Clear communication is absolutely essential to creating a safe, productive, and effective work environment. This is especially true in towing and recovery, where crews often struggle to be heard over traffic and noisy equipment, in all kinds of weather, and often with limited visibility. In these situations, a missed warning or misunderstood instruction can have serious consequences.

Tragedy on the highway
According to the Bureau of Labor Statistics, 271 towing professionals lost their lives on the job between 2003 and 2011, and the actual figure is probably higher. In many of these cases, tragedy might have been avoided if the crews and supervisors had been able to communicate clearly with each other and provide verbal warnings in real time.

Safety specialist Gordon Dupont has devoted his career to investigating the root causes of accidents in the workplace. His famed “Dirty Dozen” list of human factor errors have been adopted as a model for occupational safety and health in industries ranging from aircraft maintenance to medicine. “Human factor errors” are mistakes in judgment and perception that, while unintentional, lead to accidents and injuries. Of the 12 human factor errors that Dupont cites, “lack of communication” is the number one mistake that causes accidents. Interruptions in communication can cause orders to be misinterpreted, improperly carried out, or completely missed. Simply put, if crew members do not — or cannot — exchange information, the stage is set for an accident to occur.
Recovery operations present a difficult problem: how to protect workers from noise-induced hearing loss while still allowing them to hear each other. In the past, towing and recovery professionals have had few choices for communicating on the job and even fewer choices for hearing protection. Earplugs protect hearing, but make it even harder to communicate. Communication typically takes place by shouting, hand signals, or two-way radios. Each of these “solutions” has serious drawbacks. Shouting can cause dangerous misunderstandings. Hand signals require line-of-sight visibility and can easily be misinterpreted. Two-way radios enable direct communication, but do nothing to protect hearing, and also require a free hand for operation. As a result, communication during recovery operations is often unreliable, haphazard, and ambiguous.

**Wireless communication headsets**

Recent advancements in technology provide a solution to this problem in the form of portable wireless headset systems (Figure 1). Wireless headsets reduce background noise and allow recovery crews to communicate clearly, even on opposite sides of an accident scene. Headsets fit completely over the ear for hearing protection and are outfitted with a boom microphone and ear speakers to allow hands-free voice transmission and reception through a mobile base station using a wireless signal. In more advanced systems, the local audio network itself can be connected to a two-way radio interface, allowing communication with remote users, such as a dispatch center or other tow trucks that are en route to the accident.

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**FIGURE 1**

Sonetics Four-Person Towing Communication System

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“For anyone who hasn’t had the opportunity to work with these [headsets] yet, you have no idea how much easier it is with on-scene communications. They are a time-saving and life-saving device.”

— Dale McLaughlin
Senior Operator and Team Leader
Rich’s Towing and Service
Cleveland, OH
Wireless Communication Headsets: The New Cornerstone of Safety in Towing and Recovery

Towing and recovery: Noisier than you think
Although towing is not necessarily the “noisiest” occupation, towing professionals are exposed to dangerous levels of noise every day and face a constant risk of noise-induced hearing loss. The National Institute for Occupational Safety and Health estimates that approximately 30 million American workers are exposed to hazardous levels of noise on the job. Towing professionals, as part of the “transportation” category, are especially at risk.1 According to a recent study by the Better Hearing Institute, people with untreated hearing loss lose as much as $30,000 in income annually – or approximately $176 billion in the aggregate.4

OSHA regulations require hearing protection when the time-weighted average noise exposure over an eight-hour period equals or exceeds 85 decibels.5 As shown in Table 1, the equipment used and the conditions encountered in the towing environment routinely exceed that level; hence, the need for hearing protection.

It is important to note that the decibel scale is logarithmic, ranging from 0 (lowest detectable sound) to 194 (loudest theoretically possible sound). Each increase of 10 decibels doubles the perceived volume of sound. Thus, an increase of 20 decibels will sound four times as loud; an increase of 30 decibels will sound eight times as loud, and so on. To put the scale into perspective, a ticking watch emits 20 decibels; normal conversation takes place at around 65 decibels; a passing motorcycle emits 100 decibels; a rock concert averages 120 decibels; and a gun blast from 100 feet away emits 140 decibels. The human pain threshold is typically around 110 decibels and sounds above 150 decibels (such as a jet engine) can puncture the eardrum. Most listeners can detect a substantial difference of even one decibel.

Clear team communication and hearing protection
Wireless communication headsets are the best practice for simultaneously protecting hearing and enabling communication in noisy environments. Headsets can reduce noise exposure by 20 to 30 decibels. They are a practical solution to reducing dangerous levels of background noise and allowing teams of almost any size to communicate clearly and effectively. Properly designed and configured, they also leave the wearer’s hands free and allow unrestricted movement around the work site.

Table 1
Common Noise Levels in Towing

<table>
<thead>
<tr>
<th>Equipment/Condition</th>
<th>Average dB level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air compressor</td>
<td>95a</td>
</tr>
<tr>
<td>Heavy equipment</td>
<td>90b</td>
</tr>
<tr>
<td>Impact wrench</td>
<td>100</td>
</tr>
<tr>
<td>Mobile crane</td>
<td>99b</td>
</tr>
<tr>
<td>Road construction</td>
<td>93c</td>
</tr>
<tr>
<td>Siren, Emergency vehicle</td>
<td>100d</td>
</tr>
<tr>
<td>Traffic, Freeway</td>
<td>65e</td>
</tr>
<tr>
<td>Traffic, Heavy</td>
<td>100f</td>
</tr>
<tr>
<td>Truck, 5 ton</td>
<td>73g</td>
</tr>
<tr>
<td>Truck, 20 ton</td>
<td>92g</td>
</tr>
</tbody>
</table>

2Sinclair and Hafldson
6Bragdon, C. R. (1971). Noise Pollution, the Unquiet Crisis, Univ. of Pennsylvania Press, Phila., PA.
“The headsets allowed our crew leader to step back and see the big picture during lifts. He was able to issue the all-clear signal and instantly know whether everyone was out of the danger zone. We believe these headsets will save someone’s life.”

— Patrick Majewski
Assistant Manager
Ted’s Towing
Baltimore, MD

**Wireless headsets on the job**

Patrick Majewski, assistant manager of Ted’s Towing in Baltimore, MD, knows how important communication headsets are in keeping his crews safe and productive on the job. On the evening of January 9, 2013, his company was dispatched to upright a tractor-trailer on Interstate 695, about 10 miles outside of Baltimore. The driver lost control of the vehicle and overturned across the median, shutting down lanes on both the inner and outer loops of the so-called “Baltimore Beltway.” As a result of the impact, the rig lay with its wheels and axles on one side of the median, and its tractor and trailer on the other. Ted’s Towing, state police, and local HAZMAT teams worked through the night into the wee hours of the morning. With the clock ticking down to what could have been a disastrous morning commute, the recovery team was finally able to right the rig and pull it out of harm’s way.

“This job was a perfect storm that tested our crew in every way,” Majewski said. “You have a tractor-trailer blocking almost every lane of the main thoroughfare in and out of Baltimore. It’s the middle of the night, the accident scene is crawling with state police and HAZMAT teams, and you have a few hours to try and prevent complete gridlock on the morning commute. Yeah, we were stressed.”

Although such accidents are nothing new to Ted’s Towing, this job presented many challenges. Majewski employed nine crew members to secure the rig and clear it out of the way. The recovery operation also required the use of two rotators, which emit ear-splitting noise during operation.

“Wireless headsets were a huge improvement over two-way radios,” Majewski said. “They allowed our crew leader to step back and see the big picture during lifts and moves. He was also able to issue the all-clear signal and instantly know whether everyone was out of the danger zone.”
Majewski also noted that the headsets greatly reduced the physical and mental stresses that accompany heavy recoveries. “These kinds of jobs are brutal,” Majewski said, alluding to the climbing, stooping, and shouting that are often necessary, “but the headsets eliminated most of that. They beat yelling and waving by a long shot.”

The accident on the Baltimore Beltway was the first incident in which Ted’s Towing used communication headsets. The system was “the best investment we ever made,” Majewski said. “We have used many different two-way radios in the past, including portable units with shoulder mics, and nothing compares to the headsets.”

Majewski is certain that all three of the company’s rotator trucks will be outfitted with wireless communication systems in the future. “I guarantee we’ll use them on every recovery, because the headsets give our crew leaders a voice,” said Majewski. “We believe our investment in these headsets will save someone’s life.”

How to choose a wireless headset system
Wireless headset systems are available in a wide variety of configurations and price ranges. To ensure a system meets your needs, consider the following factors carefully.

• **Is the system truly wireless?** A number of so-called “wireless” systems actually require a wire from the headset to a radio or belt pack, creating many of the same problems inherent in hardwired systems, particularly tangled cords. Moreover, belt packs generally have less transmission range than systems worn on the head.

• **How knowledgeable is the dealer and what kind of support and training does he or she receive from the manufacturer?** The dealer from whom you purchase your system is a critical link in ensuring the final solution meets your needs. Look at the dealer’s longevity and reputation in the industry and do not hesitate to ask for references.

• **Is the system DECT or Bluetooth?** DECT transmission technology generally offers up to 30 times the coverage area of Bluetooth and is less subject to interference in the 30MHz - 1.8GHz spectrum. Systems that employ Bluetooth generally have a limited range and are subject to interference from nearby communication devices, especially those operating on the 2.4 GHz or 5 GHz channels. DECT transmissions also have multipath capability, meaning that the signal will bounce up, over, and around objects in order to establish the best possible

“Just wanted to say ‘Thank You’ to Sonetics for a such a great product. We used them again today on a major accident and, as always, the headsets made us a safer, more professional, productive, and profitable team!”

— Tim Peck
Owner
Jim’s Towing
Monroe, MI
“DECT transmission technology generally offers up to 30 times the coverage area of Bluetooth and is less subject to interference. Systems that employ Bluetooth generally have a limited range and are subject to interference.”

connection. For enhanced security, DECT signals are digitally encoded to ensure privacy in the transmission of sensitive information.

- **Is the system full-duplex or half-duplex?** Half-duplex systems allow communication in both directions, but only one direction at a time, similar to a walkie-talkie. Once a party begins transmitting, all other transmissions are “locked out” until the first transmission is over. Full-duplex systems allow communication in both directions simultaneously, similar to a telephone call. Full-duplex capability is an important safety consideration because it allows the parties to speak and hear others at the same time.

- **Is the system radio-compatible?** Wireless systems should have the capability of interfacing with mobile radios to allow communication with remote users. Given the large number of radio makes and models available, look for a system with maximum interface flexibility.

- **Can the duplex capabilities be configured to your specific needs?** To minimize the chance of “cross-talk,” or multiple conversations taking place simultaneously, the system should allow you to establish a hierarchy of who can talk to whom — especially who is allowed to broadcast over the radio.

- **Is the system scalable?** As your needs expand, your wireless system should be able to expand with you. Advanced wireless systems should be able to accommodate up to 60 users.

- **Is the system comfortable to wear and easy to use?** Before purchasing, physically try on a headset. It should be lightweight and fit snugly, but comfortably, over the ears. If you are purchasing hard hat-compatible headsets, try one on while actually wearing a hard hat to ensure a comfortable fit. The controls should be readily accessible, preferably with a simple push-to-talk button or toggle-to-talk switch for accessing the radio.

- **What is the system’s Ingress Protection Rating?** The Ingress Protection Rating (IP), is an international standard that rates the degree of protection against the intrusion of solids and liquids into an electrical unit. A wireless headset should have a minimum rating of IP65 when worn. This indicates that the unit is completely impervious to dust and is capable of withstanding a stream of water for three minutes without damage to the interior components.

- **What is the range of the system?** The greater the range, the more effective the system will be for your application, since obstacles and vehicles may reduce range. Look for a minimum 1500-foot line-of-
sight transmission capability, bearing in mind that system performance may deteriorate at the outer limits of the range.

- **What is the Noise Reduction Rating?** Noise Reduction Rating (NRR) is the measurement, in decibels, of how well a hearing protector reduces noise. While wearing hearing protection, your exposure to noise is equal to the total noise level minus the NRR of the hearing protectors. If you were exposed to 95 decibels of noise but were wearing a headset with an NRR of 24, your actual noise exposure would be 71 decibels. Look for an NRR of at least 24.

- **What is the operating temperature range?** Extreme temperatures can affect battery life and headset operation. Look for an operating range of at least -30 to 140 degrees Fahrenheit.

- **Are all components necessary for operation included in the purchase price?** The price you pay should deliver a complete system that is ready for operation. Accessories such as battery chargers and charging cables should be included, not “added on” as options.

- **What about warranty and service?** Not all wireless headset systems are equally reliable and durable over the long term. Make sure the system is designed for use in your operating environment, ask about warranty, repair, and replacement policies, and try out the manufacturer’s technical support prior to making a decision. A two-year limited warranty is standard in the industry and some vendors provide extended plans of up to five years.

Wireless headset systems are a safe and convenient method of ensuring clear communication among towing professionals. Clear communication is an essential element in every team’s effectiveness and productivity; it could even save a life.

**References**


2 www.skybrary.aero/bookshelf/books/2038.pdf


Sonetics Corporation offers a complete line of team communication solutions for towing and other challenging environments.