Canadian Audiologist

The Official Publication of the Canadian Academy of Audiology

Motorcycle Noise

Published September 3rd, 2014

Alberto Behar, PEng

A very common experience: you are in your front yard, enjoying a good book by your swimming pool. Nice, sunny day, pleasant breeze. Quiet, Then suddenly, a harsh noise makes you jump out of your seat and a rush of adrenaline makes all kind of disorders inside your body. You look around for the source of this disturbance and by the time you are up and looking, the source is gone. If you are close to the street, you may smell a whiff of gas. The culprit is gone in a second and again all is quiet.

It also happens on the highway. You are driving nicely, aware of who is around and not being prepared for anything out of the common, when, suddenly there is this thunder out of the blue sky and this motorcycle speeds up avoiding cars left and right and disappearing out of your site and your hearing in no time.

So, big deal, just a motorcycle speeding away, his driver enjoying the feeling of omnipotence, of being the king of the universe.

Well, is this a problem of the motorcycles or of the drivers?

Let’s examine a little bit what’s going on. A motorcycle is a bicycle most often driven by a one cylinder, two- or four-strokes engine. In this internal combustion engine (ICE) a combustion of the fuel with an oxidizer (usually air) is ignite by a spark plug. The expansion of the high-temperature and high-pressure gases transforms chemical energy into useful mechanical energy that drives the motorcycle.

ICE inherently generates noise because of the process itself, as well as the moving components. There is also tire noise and wind noise, but none as important as the noise resulting from the combustion. This is by far the main offender of them all! Think, we are talking of real explosions!

So, how do manufacturers control noise? It’s very simple, there are devices call silencers that do precisely that: they reduce the noise from the engine. And they are so efficient, that if properly maintained make the noise insignificant!

So, why motorcycles are noisy? Very simple: because their owners choose to replace the

manufacturer’s silencer by the so-called “after-market” silencers that reduce very little the noise or modify their spectrum so that they sound “powerful”! Some users even leave the engine without any silencing device. Professor Fuchs in the Argentinean city of Cordoba once conducted a survey of the motives behind the removing or modifying the silencer. The results were multiple, but the underlying motive was to make them visible! (Or shall we say “important”?).

So, here we have a perfect environmental annoyance generator, very seldom, unfortunately, controlled by the authorities…

Now, what about the driver of the motorcycle? Is he affected and by how much. Let’s talk about that in the next issue of *Canadian Audiologist*.