

# Noise

## Audible reversing alarms: considerations for use

Reversing alarms are commonly fitted to plant and heavy vehicles across a wide range of industries. The noise made by these alarms falls into one of two categories: tonal and broadband.

**Tonal** reversing alarms or beepers ('beep-beep-beep') produce a noise consisting of a single frequency or note.

**Broadband** reversing alarms, sometimes called 'quackers' or 'croakers', produce a noise over a wide range of frequencies and make a 'pshh-pshh-pshh' sound.

### Why do tonal reversing alarms sometimes give rise to noise complaints?

Tonal alarms can be audible at a considerable distance from the work site because the tone 'sticks out' above the local background noise. This makes the noise from tonal alarms more annoying than from most other sources at the same level.

Noise complaints from nearby residents often arise from the intrusive noise of tonal reversing alarms operating on construction sites or industrial and commercial premises.

### Why are broadband alarms better?

Broadband alarms have a number of environmental and safety advantages over tonal alarms,<sup>1</sup> including:

#### Safety

- easier to identify where the sound is coming from
- a more uniform sound field, free of 'dead' spots behind the reversing vehicle
- easier to judge the direction of travel based on the sound alone
- easier to differentiate between multiple sources.

## Noise limits

- more likely to meet environmental noise limits as no tonal penalty is applied to measured levels (broadband alarms can operate closer to a receiver or at a higher noise level than tonal alarms).

## Noise complaints

- less likely to elicit complaints as the noise more easily blends into the background at locations away from the work site and the noise is free from annoying tones.

If you or your company operates in or near a community and relies on audible reversing alarms for safety, it would be appropriate to consider the use of broadband alarms.

Like any other safety device, a reversing alarm needs to be fitted, maintained and used in an adequate manner. Here are some points to consider:

- install alarm at the rear and as close to the centre of the vehicle as possible
- do not obstruct the sound path – if you can see the alarm, you will hear it too
- fit an alarm to trailers as well
- choose the appropriate output level of alarm for your specific condition – this may include self-adjustable ‘smart’ alarms
- if switching to a new alarm type, train workers to recognise the new alarm sound.

## What does the OSH legislation say?

Reversing is recognised as a dangerous activity on any site and appropriate controls need to be put in place to prevent injury or harm. Occupational Safety and Health legislation does not specifically require tonal reversing alarms, only a safe system of work.

Here are some points to consider for a safe reversing practice in order of priority:<sup>2</sup>

### Elimination

Remove the need for reversing by using drive-through pathways.

### Substitution

Use alternative means of carrying out the work that do not require the use of reversing vehicle(s).

### Isolation

Create exclusive ‘reversing’ areas. These could be areas cordoned off using barriers, tape, etc. Another possibility is to use spotters to prevent access near the rear of the vehicle at the time it is reversing.

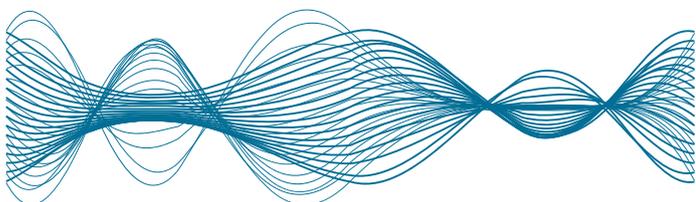
### Engineering controls

Install audio-visual devices in the vehicle(s) such as broadband alarms, flashing lights, proximity detection systems and reversing camera(s).

### Administrative controls

Implement measures to ensure safe movement procedures, instruction and training are provided.

In some cases a combination of control measures may be appropriate.



# What do the Environmental Noise Regulations say?

## Noise from reversing alarms is not specifically exempt under the Environmental Protection (Noise) Regulations 1997.

According to the Environmental Protection (Noise) Regulations 1997, r.3(1)(h), noise from a reversing alarm is only exempt if:

- the alarm is required under another written law; and
- it is not practicable to fit an alarm that complies with both the law which requires it and the Noise Regulations.

In Western Australia, there is no specific legislation requiring a reversing alarm to be fitted to a motor vehicle. As such there is no requirement specifying that audible reversing alarms must be tonal.

Audible alarms are a practical safety device that manufacturers and suppliers fit to mobile plant to reduce the risk of contact with other vehicles and pedestrians when reversing. It is one component of a safe system of work.

Where a tonal reversing alarm on a vehicle is likely to negatively impact on the community, the use of broadband alarms may assist in providing a solution.

Simply removing or disconnecting an alarm to reduce the impact on the community is not recommended and may put people at risk.

### Legislation

This document is provided for guidance only. It should not be relied upon to address every aspect of the relevant legislation. Please refer to the Department of Justice, Western Australian Legislation website at [legislation.wa.gov.au](http://legislation.wa.gov.au) for copies of the relevant legislation.

### References

- <sup>1</sup> Vaillancourt, V, Nélisse, H, Laroche, C, Giguère, C, Boutin, J, & Laferrière, P 2013, 'Comparison of sound propagation and perception of three types of backup alarms with regards to worker safety', *Noise & Health*, vol. 15, no. 67, pp. 420-436. Available from: [noiseandhealth.org/text.asp?2013/15/67/420/121249](http://noiseandhealth.org/text.asp?2013/15/67/420/121249).
- <sup>2</sup> Commission for Occupational Safety and Health 2006, *Guidance note - Safe movement of vehicles at workplaces*, Government of Western Australia. Available from: [commerce.wa.gov.au/sites/default/files/atoms/files/safe\\_movement\\_of\\_veh.pdf](http://commerce.wa.gov.au/sites/default/files/atoms/files/safe_movement_of_veh.pdf)

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For further information please contact

### WorkSafe

Department of Mines, Industry Regulations and Safety 1300 307 877 | [wscallcentre@dmirs.wa.gov.au](mailto:wscallcentre@dmirs.wa.gov.au)

### Environmental Noise Branch

Department of Water and Environmental Regulation (08) 6364 7000 | [info@dwer.wa.gov.au](mailto:info@dwer.wa.gov.au)