magnetic *tape* technology but is less distorted than ‘distortion’.
- Palm-Muting** An expressive technique more common on the guitar than on the bass. The performer places their picking/plucking hand on the strings to produce a shorter, more percussive and bass-pronounced tone.
- Panning** Refers to the option of controlling the position of a sound image between a stereo pair of loudspeakers by splitting up a signal between two channels in an adjustable ratio.
- Peak** The highest point in a waveform that represents the point of greatest voltage or sound pressure in a cycle.
- Phase** The location or degree of progression of an audio signal in a cycle (360 degrees). If two audio signals from the same source (captured directly or indirectly through *spill*) are not aligned, clarity and tone will be affected. Such signals out of *phase* lose power in the lower frequencies.
- Plugin** An application like an effects processor or *amplifier simulation* within a digital audio workstation.
- Polarity** *See also Phase.* Refers to the direction of a signal. In the most extreme case of two signals having opposite polarity, a large part of their frequencies cancels each other out, affecting level and tone.
- Post-Production** In the context of the interviews in this book, it generally refers to sounds implemented in addition to the band’s main instruments to enhance the production at the mixing stage. Post-Production can have different meanings.
- Preamplifier** The first amplification stage in an audio system/device that boosts a microphone level signal to line level.
- Presence** Refers to how clearly present an instrument or voice is in a mix. It is achieved primarily through a pronounced (upper) mid-range and the relative absence of *reverberation*.
- Printing** Refers to the decision to commit to specific processing in a music production context.
- Punch** An often used but not well-understood term in music production. Punch is characterized by clear *transients* and a pronounced *attack* phase of the dynamic *envelope* that convey the feeling of energy.
- Q** Refers to the sharpness of a boost or cut in a parametric *equalizer*. Q stands for Quality factor and is a filter’s centre frequency divided by the bandwidth.
- Quad-Tracking** Recording and blending four recordings of the same performance, most common with guitars.
- Re-Amping** A technique that allows re-recording an already recorded performance using a different amplifier or recording chain. It is most common with guitars and basses and typically requires a direct signal (*DI*) from the instrument to be captured.
- Release** Has two meanings in an audio context. One concerns the phase in a sound’s dynamic *envelope* where the note level falls back to silence from its *sustain* phase. The other concerns the time it takes for the *gain* to return to normal after the end of a passage in which the *compressor* was active.
- Resonance** The vibration of sound waves in a particular frequency range. It is often unwanted and results in an unbalanced, bass-heavy, booming tone with uneven *Loudness* and lacking control, clarity, and definition.
- Reverberation** A series of multiple sound reflections in a *room* where the persistent original sound gradually decays. Audio production can recreate or *emulate*

- reverberation through *impulse responses* (convolution reverb) from rooms, chambers, or other architectural structures. Reverberation can also be based on materials like plates or be fully programmed (algorithmic reverb).
- RMS** Root Means Square. The average *loudness* of a sound as perceived by the human ear.
- Room** A form of *reverberation*. Refers either to the architectural features of a reverberation space or to the microphones capturing the entire drum kit in the recording room.
- Saturation** The overloading of magnetic *tape*, producing harmonic *distortion*.
- Scooping** Refers to the use of an *equalizer* that significantly reduces the middle frequencies or simultaneously boosts the bass and treble.
- Send** With this function, all or part of a track's audio can be sent to an *auxiliary buss* to be processed separately from the track itself. Send facilitates effects like *reverb* or *delay* between tracks being shared or tracks being processed in parallel. It is the opposite of an *insert*, where the processor is applied directly on a track.
- Sibilance** Refers to abrasive frequency components in the 3 to 10 kHz of a vocal recording that create harsh 's' and 'sh' sounds.
- Sidechain** The act of *triggering* effects of one track based on the volume of another track. A typical application is for the kick to be heard by *compressing* the bass when the kick drum hits. A sidechain also ensures that specific frequencies in processors, such as the lowest frequencies in a compressor, are ignored to reduce pumping.
- Signal-to-Noise Ratio** Differentiates the clean, usable signal from the underlying or interfering noise.
- Spill** Refers to the noise from other instruments in a close microphone, for example the high-hat in tom recordings.
- Sonic Weight** Refers to the bass area of the frequency range in relation to the rest of the spectrum. A pronounced bass response increases the physical perception of sound and contributes to heaviness.
- Stems** Are sub-mixes in a music production, typically for vocals, guitars, bass, or drums. These sub-mixes are either grouped on *auxiliary busses* or exported as audio for mastering.
- Stereo Widening** The process of widening the stereo image beyond the maximum position afforded by *panning* control, using psychoacoustic processors.
- Sub-Kick** A dedicated track, either recorded with a sub-kick microphone or created in the mix through processing that focuses on the sub-sonic energy of the kick drum to extend the *low end*.
- Sub-Sonic Elements** Include various sounds from low-pitched, programmed bass lines to deep sound drops, as known from cinema soundtracks. Not part of the composition, they are often employed as *post-production* effects to enhance the production.
- Summing** The process of combining various tracks or groups to be processed together.
- Sustain** The portion of a note's *envelope* in which the level remains constant.
- Tape** Traditional magnetic tape used for audio recordings. Its sound is often perceived as warm, with a pronounced mid-range compared to gentler bass and treble frequencies.
- Template** Music production utilizes templates to reduce the effort required for signal routing and preparation. Templates are occasionally used to achieve a more coherent sound across all songs on a record or a signature sound.
- Time Alignment** Refers to the *phase* correlation of various tracks in a *multitrack*. Time alignment improves phase correlation between instruments, such as overheads and snare in a drum recording, to reduce frequency cancellation.

- Tone-Matching** See *Match Equalization*.
- Top End** Refers to the upper end of the frequency spectrum without a clearly defined range.
- Tracking** A different term for recording.
- Transient** Is important for the *punch* and timbre of a sound source and part of the *attack* portion of an *envelope*, where percussive signals like drum hits produce the most energy.
- Triggering** Refers to the playback of *MIDI* information, usually in conjunction with *drum samples*, to enhance or replace drum performances.
- VCA** A VCA (voltage controlled amplifier) is a component in an analogue mixing or *summing* device that controls volumes of faders while maintaining the relative levels throughout the group.
- Velocity** Is typically the volume of notes in *MIDI* regions. In a metal music context, velocity is relevant for *drum sample triggering*.
- VST** Stands for Virtual Studio Technology, the standard *plugin* integration format used by Steinberg, a digital audio workstation manufacturer. It has been integrated into many DAWs and other production software.
- VU Metre** A measuring device known from analogue equipment that displays ‘volume units’, that is, the relative volume of various audio signals. It is also used to set and monitor recording levels in analogue devices.
- Waveform Edits** An alternative technique to using *noise gates*. They are often employed on toms to remove noise by editing, especially in sections without performed notes or longer pauses between notes.
- Wet** Describes the amount or ratio of an effect in a processing device. Applying a high wet setting modifies the source signal considerably.
- White Noise** A form of noise characterized by the full coverage of the frequency spectrum.

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