

## BRING ME YOUR LEMONS!

“When you’re stuck with lemons, you make lemonade.” How many times have we heard that line? This is a story of a crew of radio station technicians that got stuck with a very big lemon, but used it to sell a whole lot of very profitable lemonade to broadcasters everywhere.

In 1968, Western Broadcasting was granted an FM license for Vancouver. This would be the third commercial FM in the market, behind Q Broadcasting and Moffat Communications. In those days, all the FM’s struggled, and needed an AM big brother to support them: FM audiences were small, and revenues even smaller. To give you an idea of the lay of the land at that time, Q’s CHQM-FM mostly simulcast its AM counterpart, and Moffat’s CKLG-FM taped and repeated much of its programming. From the get-go, it was decided that CFMI would use automation to control costs.

Automation systems of the day veered to the electro-mechanical: no hard drives, but lots of motors, tape guides and solenoids. Music was normally supplied on large stereo reel-to-reel transports that could provide hours of “walk-away” time, and commercials on (mono) cartridge carousels, a kind of merry-go-round whirligig that could play up to 24 cartridges in succession. The reel machines worked well, but caused programming limitations because they were sequential devices. You could mix up the order some by using a bunch of transports, but songs still tended to get played in a pattern that became recognizable over time. Here’s where that big lemon I mentioned makes its appearance: CFMI’s management, recognizing the limitations of tape, decided to create what may have been the world’s first all-cartridge all-stereo automation system, dubbed “Fat Albert.”

Well that was swell in theory: a programmer would load all the music and commercials for each play, stuffing a bunch of carousels every few hours, and the order everything got on the air could be changed each airing. This made the programming department happy. But the cartridges of the day, “Fidelipacs,” were just not capable of reproducing stereo. The engineering department was NOT happy!

There were several problems with the Fidelipacs--wow and flutter, dropouts, and the fact that a dropped Fidelipac was essentially a dead Fidelipac--it would (almost) always jam the very next time it was used. The real killer, though, was that the phase relationship between the two audio channels was not stable, and it turned out to be virtually impossible to make it so.

Here’s where our intrepid CFMI engineers came in: faced with a seemingly insoluble problem, they ripped apart a bunch of Fidelipacs to find out **why** they didn’t work right. They discovered pretty quickly that although some

improvement could be made by dismantling the cart and manually “tuning the corner post,” the best solution was to start from scratch and make a whole new device. The quest for a better stereo cart led them from improvements in mechanical design, to the picayune details of how plastic injection molding is done, to the use of exotic materials such as Lexan for the cart bodies and Teflon tape for the pressure pads. Many hours of brainstorming and experimenting later, they had developed a truly superior cartridge, which by the way was almost indestructible. The engineers responsible: Don Kalmokoff, Dave Glasstetter, Dick Dipalma, and Doug Court, working for Chief Engineer Jack Gordon.

And here’s where the management of Western, in the person of Bill Hughes, can take a bow: he had the vision to see that here was a problem, and a solution, much bigger than CFMI. Western took the plunge and established a whole new division of the company, led by Kalmokoff, to manufacture and market their engineers’ new creation, not just to Western stations, but to **anyone** that needed a stereo cartridge. And so the Aristocart was born. Over the next twenty years, more than a million were manufactured and shipped everywhere. Competitors infringed on patents, lawsuits were launched, and there were shortages of Lexan and lubricated magnetic tape to contend with. But through it all, Western made a well-earned bundle on the side from the Aristocart division.

Today, we have different types of problems, and don’t hear much about wow, flutter, dropouts, high frequency rolloff, THD or IMD, let alone phase distortion. Instead, discussions lean more towards bit jitter, latency, and artifacts. But it wasn’t so long ago that four or five guys working away at a radio station made a big impact on our industry. Hats off to them!