

Student Name: Alef Matthews

P Number: 1901500

Programme of Study: The Studio Engineer Module: M4X01561

Studio Engineering

STUDIO 3

DRUMS

Mic List:

Kick

- . AKG D112 - placed inside the kick facing the beater
- . Audix D6 - placed on the outside of the drum skin
- . Audix ADX60 - placed inside the kick close to the beater

Snare

- . Shure SM58 - placed on top of snare aiming across
- . Audix i5 - placed below the snare wires, between the centre and edge

Toms

- . Audix D2 (x2) - placed between the centre and edge of the top skin
- . Shure SM58 - placed between the centre and edge of the top skin

Overheads

- . AKG 414 - placed above the cymbals, making sure all cymbals were covered by the mics.

Close Mics

- . Beyerdynamic MCE 93 - place at the edge of the china
- . Beyerdynamic MCE 93 - placed under ride where the bell starts to curve
- . AKG C451 - placed angled across the middle of the cymbal

Room Mic

- . Behringer B1 - placed 2 metres away and facing the kit

Firstly, I determined where the best place would be to place the drum kit that didn't have unpleasant frequencies reflecting back from the walls. I found that the drums sounded best at the end of the hall with the kit facing towards the centre of the room.

Kick

I used the Audix ADX60 to pick up the attack of the beater. I used this condenser mic as it has a fast attack which is what I need in the style of music I am producing. Next I used the D112 to add body. Lastly, an Audix D6 to get extra resonance and low end of the kick to add character to the drum.



Snare

I placed the SM58 the way I did to get a 'punchy' sound. I used this mic as I did not have access to an SM57. I used an Audix i5 under the snare to provide more body and sizzle to the snare sound, however I had to be careful to make sure these mics were in phase in post production. The mics were faced opposite the cymbals to avoid cymbal bleed.



Toms

I placed the D2 drum mics using clips. Ideally I would of used stands to avoid vibrations travelling up to the mic, however I ran out of stands. Fortunately you can't hear much of these vibrations in the recording. I used an SM58 on the floor tom as the D4 wasn't working properly and was hissing and humming. I placed the mics the way I did to achieve a warm and punchy tom sound. All mics were faced opposite cymbals to avoid bleeding. I had to make sure the mics were not in the drummer's way and that he was comfortable.



Overheads

I placed the overheads, set to a cardioid pattern, in a mic cradle facing downwards. I placed the mics 4ft away from the centre of the snare to ensure both mics would be in phase. I positioned the mics above the cymbals.



Close mics

These mics are to make certain cymbals stand out. For hi hat I placed the mic this way to help pick up the crispy sizzle of the cymbal. For ride I placed the mic this way as this best captures the bell for when the drummer wanted to do bell hits. For the china, the drummer hit the cymbal, and from this I found the area that moved the least and placed a mic, this was so there was no wavering volume when it moved. For my room mic I set it to omni, since this session I have realised this was a mistake as it made my mix too muddy, I should have set it to cardioid so it was directly picking up the kit.



Studio 2

Guitar and bass

Mic list:

. AKG 414 - placed opposite speaker dust cap

. SM57 - placed where the cone and dust cap meet

. UA OX Box

. Fender Downtown Express

Guitar

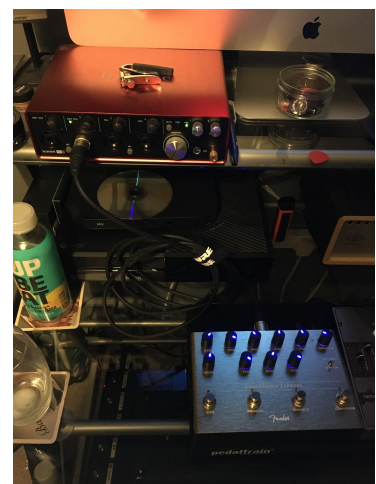
For guitar I recorded a cab using an AKG 414 and an SM57. However, during the recording session there was an issue with the buildings electronics being noisy which was audible through the cables and caused a lot of unwanted noise that affected the recording. Because of this I decided to re-record using my cab and mic simulator.

Through this I achieved a great quality recording with little electrical interference. Using this device I could simulate a range of mics I didn't have access to such as a Sennheiser 421 or ribbon mics.



Bass

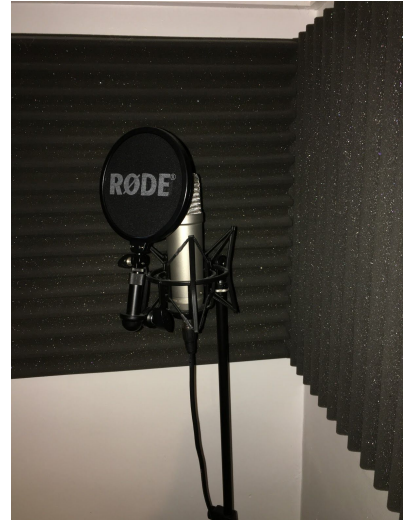
For bass I went straight into my pedal that has a D.I function with a ground lift switch to remove electrical buzz, I recorded straight into logic from this.



Vocals

Mic: Rode NT1-A

For vocals I used a pop shield to muffle any 'popping' letters such as the letter 'P' this gives a more even sound. As well as this I have used acoustic panels to reduce sound reflections from the flat walls.



Post Production

Mixing

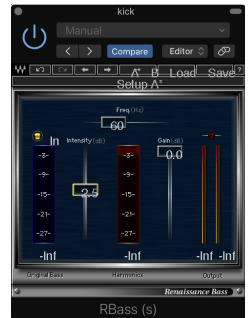
For reference, I found a song in a similar genre to use as a guide to how I wanted my instruments to sound. I chose the song 'Everything (all at once)' by the band 'Arcane Roots'. All drum tracks were blended into a parallel compression drum bus. Snare and toms were blended into a reverb bus.

Drums:

.Kick

For the Audix ADX60 I used an EQ to remove some low end, as this mic will only provide the attack to my kick. I removed the D6 audio as the sound was rattly. Instead I used a sample of a separate kick that I had. To do this I loaded the sample into a drum tracker which placed the sample in time with the recorded kick. I added sub to this track using the Rbass which gave impact to the kick at 60 Hz.

A gate was used to remove noise between the hits and used a tape emulator to saturate the kick and add warmth.



.Snare

I made sure both snare mics were in phase by lining up the waveforms then putting one track out of phase using the gain plugin. If the tracks cancelled out this meant they were in phase. On the snare top mic I added a multiband compressor to remove cymbal bleed and make the snare more present. A gate was used to remove noise between hits and I added a tape emulator to add aggression to the snare.

.Toms

I added a multiband compressor to all toms to remove high frequency cymbal bleed. I then panned the toms from left to right as if the listener was sat behind the kit. A gate with a slow release was used to remove noise between hits but to let the tom ring out. A limiter was used to add sustain and reduce the dynamic range of the drum. This will give me a more rounded sound.

.Cymbals

I panned the overheads hard left and hard right, hi-hat a tiny bit left and china a bit right. This gives the consumer the impression of being surrounded by the kit. I used the room mic as a crushed effect mic. This was achieved by overcompressing the track. Harsh frequencies were cut out of all cymbals and low end was removed.

Bass:

I used the parallax plugin to add distortion and low end compression, as well as a cabinet simulator.

I then added sub frequencies using the Rbass, boosting at 74 hz.



Guitars:

Guitars were double tracked and panned hard right and left. For Clean guitars I added stereo effects such as tremolo and ping-pong delay to give movement and emotion to the section. For solos I used a stereo widener as these couldn't be double tracked.

Vocals:

Pitch correction was used to make the vocals more tighter and less wavery. A deesser was used to remove prominent 's' sounds. A doubler effect was used to add a double tracked sound as well as reverb and echo to fill the gaps in between the vocals. For harmonies I panned some left and right to give the impression that you are surrounded by the singer. Finally, I added automation to the delay feedback so that it carried on at the end of the song.

Mastering

I sent all tracks to a master bus. On this bus I added an EQ, saturation, compression and a limiter. I then added automation to a stereo widener which I set to turn on during moments of importance in the song such as the chorus.

Summary

In conclusion, I believe this task went very well. The track sounds a lot better than what I first thought it would turn out to be. I think this because I made good use of the space provided to me and took into consideration many overlooked factors such as sound reflections and how this would affect the recording negatively. As well as this I made sure all musicians involved were comfortable and not pressured, they would always receive positive feedback from myself and if they were unhappy I would sort the situation as best as possible. I believe this is a very important trait to have to be a successful producer or studio engineer.

Despite feeling this, I believe I could have made this song better given different circumstances. For example, due to equipment failing I was forced to use different equipment which didn't give me the desired outcome that I originally planned. As well as this, I didn't have access to equipment I would have ideally have used as they were too expensive or not accessible in the university. If I could go back and do the task differently I would spend more time mic'ing up the kit and put further measures in place such as acoustic baffles to prevent early sound reflections and to make sure all equipment worked before using it. Furthermore, I would conduct further research so that I had an array of views on how to mic the kit, other than one view.

Bibliography

Titled : Arcane Roots - Everything (All at Once) [Audio], released (August 21st, 2017)

<https://www.youtube.com/watch?v=TtwYPAh5Yq8>

Accessed January 16th, 2020