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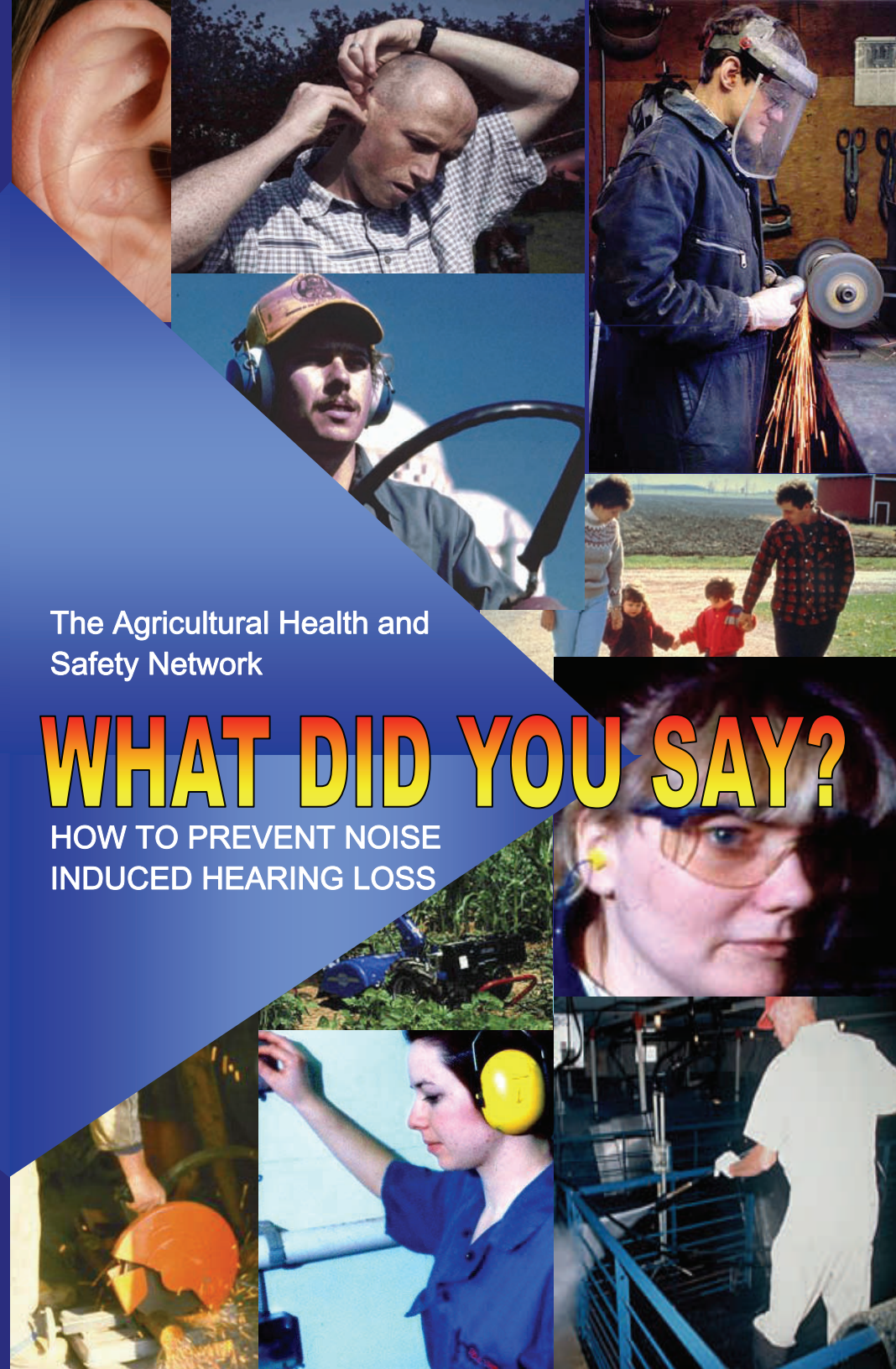
# WHAT DID YOU SAY?

The Agricultural Health and Safety Network

# WHAT DID YOU SAY?

HOW TO PREVENT NOISE INDUCED HEARING LOSS

**NOISE:**  
**ANY UNWANTED SOUND**



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**Disclaimer:** The information in this booklet is intended to educate the reader about hearing conservation. It is not a substitute for examination, diagnosis, and medical care provided by a licensed and qualified health professional.

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## Noise Induced Hearing Loss (NIHL)

Continuous exposure to harmful levels of noise over extended periods of time without proper hearing protection can result in NOISE INDUCED HEARING LOSS.

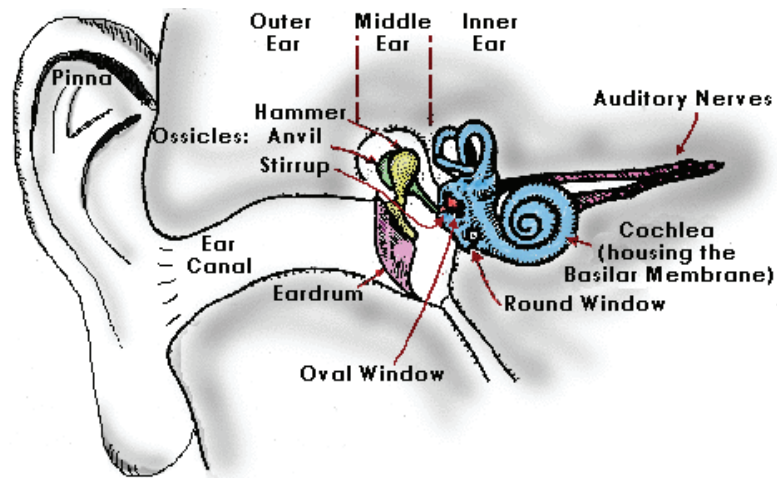
- ▶ Noise Induced Hearing Loss can occur at any age.
- ▶ Noise Induced Hearing Loss can be prevented.

## What Are the Signs of NIHL?

- ◆ When noise stops, sound may seem muffled.
- ◆ People may seem to mumble.
- ◆ Your ears may ring.
- ◆ People tell you the TV is too loud.
- ◆ You turn up the radio at the end of the day so you can hear it.
- ◆ You may have a vague feeling of pressure or fullness in your ears.

*You do not get used to noise.  
If you think that you have grown used to noise,  
it has probably damaged your hearing.*

## The Ear



## How Does It Work?

Any source of sound sends vibrations or sound waves through the air. This sound is funneled through the ear opening, down the ear canal, and strikes your eardrum, causing it to vibrate. The vibrations are passed to the small bones of the middle ear which transmit them to **hair-like hearing cells** in the inner ear. Here, the vibrations turn into nerve impulses that go directly to the brain and are interpreted as sound.

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## How Does Hearing Damage Occur?



Our ears have about 40,000 hair-like hearing cells that help us to hear.

If you are exposed to a lot of noise (eg. driving a tractor all day) or a really sudden loud noise (eg. a gunshot), then your hearing cells become damaged. Resting your ears by getting away from the noise may give your hearing cells a chance to regenerate and heal. However, if you are constantly exposing yourself to a lot of noise day after day, your hearing cells do not have a chance to heal. They eventually will not recover, will die, and you will experience hearing loss.

These cells can be compared to grass when it is walked on. If you walk on grass a little, it will bounce back after a little while and recover. However, if you are continually walking on the grass it will eventually die.

As exposure time to a lot of noise or sudden loud noises continues, more and more hearing cells are damaged and destroyed. This hazardous noise adds up over time and your hearing decreases as the number of damaged and destroyed hearing cells increases. Dead hearing cells cannot be restored. The damage is **PERMANENT** and results in **NOISE INDUCED HEARING LOSS**.



## *What Impact Does Noise Have on Your Health?*

### **Hearing Impacts**

- Ringing or buzzing noises in your head or ears
- Temporary hearing loss
- Permanent hearing loss
- Difficulty communicating with others

### **Physical impacts**

- Increases heart rate and blood pressure
- Headaches
- Tiredness
- “Dulling” of the senses
- Digestion problems by reducing gastric activity

### **Psychological impacts**

- Loss of concentration leads to increased risk of injury
- Increase in stress levels
- Irritability or “edginess”
- Sleep disturbances

### **Work Impacts**

- Distraction from task resulting in more errors
- Decrease in work efficiency and productivity
- Increased employee absenteeism

*Reduce noise*  
*Reduce fatigue*  
*Reduce mishaps and injury*  
*Increase your wellbeing*  
*Increase productivity*

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## Personal Protective Equipment Suppliers

In Saskatchewan, personal protective equipment can be purchased at your local safety supply store, Acklands stores and Co-op stores.

### Credits

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**Funding:** Canadian Agricultural Safety Association, Agriculture and Agri-Food Canada, Agricultural Health and Safety Network, Saskatchewan Agriculture and Food.

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### To Request Additional Copies:

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## How Is Sound Measured?

- ◆ Loudness or intensity of sound is measured in decibels (dB).

## How Loud Is Too Loud?

If you need to raise your voice to be heard by someone 1 meter (3 feet) away from you then noise levels are potentially harmful and **hearing protection is needed**.

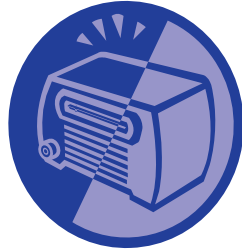
## What Is the Maximum Daily Noise Exposure ?

Noise Level (dB)	Maximum Daily Exposure Time without Hearing Protection (hours)
85	8
88	4
91	2
94	1
97	.5
100	.25
> 100	0

## Tractor Noise Tidbits

### Did you know...

- ◆ By having the radio on in a cab it increases the noise level by 3-5 dB.
- ◆ Cabs can reduce noise levels by 16 dB but this is halved to 8 dB if the door is open.
- ◆ Older tractor cabs tend to be 6 dB louder than newer tractor cabs.
- ◆ The amount of noise changes based on where you are and what you are doing. For example:



John Deere 8520 16 Speed Tractor—sound level with cab - Front wheel drive disengaged	dB
No load—8th gear	73.8
Transport speed—no load—16th gear	77.8
Bystander in 16th gear	86.9

*Farmers tend to have poorer hearing than individuals their age who don't farm.*

## FAQ's

### • Are you having trouble with ear wax?

Ear wax normally protects our ears from harmful effects of dust, dirt and bacteria. Some of us have ear wax that becomes hard and trapped inside the ear canal. This is annoying and makes it difficult to hear.

**Do not put Q-tips, bobby pins, car keys etc into your ear in the hope of getting the wax out.** Putting these “things” in your ear can push the built-up wax further in and you risk puncturing your eardrum, causing an infection, or damaging your ear canal.

If you have wax-build-up see your doctor and have it removed safely.

### • What about ear candling?

No proven medical benefits have been shown and candling comes with a lot of risks connected to hot wax and fire near your ear, skin and hair.

### • What about ringing in my ears?

Ringing, buzzing, or a whistling noise that can be heard in one or both of your ears is called tinnitus. Tinnitus is not uncommon and is especially noticeable in a quiet place. If you have ringing in your ears seek medical attention to rule out any medical problems.

*You may notice a difference in the noise when you put Kleenex®, cotton, or wadded up paper stuffed into your ear  
BUT the effect is SO MINIMAL it is not worth the bother.*

## What Is a Hearing Test About?

An audiogram (hearing test) is an exam that uses your response to different sounds (loud to soft, low frequency to high frequency) to detect and diagnose hearing loss.

If hearing loss is detected and diagnosed, action can be taken to prevent additional permanent hearing loss and/or correct a temporary loss.

Temporary hearing loss can be due to wax build up or an ear infection that makes it difficult for you to hear. These problems can be corrected by your doctor.

### Why get a hearing test?

- ◆ Most people do not notice their own hearing loss, as it happens gradually over time.
- ◆ Without testing, early hearing loss goes unchecked.
- ◆ Regular hearing tests act as a check to see that your hearing protection is working.
- ◆ Once hearing damage occurs, it cannot be repaired!  
**But you can prevent the damage from becoming worse by wearing hearing protection.**

### What is the Recommendation for Hearing Testing in Saskatchewan?

Saskatchewan Labour recommends hearing testing be provided by employers at least once every two years for workers exposed to noise levels 85 dB or greater.

For regulations on noise exposure contact  
Saskatchewan Labour at:

**1-800-667-1783** or go to <http://www.labour.gov.sk.ca/> and search for Noise in the Workplace.

## Sources of Noise and dB Levels

Tractors	dB
<b>50 HP</b>	
Case IH 685	97
Ford 5640	97
John Deere 2155	95
Kubota M5700DT	92
Massey Fergusson 360	95
<b>75 HP</b>	
Deutz Allis 7085	80
Ford New Holland 7740	78
Massey Fergusson 399	81
<b>100 HP</b>	
AGCO Allis 8610	78
Case 1070	94
Case IH 5250	80
Ford New Holland 8630	79
John Deere 4255	78
Kubota M120DT	79
Massey Fergusson 3140	76
Versatile 256	79
<b>150 HP</b>	
AGCO Allis 9695 Dsl	76
Case 2470	83
Case 2394	76
Case IH 2094	77
Case IH 7120	73
International 1586	79
John Deere 7700	74
Massey Fergusson 3690	77

Tractors	dB
<b>200 HP</b>	
Versatile 700	80
<b>250 HP</b>	
Case IH 9150	82
John Deere 8560	77
Versatile 876	84
<b>300 HP</b>	
John Deere 8960	80
John Deere 9200	73
Versatile 936	80
<b>400 HP</b>	
Case IH STX440	78
John Deere 9400T	76
John Deere 9520	77
<b>500 HP</b>	
John Deere 9620T	74
<b>All tractors tested with no load in low gear, at operator's ear in the cab</b>	

## Sources of Noise and dB Levels

Swathers (from operator's seat)	dB 81-95	Augers	dB 89-102
Cereal Implements 722	84	Bergen 8x41 14 HP engine	102
Co-op 550	88	Coop 7x41 12HP engine	98
Co-op 742	84	Farm King 8x41 12 HP engine	102
Hesston 6400	91	Westfield 707-36 12 HP engine	102
Hesston 8100	81		
International 230	95		
International 4000	91	<b>Balers</b>	<b>dB</b>
John Deere 800	89	JD 4240 Running Baler (operator in cab)	75
John Deere 2320	87	Vemeer 605F Rounder Baler	90
Massey Ferguson 655	90		
Massey Ferguson 755	90	<b>Feed Processors</b>	<b>dB</b>
Massey Ferguson 885	87	Hammermill	94
New Holland 1100	89	Roller Mill	92
Omc 280	92		
Versatile 400	90		
Versatile 4400	87		
<b>Combines (from operator's seat)</b>	<b>dB 76-90</b>	<b>Grain Dryers</b>	<b>dB</b>
Gleaner N-6	81	Adams	107
International 1460	80	Cascade Grain Drier	93
John Deere 60 Series	76-79	Cross Flow Grain Drier	94
John Deere 9500	76	Drymore Redbird	90
John Deere 9600	79	Green Crop Drier	90
Massey Ferguson 750	90	GT 380	103
Massey Ferguson 760	88	Moridge 8440	102
Massey Ferguson 860	89	Superb 5500C	85
New Holland TR70	85	Super-B AS-600G	102
New Holland TR95	84	Vertec VT 5600 R	69

## Hearing Aid Plan

Hearing Aid Plan clinics throughout Saskatchewan offer:

- ◆ Hearing tests
- ◆ Hearing aids - fittings and repairs
- ◆ Consultation
- ◆ Education and prevention programs

You can personally call to make an appointment.

Hearing Aid Plan	
<b>Estevan</b>	637-3626
<b>Humboldt</b>	655-4170
<b>Kindersley</b>	463-8284
<b>Melfort</b>	752-6310
<b>Moose Jaw</b>	691-1554
<b>North Battleford</b>	446-6415
<b>Prince Albert</b>	765-6530
<b>Regina</b>	766-7555
<b>Saskatoon</b>	882-6413
<b>Swift Current</b>	778-5420
<b>Weyburn</b>	842-8618
<b>Yorkton</b>	986-0647

*Did you know? Hearing aids amplify sound. They do not help to discriminate between different sounds so there is no substitute for your NORMAL hearing.*

***Protect your hearing!***



## Sources of Noise and dB Levels

Firearms	dB	Music—Volume Half	dB
12 Gauge Shot Gun	135-139	Apple iPod (15 GB)	98-101
22 Gauge Shot Gun	108-113	Bratz:Liptunes MP3 Player	90-94
38 Special Handgun	135-140	Disney Mix Stick	87-99
270 Winchester High Power Rifle	141	Sony Walkman MP3	85-94
Swine Production	dB	Music—Volume Full	dB
At feeding (confinement)	121-133	Apple iPod (15 GB)	120-125
Breeding barn	94	Sony Walkman MP3	108-115
Cleaning buildings	73-90	Bratz:Liptunes MP3 Player	115-120
Gestation barn	92	Disney Mix Stick	112-118
Heat checking	86-98	Other Equipment	dB
Inoculating pigs	71-90	ATV	84-100
Inseminating sows	68-88	Bobcat (running, high idle)	85-88
Moving pigs	79-89	Brush cutter	80-92
Nursery barn	66-69	Road grader	76-88
Power washing	99	Snowmobile	120
Processing piglets	86-96		
Ultrasound monitoring	63-101		
Ventilation Fans	dB		
AgriFan 20"	60-85		
Chore Time 18RLX	77		
Danor Pleasantaie SD 24-FVX	74		
Del Air F6	66		
Hurst BF-12	73		
Koenders KS18	75		
Siemens 2CC2-506	73		



## How Do I Know If My Hearing Protection Is Working?

### Test for a good fit

1. Insert or put on your hearing protection.
2. Cup your hands over your ears or push on the muffs.
3. Concentrate and ask yourself ***“Is the noise I hear now that my ears are cupped different from the noise I hear when my ears are not cupped?”***
4. If your hearing protection is fit and working properly there will be no difference in the noise you hear.

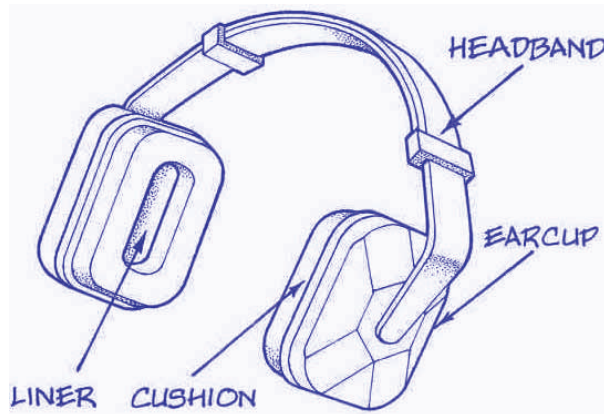


### Care and Cleaning

- ◆ Store hearing protection in a clean container—Ziploc® bag, coffee can, plastic container, etc.
- ◆ Plugs may last several months depending on the type of plugs, your work environment, personal hygiene and body chemistry.
- ◆ Muff cushions can be cleaned by washing with warm soapy water, rinsing well and air drying.
- ◆ Discard plugs or muffs if they are dirty, shrunken, hardened, torn, cracked or permanently deformed and do not expand back to original size or shape. Such hearing protection does not seal well and can irritate your ear.

## Earmuffs

- ◆ Rigid molded plastic cups with cushions filled with foam, liquid, or a combination that seals around the entire ear to block noise.
- ◆ Easily removed and replaced repeatedly. Ideal for intermittent use. One size fits most.
- ◆ Can feel tight, hot, bulky and heavy compared to other hearing protection - BUT there are light weight earmuffs and cooling pads available.



### Fit Tips

- ◆ Muffs must be centered so they fully enclose the ears to seal against the head.
- ◆ Muff performance will be reduced by anything that interferes with the seal around the ear including glasses, long hair and hats.
- ◆ Replace muffs when the head band is stretched or muffs are cracked.

## How Do I Reduce Noise Exposure?

### A Noise Reduction Plan

- ☑ Reduce noise at the source - repair worn, loose or unbalanced machinery parts, lubricate machinery, and replace worn out mufflers.
- ☑ Isolate the vibration - ensure that vibrating parts are mounted on the most massive and structurally rigid part of the machine.
- ☑ Step back from the source of noise when possible.
- ☑ Reduce the amount of time exposed to the noise - rotate tasks.
- ☑ Use hearing protection.

**Myth:** *I can't wear ear plugs because I will not be able to hear if something goes wrong with the machine when I am working.*

**Myth buster:** *You can hear if something goes wrong with the machine you are working with when you wear hearing protection. When your ear is bombarded with noise it has trouble discriminating between different sounds. The right hearing protection reduces overall noise to a safe level so the ear operates more efficiently but does not compromise communication and work safety.*

## Types of Hearing Protection: What Is Available?

Ears come in all shapes and sizes. Find the most comfortable hearing protection for **YOU**, for the work **YOU** do so **YOU** will wear it.

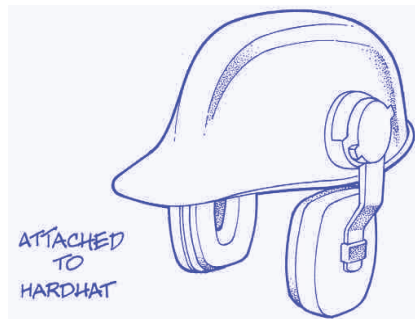
### Hearing Protection That Works the Best Is:

- ◆ Comfortable
- ◆ Convenient
- ◆ Close at hand
- ◆ Suits the work environment

*Put your hearing protection in at the start of your work day or keep it close for easy access.*

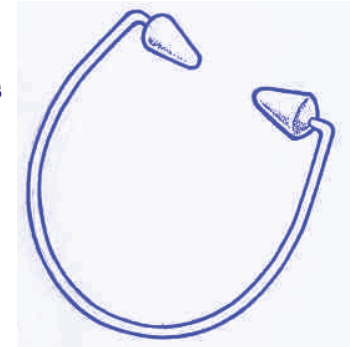
### **Remember!**

*When choosing hearing protection, account for other equipment and clothing you will be wearing such as glasses, hard hats, face shields, welding helmets, respirators and the climate you are working in.*



## Semi-insert Earplugs

- ◆ Flexible tips on a lightweight band that can rest on the neck when not in use.
- ◆ Not recommended for continuous long term wear as they do not provide as much protection as other plugs or muffs.
- ◆ Ideal for when hearing protection must be removed and replaced repeatedly so it stays within easy reach.



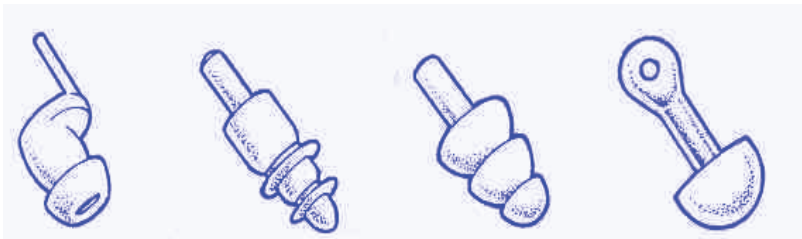
### Fit Tips

- ◆ Pull on the outer ear while holding the large ends of the pod. Swivel the pod, directing the tip into ear canal. Firmly push and wiggle the pod into ear canal to create a snug seal.
- ◆ Replace when band is stretched.

***Set an example: If you don't wear your hearing protection no one else will either. It is important for children who are exposed to noise to wear hearing protection to prevent hearing damage at a young age.***

## Pre-molded Earplugs





- ◆ Made of flexible material that is pre-molded to fit the ear canal.
- ◆ Available in different sizes.
- ◆ Usually available with a joining cord.
- ◆ Can be difficult to obtain and maintain a good seal.



### Fit Tips

- ◆ Do not need to be rolled.
- ◆ Insert and push the plug tightly into your ear canal until you feel a snug seal.
- ◆ May re-adjust plug while in the ear.
- ◆ Remove plugs slowly to gradually break the seal - a twisting motion may be helpful.

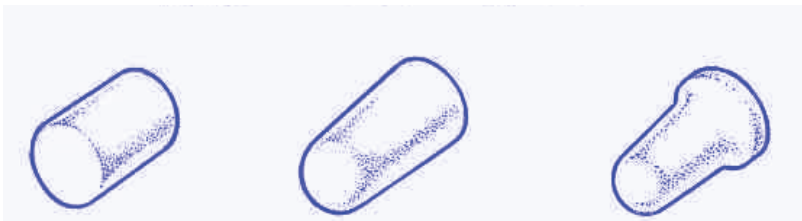
**Remember:**  
*The more noise you hear today the less  
 you will hear tomorrow*

Hearing Protection	Example	Noise Reduction Rating (NRR) in dB
<b>Foam earplugs</b>		
	Classic	29
	3-M 1100	29
	MaxLite	30
	Laserlite	32
	SuperFit 33	33
<b>Pre-molded earplugs</b>		
	Mack's Hear Plugs	20
	E-A-R Express Pod Plugs	25
	Howard Leight AirSoft	27
	Heartech SilentEar	33
<b>Semi-inserts</b>		
	QB3	19
	QB2	25
	QB1	29
<b>Earmuffs</b>		
	Tactical 7S Electronic Muffs	24
	Pro Ears Dimension Series	25-33
	Peltor Tactical Pro Muffs	26

**Note:** *Fifty percent of the NRR is a reasonable estimate for the hearing protection you are getting but be aware that the rating often is even less. To be safe use the highest NRR that is comfortable for you!*

## Foam Earplugs

- ◆ Can provide a high level of protection that is snug, secure and comfortable.
- ◆ Available in different sizes.
- ◆ Not the best choice for people who must remove and re-insert hearing protection during work.
- ◆ Disposable but may be re-used.



### How to Properly Insert Earplugs

1. Using both hands, roll and compress the foam plug as tightly as possible into a thin creaseless tube - **this may take a minute**. Make sure your hands are clean.



2. With your opposite hand pull your ear **upward** and **back** to straighten your ear canal. This makes it easier to insert the ear plug properly into your ear canal.



3. Hold the plug in place until it expands to form a snug seal blocking the ear canal - **this takes a few seconds**. The deeper the plug is inserted the more effective and comfortable it will be.



- ◆ Do not re-adjust plugs while in the ear. Remove and re-roll and re-insert.
- ◆ Inserting ear plugs should not be painful.
- ◆ Not all ear canals are the same size. You may need a different size plug for each ear to get a good fit.

**Wash your hands.**

**Make sure your hands are clean, as dirty hearing protection can cause skin irritation and ear infections.**