

A Manufacturing Mix-Tape

Mechanical Motion Gives Sound Designers Creative Options in Film and Television Projects

Matthew Jaster, Senior Editor

I noticed it during my first assignment in a job shop. Maybe it was the gentle whir of a motor or the scratching sound of a grinding gear, but the factory floor boasted plenty of unique noises and sound effects. It reminded me of a popular story about how Sound Designer Ben Burtt created the iconic sound of the lightsaber for *Star Wars* back in 1977, still today one of the most iconic of Hollywood sound effects.

“I was still a graduate student working as a projectionist in a booth with some very, very old Simplex projectors,” said Burtt in the book *The Sounds of Star Wars*, by J.W. Rinzler. “The projectors had an electric interlock motor that connected them to the sound dubbers when used for mixing. When sitting idle, the motors made a wonderful humming sound. It would slowly change in pitch and form beats that created a soothing harmony. It would put you to sleep - it was either that or the fumes from the arc lighting in the room.”

Burtt recorded the sounds of that projector and the rest is motion picture history. The *Star Wars* sound design crew would continue to find small motors extremely useful for the original film. Additional motor effects came into play with the introduction of the droids R2-D2 and C-3PO.

On Tatooine, the audience heard more of the droids’ banter and could better hear their interior motors, which had been the responsibility of Sam Shaw [supervising sound editor]. The droid ‘engine’ sounds Shaw cut in came from the antenna and window motors of a Cadillac El Dorado.

“Making the motor sounds for the droids was a huge job,” Burtt said. “I had never gotten to that on my list, because they weren’t a priority.”

The antenna motor - a lower-pitched sound - was primarily used for R2 and the higher pitched window motor for C-3PO. But in their first scene in the desert, both Cadillac effects can be heard as part of R2’s audio movements.

“In that early scene, we didn’t have time to differentiate between whose sound was whose,” said Burtt. “Later on, the high-pitched motor became exclusive to Threepio and the lower-pitched one for Artoo.”

Star Wars wasn’t the only film franchise to seek out mechanical and electronic components for potential sci-fi sounds. The equally iconic Enterprise warp drive and transporter effects from *Star Trek* were achieved utilizing a test oscillator. The warp drive sound was produced with an oscillator going through a plate reverb chamber while a rising oscillator tone and a “singing” ethereal tone were combined to make the transport noise—essentially the beaming in the “Beam me up, Scotty.”

Mark Mangini, supervising sound editor for *Blade Runner 2049* created more than 2,600 new sound elements for the popular sequel last year including sticking a subwoofer in



his wife’s Honda Element to produce the noises of Officer K’s (Ryan Gosling’s) vehicle. Mangini also worked on *Mad Max: Fury Road* where he combined whale sounds with truck engines to exacerbate the howling noises of semi-trucks rolling across the desert.

And what about all those fancy, robotic noises when a Transformer transforms? One, in particular, known as “Reedman” was a tiny evil robot made up of a swarm of diabolical microns in the film *Transformers: Revenge of the Fallen*. The sound effect was simply recording the noise of rolling metal ball bearings and combining it with other everyday metal “clinks”.

The lesson here is simple. If you have a son or daughter heading to film school, they might consider stopping by the job shop down the street with some recording equipment. The audio options can be quite extraordinary.

Sources: www.empireonline.com, www.starwars.com, www.prosoundeffects.com and a special thanks to Lucasfilm Publicity for providing additional material. **PTE**