

TG 175
Readiness
thru
Hearing
Conservation

A Guide for Unit Commanders and Supervisors

This technical guide (TG175) highlights those components that unit commanders and supervisors must recognize in order to fulfill installation hearing conservation program requirements. Included is information about personnel who can assist in supporting hearing conservation initiatives, as well as the responsibilities individuals have in protecting their hearing at the worksite.

INTRODUCTION

HAZARDOUS NOISE IS PART OF THE MILITARY ENVIRONMENT; therefore, good hearing cannot be taken for granted in the Army. Preservation of the ability to hear low level sounds or speech is essential to combat readiness. A soldier's unprotected hearing can be damaged permanently, even before completing basic training. The increased demand for weapon systems to possess greater speed, range and fire power compounds the problem with higher and more hazardous noise levels.

Hearing, as a precious learning and social sense for soldiers, is no less important among civilian personnel. Many bring existing hearing loss to the job which makes the preservation of their remaining hearing imperative.

Department of the Army Pamphlet (DA PAM) 40-501 provides guidance for implementing a comprehensive hearing conservation program at all Army facilities. The seven basic components of this program are:

1. Noise hazard identification
2. Engineering controls
3. Hearing protectors
4. Health education
5. Monitoring audiometry
6. Enforcement
7. Program evaluation

Why is protecting hearing so important?

- ▶ Hearing loss caused by loud noise becomes permanent and is not medically treatable.
- ▶ Impaired hearing can cause serious or fatal mistakes at work or during training and combat situations.
- ▶ Good hearing is critical to the success of the Army mission, both in offensive and defensive operations.

Offensive and Defensive Operations

- ▶ Localizing snipers
- ▶ Locating patrol members
- ▶ Determining the position, number and type of friendly or enemy vehicles
- ▶ Determining types of booby traps
- ▶ Hearing the activation of perimeter alarms
- ▶ Hearing enemy movement through leaves, grass and twigs
- ▶ Aiding in small arms accuracy, weapons identification and target acquisition
- ▶ Hearing radio messages and verbal orders

Remember:

- ▷ Two early signs of hearing loss may be ringing ears and speech sounding muffled.
- ▷ Speech and other important sounds have to be louder to be heard or understood.
- ▷ Some weapons are so loud that a single, unprotected exposure can cause severe hearing loss.

Noise-Exposed Personnel and You

- ▶ One good attitude promotes another. As a unit commander or supervisor, your attitude toward the hearing conservation program will directly impact your personnel. Therefore, be wise and view hearing conservation measures as mission essential.
- ▶ Communication is actually enhanced when hearing protection is worn in noise.
- ▶ When hearing protectors are properly worn during training, there is less of a tendency to flinch at the discharge of the weapon and the soldier shoots more accurately.

NOTE: Since most noise exposures occur during work or routine training, hearing loss is easily prevented! Your actions as a commander or supervisor can have a very dramatic and positive affect on your personnel and the success of this program. Without your support and endorsement, the hearing conservation program cannot succeed in preserving your subordinate's hearing.

Hearing Conservation Program Manager (HCPM)

Manages and coordinates all aspects of the program, per DA PAM 40-501.

Develops and staffs an SOP detailing the installation's program. From this, a unit commander or supervisor can prepare a unit SOP.

Provides preformed earplugs and carrying case to all noise-exposed personnel.

Ensures annual health education briefings are provided.

Ensures monitoring audiometry is performed.

Reports program participation, quality assurance and program effectiveness measures through command channels.

Reports significant threshold shift and OSHA reportable hearing loss information.

Conducts worksite visits to ensure HCP compliance.

Provides health education materials on request.

Installation Medical Authority (IMA)

Appoints the HCPM, usually an audiologist or occupational health nurse, where available.

Notifies you about personnel who sustain a permanent hearing loss.

Safety Manager

Conducts inspections to identify potential worksite noise hazards.

Provides the results of each inspection to the IHPM and the HCPM.

Civilian Personnel Operations Center

Coordinates with the industrial hygiene program manager to identify noise-hazardous positions.

Includes in noise-hazardous job descriptions the requirement for wearing protective equipment and participating in medical surveillance.

Informs the IMA, the HCPM and the safety manager of all workers' compensation claims for hearing loss.

Industrial Hygiene Program Manager (IHPM)

Performs an initial evaluation of noise-hazardous areas and equipment identified by the safety officer.

Surveys noise-hazardous areas and equipment within 30 days of any change in operation.

Establishes appropriate noise contours and helps in the posting of these contours.

Provides names of ototoxic- and noise-exposed personnel and the nature of their exposures.

Establishes a time-weighted average noise level for all civilian and military personnel working in noise-hazardous and industrial areas.

Provides noise exposure information on request.

Director of Installation Operations

Fabricates, posts and maintains noise-hazard caution and danger signs.

Provides guidance for appropriate engineering control measures.

* Designation of individual duties and responsibilities is a command prerogative.

NOISE HAZARD IDENTIFICATION AND ENGINEERING CONTROLS

- ▶ Post DA Poster 40-501A (OSHA Occupational Noise Exposure Standard and Hearing Conservation Amendment) in all noise-hazardous areas. It outlines the requirements of Title 29, Code of Federal Regulations, Section 1910.95.
- ▶ Post all noise-hazardous areas, equipment and vehicles with appropriate hearing protection signs and decals. Decals can be purchased from Graphic Arts, U.S. Disciplinary Barracks, Fort Leavenworth, KS. Contact information: DSN 552-3894 or COMM (913) 758-3894; FAX COMM (913) 758-3927; email Karen.Rich@us.army.mil.
- ▶ Maintain equipment in good working order and, if necessary, isolate the impact of equipment in order to reduce noise levels at the source and to eliminate any harmful health effects.
- ▶ Buy equipment that offers safe noise limits when economically and technologically feasible (e.g., Tactical Quiet Generator).

HEARING PROTECTORS

- ▶ All personnel working in noise-hazardous areas must have hearing protectors with them at all times and use them, when appropriate.
- ▶ Available hearing protectors include preformed earplugs, noise muffs, ear canal caps, noise-attenuating helmets, as well as musician or custom earplugs. Hearing protectors can also be worn in combination (e.g., earplugs with noise muffs or noise attenuating helmet).
- ▶ Preformed earplugs, once fitted, need to be rechecked annually for appropriate size and any signs of deterioration. In some cases, individuals may require earplugs of a different size or type for each ear.
- ▶ Helmets and noise muffs need to be rechecked at least semi-annually for appropriate use.
- ▶ Additional information on hearing protectors (In Your Ears and Over Your Ears) is summarized on pages 6 and 7 of this guide.
- ▶ All personnel must deploy with a pair of fitted hearing protectors.

HEALTH EDUCATION

- ▶ Health education information must be presented annually to all noise-exposed personnel.
- ▶ There is a variety of government or commercially available videotapes, pamphlets, and posters for health education training. All are designed to inform noise-exposed personnel about preventing hearing loss.
- ▶ Army videotapes/DVD include:
 - ▷ The Hearing Video (limited availability through USACHPPM) - for all personnel
 - ▷ Sounds of Combat (TVT 8-170; PIN No. 707370DA) - for military personnel
 - ▷ Hearing Protection (TVT 20-878; PIN No. 708562DA) - for all personnel

MONITORING AUDIOMETRY

- ▶ All personnel who work in noise-hazardous areas with a time-weighted average (TWA) of 85 dBA or greater or exposure to impulse noise of 140 dBp or higher need an annual hearing check.
- ▶ Monitoring audiometry detects changes in hearing sensitivity before the loss becomes a communication handicap. Coordinate with the Hearing Conservation Program Manager to schedule all hearing tests.
 - ▷ Reference (Baseline)
 - ▷ 90-Day
 - ▷ Annual
 - ▷ Follow-up(s)
 - ▷ Termination
 - ▷ Other (Pre-deployment and Post-deployment)
- ▶ All soldiers, regardless of work environment, must receive reference and termination audiograms. The reference serves as the baseline from which any future change in hearing is compared.
- ▶ A Reference audiogram (DD 2215) is a medical readiness requirement.

ENFORCEMENT

- ▶ As a unit commander or supervisor of noise-exposed personnel, your endorsement and active support of the installation commander's policies on hearing conservation are invaluable to the implementation and ongoing success of the program.
- ▶ Your specific responsibilities are to:
 - ▷ Enforce the use of hearing protectors.
 - ▷ Ensure that personnel report for all scheduled medical examinations.
 - ▷ Investigate and, when necessary, discipline those employees who fail to comply with command hearing conservation program guidelines.

PROGRAM EVALUATION

- ▶ The installation Hearing Conservation Program Manager has the capability and responsibility to evaluate program participation, quality assurance and program effectiveness.
- ▶ Reports are provided at least annually to the Installation Medical Authority for the review and action of the Installation Commander.

Triple-Flange Earplugs¹

- ▶ Available in three sizes.
- ▶ Fit most people.
- ▶ Insert with the carrying case lid (stem holder).
- ▶ Wear with the stem and third (last) flange sealing the ear canal opening.
- ▶ Test for fit by gently pulling on the stem for tension; your voice should sound low in pitch.

**Quad-Flange Earplugs¹**

- ▶ Available in one-size-fits-many.
- ▶ Wear with the stem and fourth (last) flange sealing the ear canal opening.
- ▶ Test for fit by gently pulling on the stem for tension; your voice should sound low in pitch.

**Foam Earplugs**

- ▶ One size fits most.
- ▶ Do not use where dirt or chemicals can transfer from your hands to the plug.
- ▶ Roll and compress the plug to a size smaller than the ear canal.
- ▶ Insert the plug into the ear canal; hold in place with your fingertip until the plug expands.
- ▶ Alternately cover and uncover your ears with tightly pressed hands to test for fit.

**Combat Arms Earplugs - Double Ended**

- ▶ Available in one-size-fits-many.
- ▶ When the yellow portion is inserted into the ear canal, it is a non-linear device that aids in speech communication and detection of environmental sounds of concern or alarm in the presence of impulse noise (e.g., gunfire).
- ▶ In steady-state noise, insert the olive portion into the ear canal.

**Combat Arms Earplugs - Single Ended**

- ▶ Available in one-size-fits-many.
- ▶ It functions like its double-ended counterpart for impulse noise (e.g., gunfire).
- ▶ However, this earplug provides no protection in steady-state noise!

**Pod Foam Earplugs**

- ▶ One size fits most.
- ▶ Mold or form the foam before inserting.
- ▶ Do not use in steady-state (continuous) noise that exceeds 95 dBA.



Musician and Custom Earplugs¹

- ▶ Designed for musicians or other special need users.
- ▶ Special filters attenuate the sound and provide an equal level of protection at most frequencies.
- ▶ Some are custom molded, requiring earmold impressions.



HEARING PROTECTORS

OVER YOUR EARS...

Noise Muffs²

- ▶ Easy on, easy off.
- ▶ Good for intermittent noise exposure.
- ▶ Adjust headband for a snug fit.
- ▶ Both earcups must be in complete contact with the head; maintain soft and compliant earcup seals.
- ▶ Acoustic foam inserts must be in proper condition.
- ▶ Wear headband over or behind your head or under your chin.
- ▶ Do not alter noise muffs in any way.



Ear Canal Caps

- ▶ Good for short or intermittent use.
- ▶ Good to use when muffs or plugs are inappropriate or unavailable.
- ▶ Adjust headband to your head size.
- ▶ Grasp each cap and work into ear canal until sealed. If caps are marked with “R” or “L”, make sure caps are in the correct ear.
- ▶ Do not use when noise levels exceed 95 dBA.



Helmets^{2, 3}

- ▶ HGU-56/P Aviation Helmet - When properly fitted and used with the Communications Earplug (CEP), provides hearing protection and a high quality speech signal for improved speech intelligibility to the aviator and crew members.
- ▶ DH-133A Combat Vehicle Crewman Helmet - When properly fitted and used with the Communication Enhancement and Protective System (CEPS), communication capability for the dismounted infantry is enhanced, battle sounds can be localized and the soldier's hearing is protected from both steady-state or impulse noises.



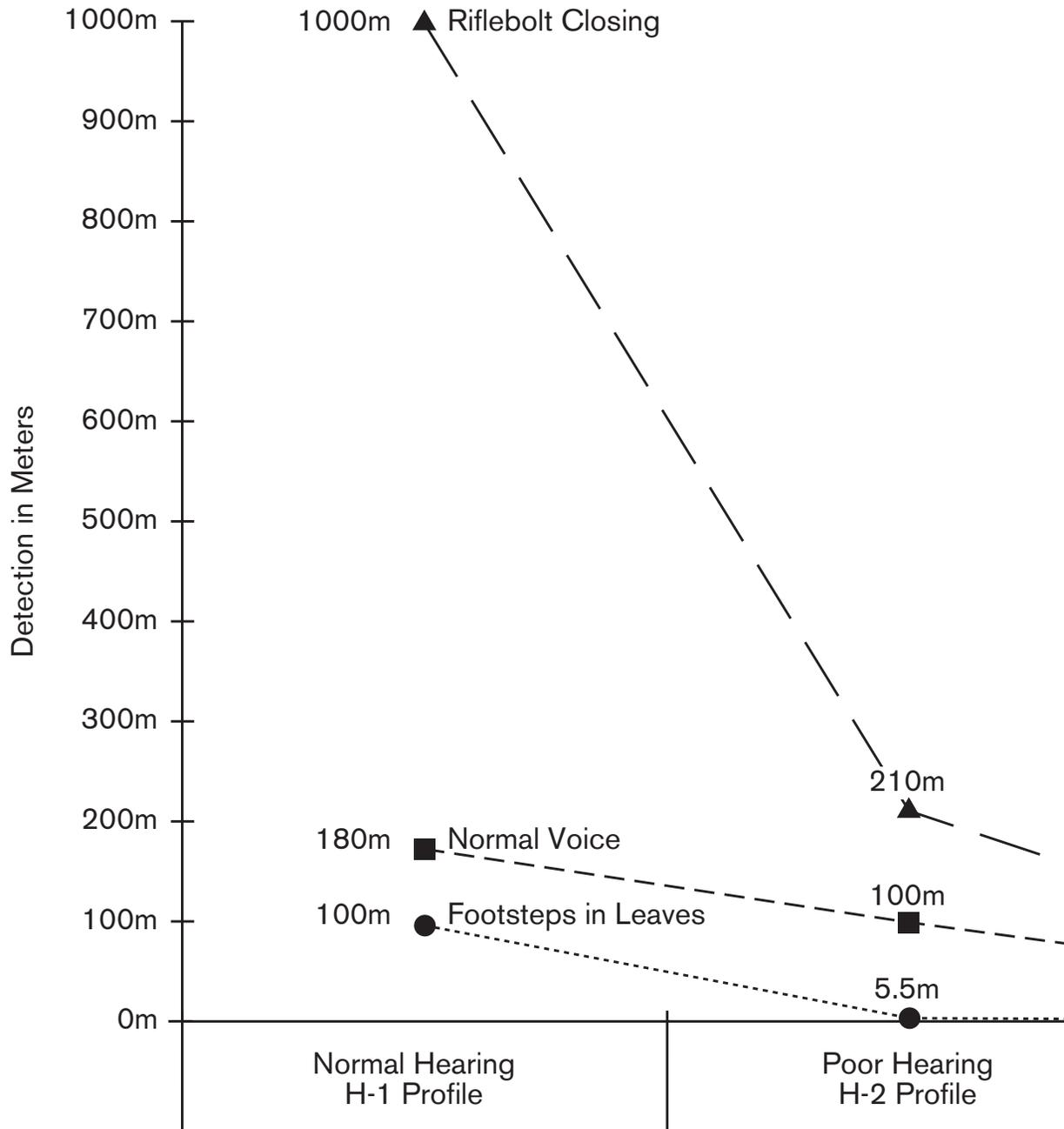
NOTE: Some national stock numbers (NSN) for hearing protectors and replacement information for noise muffs (earcup seals) are listed in DA PAM 40-501.

¹Sized earplugs must be fitted under medical supervision.

²Can usually be worn in combination with selected earplugs for additional hearing protection, when appropriate noise levels are present.

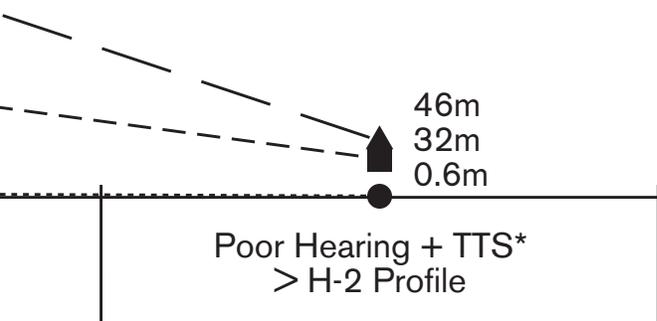
³The PASGT helmet provides no noise protection.

DETECTION OF SOUND BY HEARING ABILITY



Price et al. '89

Detection distance decreases rapidly as hearing loss increases.



*TTS—Temporary Threshold Shift

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Local reproduction is authorized and encouraged.

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