



SAFETY EMPHASIS

Missouri Department of Transportation

Hearing Protection

Understanding Hearing Loss

Hearing loss is a normal part of the aging process. Throughout our lives, we are exposed to loud noises and physical conditions that add up to gradual loss of hearing. But many of us lose our hearing prematurely by failing to protect ourselves from excess noise. Understanding how our hearing works can help you realize the importance of protecting your hearing now, before it's too late.

How Hearing Works

The ear is composed of numerous delicate structures designed to carry sound waves to the brain. The hair cells in the ear are particularly important because they stimulate the auditory nerve, which transmits impulses to the brain. The brain then translates auditory impulses into the sounds we hear. When ear's hair cells become damaged due to excess noise exposure, the auditory nerve is not sufficiently stimulated, the brain does not receive the appropriate sound signal, and we fail to hear correctly. And, when the hair cells are damaged by prolonged exposure, they "die" and cannot be replaced, resulting in permanent hearing loss.



Excessive Noise Exposure

Noise is measured in units called decibels (dBs or dBAs). Excessive is generally considered to be an exposure of 85-90 dBs or more over an eight-hour period. A typical car horn can be as loud as 120 dBs, but hearing a horn honk for a few seconds is unlikely to cause hearing damage. If you had to listen to the horn blast for 8 hours straight, you could experience gradual, permanent loss of hearing. Or, if you work in an area where you are exposed to the 80 dBs over a four-hour period,

you might not be at risk. But, if you then went home and operated a lawn mower, power tools, listened to loud music or went to the shooting range, you could very well exceed your safe noise exposure limit.

Protecting Your Hearing

On or off the job, you should protect your hearing by wearing the appropriate hearing protection equipment. MoDOT policy requires hearing protection be worn when in working environments where the decibels are 85 dBs or greater. Earmuffs, plugs and canal caps can all help reduce noise exposure. It also helps to know the noise levels of common activities and frequently used equipment (see chart). Here's a rule of thumb: if you have to raise your voice to be heard over the background noise when standing three feet away from another person, the hearing environment is probably over 85 decibels.

Remember that even loud vacuum cleaners, dishwashers and home power tools can create excessive noise, so protect your hearing wherever you are.

Equipment	dBs
Dump Truck (In Cab)	89.2
Loader (In cab at 1,750 rpm)	93.8
Oil Distributor (In cab)	88.1
Distributor (outside near burners)	106.6
Motor-grader (In cab)	90.7
Motor-grader (outside of cab)	101.7
Brush Hog Mower	92.7
Sickle Bar Mower	94.3
Tractor	100
Pavement Breaker	113.9
Standing on I-70	87.2

The above readings are spontaneous and are not time-weighted averages, contact your local safety office for specific TWAs.

Be Prepared, Be Diligent, and...

Be Careful Out There