

## Workplace Health and Safety Queensland

## Personal hearing protectors – Different types

Hearing protectors come in different types, shapes, and styles. They must be carefully selected with full regard to the work environment in which they are to be used, the requirements of the job, and our personal preference, *where this does not interfere with protection needs*. Hearing protectors should be selected personally by the wearer, on the basis of proper fit and comfort. Most of the time different brands of hearing protectors offer similar reduction ratings so a choice can be made.

### Earmuffs

Earmuffs completely enclose the ear with a hollow cup. The cup is internally insulated and fitted with sound absorbent foam. A soft-ring shaped cushion provides a firm but comfortable seal around our ears. Earmuffs use a spring tensioned headband to hold the cups in place over our ears at a certain clamp force to provide the desired reduction.



Where earmuffs with this type of headband must be worn with a safety helmet the headband can be turned so that it can be worn with the headband around the neck or under the chin with a suitable head strap fitted over the head to hold the muffs in place. There are also earmuffs available, which can be attached to the safety helmet directly.

In some noise environments with impulsive type noise, e.g. with the firing of nail guns, manufacture of pressure vessels or drop forging, it may be necessary to use both earplugs and earmuffs to achieve adequate protection against noise-induced hearing loss.



### Earplugs

Earplugs are inserted in the ear canals. They must be fitted sufficiently deep to completely block off our ear canals and to be self-supporting. There are three main types of earplugs, i.e.

pre-moulded earplugs, individually moulded earplugs and adaptable earplugs.

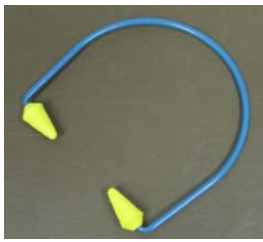
**Pre-moulded earplugs** are available in disposable and re-useable types and come in foam or PVC material. A new type of plug has recently become available and differs from the "traditional" style plugs in that the plug is shaped like a half ball and has a narrow stem to which a thin cord can be attached to hold the plugs together. These plugs can be re-used as well.



### Flat attenuating earplugs

are a new type of earplug. These plugs give a more uniform sound reduction than normal industrial type plugs. This type of earplug may be especially

beneficial for people who already have a hearing loss, as they do not distort the high frequency sound as much as normal industrial type plugs.



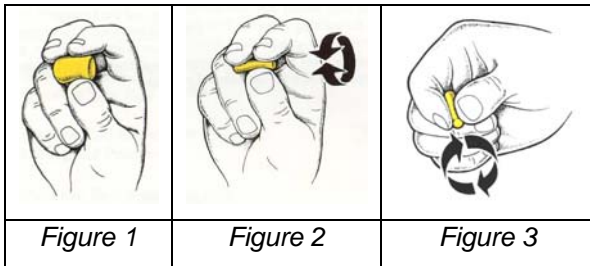
**Semi-insert plugs (as illustrated) and ear canal caps** seal the ear canal at or near its entrance. They are held in position by a tension band which is normally worn under the chin or behind the neck.

The pods are normally made of a light rubber material, are reusable and can be replaced.

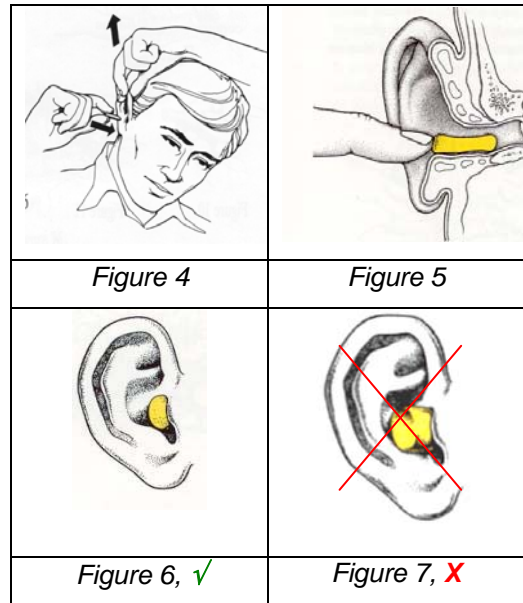
Ear canal caps and semi-inserts are rather popular in work places where regular short term high level noise exposures occur, e.g. with the use of circular saws or planers. The ear canal caps and semi-inserts hang around the wearer's neck when not in use and can be easily inserted in the ears when needed. Because a spring band is holding the pods together and, because they are not fully inserted into the ear canal, hygiene problems such as with earplugs are much reduced. Other uses are for people having to be in, or move through noisy areas for short periods of time.

### The fitting of earplugs

Make sure before inserting earplugs that your hands and fingers are clean. You don't want dirt to be transmitted into your ear canal and cause ear infections. Take the plug between the tips of the index finger and the thumb, as in Figure 1, and roll the plug tightly into a crease free cylinder, as in Figure 2. An alternative method is shown in Figure 3 (next page).



With your arm over your head as shown in Figure 4 below, pull the outer ear up and out to straighten the ear canal. Then insert the tightly rolled up earplug well into the ear canal, as in Figure 5, and hold your finger on top of the earplug until you feel the earplug expanding and blocking your ear canal in about 10 to 20 seconds. Earplugs should be inserted into the right ear with the right hand and into the left ear with the left hand



With the earplug inserted in the ear canal it should sit as shown in Figure 6 above, and when looking front-on should be hidden (most of it at least) behind the lump (tragus) at the front of the outer ear. If the earplug is inserted as in Figure 7 it is not deep enough in the ear canal and does not provide the protection needed for it to do its job.

When removing an earplug grab the plug and twist the plug while at the same time removing it. If you pull a plug out straight it may cause discomfort.

### More information

Further information is available from [www.worksafe.qld.gov.au](http://www.worksafe.qld.gov.au) or by calling the WHS Infoline on 1300 369 915.

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