

Bike to bike talk

In the latest edition of Riding On (page 56) there is a add for motorcycle communications by a NZ company PHS Ltd.

They have a special deal on headsets going for \$50 NZ, which will fit most UHF radios.

I have purchased a set and will be giving them a try with my 2 watt Uniden UHF.

Also using a T piece that he can supply, I can be connected to my GPS or I Pod at the same time. While two sounds come through the headphones at the same time, this is something I can live with as it is just a matter of adjusting volumes.

The system satisfies my needs and was at minimal cost but still good quality.

During discussions with Mike the owner, the subject of helmet wind noise was raised.

His web site gives a background on how the helmet shape and position of the windscreen contributes to it all, and his article below details how he has tried to combat it with his ear cushions. Ear cushions come with the headset as standard.

I thought his article would be of interest to those who are troubled with helmet noise.

Don Littleford

Helmet wind noise

The major problem with communications on a motorcycle, whether they are wired or wireless, is hearing.

There is some noise advantage in having your head inside a somewhat closed container fitting snugly around your head whilst you travel along at 100 kph.

One of the disadvantages is the noise generated by the helmet itself.

From half helmets, open face, through to full face helmets, they all have different volumes of generated noise depending whether you ride a cruiser, sport bike, chopper, have a windscreen or fairing, and the speed you travel at on the open road .

Quite a few helmet manufacturers have ranges of wind noise volumes specified in dBA at various riding speed.

There is a great variation in wind noise in helmets and it is the high frequency of the wind noise that tends to drown out the information received through the headset and with being able to understand speech.

A lot of helmets produce greater than 90dBA of noise at motorway speeds and this level of noise in your ears for a long period of time can be quite fatiguing and cause some potential damage on a long ride.

That is why earplugs are such a good idea when riding long distance as they reduce the high level noise fatigue.

Most headphones supplied with bike to bike systems (using UHF radio), are a small thin disc speaker and are usually placed in the recess that is provided in most helmets.

They do nothing to help reduce the wind noise from the helmet.

As wind noises increases with your bike speed, you have to run your intercom at extra loud volume to hear over the background noise.

This will be bad for your long term hearing viability, as the total sound level entering your ear (radio plus wind noise), can easily be up bordering on the permanent hearing damage level .

You must keep the sound level into your ears at a comfortable level.

After developing the successful headset (headphones, mic, PTT button), I thought of ways to easily and simply reduce the background noise even further, so I thought along the principle of the ear defenders or ear muffs with their *peripheral acoustic seal* and thought that something along that line will help improve received speech recognition and cut down on the fatigue producing wind noise.

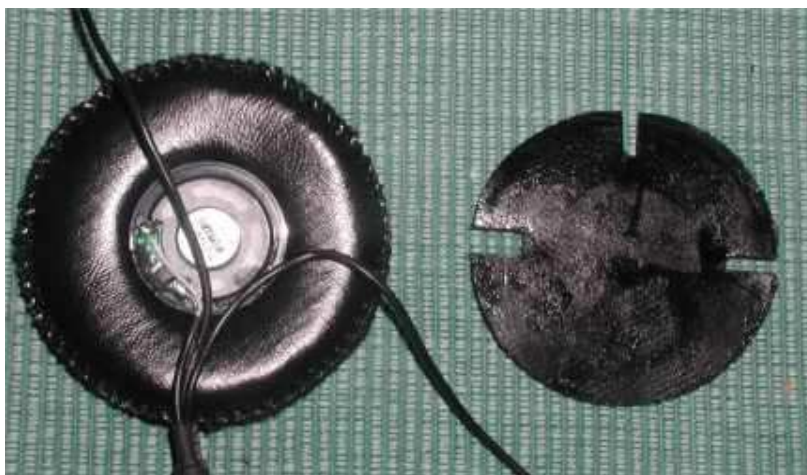
I saw the *soft cushions* around some computer headsets, obtained some, found they improved reception and cut down on background noise.

I tested many types of cushion, settled on one variation and purchased a few suitable ear cushions.

The ear cushions supplied with the headsets provided by PHS Ltd are an attempt to reduce the amount of extraneous noise entering the ear whilst riding and thus make it easier to hear music and understand speech.

The ear cushions provide a peripheral acoustic seal around the outer surface of the ear. The sound deadening material that the cushion is made from, serves to reduce the amount of high frequency noise reaching the ear from outside. The hole in the centre where the ear speaker is placed, is in the optimum position to provide more than enough volume to the wearer. We are attempting to increase the signal to noise ratio and thus improve intelligibility.

This is where the “in ear” canal type earphones that can be molded to fit inside the ear have a distinct advantage over most other systems as a close fitting earplug will block a huge amount of extraneous noise and render the received sound clearer . These are by far the best option but riders find them inconvenient to use.



The PHS supplied ear speakers are easy to peel apart.

Ear cushions have a flat smooth side with a peripheral cloth that can be folded back over the rear of the speaker, and a bulbous leatherette side that faces the ear.

The ear speaker fits inside the ear cushion, with its sound holes facing the wearer's ear.

The sticky sided Velcro hooked disk on the back of the speaker sticks to smooth surface of the ear cushion, thus holding the ear speaker inside the ear cushion and is able to stick to the "wool" lining inside the helmet.

It is important to make sure the ear cushions are placed correctly over the ear for maximum effect.

For added comfort you can run a *bead of adhesive* around the periphery of the ear speaker where it makes contact with the ear cushion.

This will stop the ear speaker eventually migrating through the hole in the centre and touching parts of your ear.

Some helmets are a very tight fit and you may not be able to make use of the ear cushions unless your helmet has recesses to accommodate the ear speakers.

If the ear cushions are a tight fit in your helmet, you will find that after a little while you will get sore ears because of the constant pressure.

The standard ear speakers with the original felt covers will be usable in just about any helmet as they are very thin. **It is important that any speaker be installed in the correct position inside the helmet.**

Ear speaker position :-

Place your helmet on and then once seated, grasp the helmet as though you are about to take it off.

Place your thumbs up inside the helmet and feel for the position of your ear canals with the tip of your thumbs.

Take your helmet off, but don't move your thumb position (you may have to do this one side at a time), and mark where your thumb tips are on the inside of the helmet.

This is the position for the centre of the installed ear speakers.

You will find that your ears aren't where you thought they are in the helmet.

You could find that the ear recess in your helmet could be above your ear.

It is in this recess where speakers are usually installed and this may not be the best position.

You may have to modify the cheek padding inside the helmet (a simple operation), to accommodate the lower position of the ear cushion so that it fits squarely over your ear.

This is essential if the cushions are to work properly.

By marking the position with your thumbs the speaker will align up with the ear canal and the ear cushion that forms a seal over the ear and will reduce the amount of extraneous helmet noise.

You can run your sound equipment at a lower level setting while protect your ears from long term damage.

For those who don't want to go down the bike to bike talk path, then a bit of fiddling with installing some ear cushions in the right position could make your ride more enjoyable.