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Medical Services
FORT SILL ARMY HEARING PROGRAM

Summary. This regulation prescribes policies, responsibilities, and procedures for implementing the U.S. Army Hearing Program (AHP) at Fort Sill in accordance with (IAW) references located at Appendix A.

Applicability. This policy and guidance prescribed by this regulation applies to all Fort Sill units and personnel, tenant units, and personnel living and working at Fort Sill and, as appropriate, to supported and serviced units in the area immediately surrounding Fort Sill.

Supplementation. Supplementation of this regulation is prohibited without prior approval from Resource Management Division, Reynolds Army Community Hospital (RACH), U.S. Army Medical Command, 4301 Wilson Street, Fort Sill, OK 73503.

Suggested Improvements. The proponent for this regulation is RACH. Users are invited to send comments and suggested improvements at (580) 558-2235 or through the RACH website.

Distribution. This regulation is distributed through the Directorate of Human Resources, Administrative Services Division Homepage at <http://sill-www.army.mil/USAG/publications.html>

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Chapter 1 Introduction

1-1. Purpose. This regulation provides guidance and requirements for implementing the AHP at Fort Sill while incorporating additional initiatives which have a direct and positive impact on program effectiveness.

1-2. Applicability. This regulation applies to all Fort Sill units and personnel, tenant units, and personnel living and working at Fort Sill; and, as appropriate, to supported and serviced units in the area immediately surrounding Fort Sill.

1-3. References. Listed in Appendix A.

1-4. General.

a. Army Hearing Program: The AHP represents leadership policies, strategies, and processes to prevent noise induced hearing loss among military and Department of Defense (DOD) Civilian personnel. The hearing program has four major components: Hearing Readiness, Clinical Hearing Services, Operational Hearing Services, and Hearing Conservation. Good hearing enables a Soldier and/or Civilian employee to

maintain critical situational awareness and effective verbal communication in any environment (i.e. garrison, industrial, training, operational, and combat missions). This is accomplished by preventing both temporary and permanent hearing loss and improving communication in noise (signal-to-noise or S/N ratio). Civilian personnel will be enrolled in a comprehensive hearing conservation program (HCP) when occupational duties require exposure to hazardous noise or suspected ototoxins (ear poisons). Department of the Army (DA) Pamphlet (Pam) 40-501, provides definitions of hazardous exposures. Appendix C provides examples of typical exposures that meet the criteria for enrollment in a comprehensive HCP. All Soldiers, due to military training requirements known to be noise hazardous, are automatically enrolled in the HCP and provided additional services through the AHP.

b. Hearing loss degrades training success, combat readiness, and mission effectiveness. On today's advanced technology battlefield, Soldiers must be prepared to communicate effectively and perform optimally, which requires essentially normal hearing sensitivity. Good hearing is a proven combat multiplier, preserving the lethality and survivability of the War Fighter.

c. Noise-induced hearing loss is one of the most prevalent injuries among military and Civilian personnel, representing a significant portion of the annual cost for service-connected disability compensation. Hearing loss and/or its associated symptoms (i.e.; tinnitus) result in permanent disability, which in most cases is preventable. It is imperative that emphasis on hearing conservation and preventive measures be maintained. The primary goal of the U.S. Army Medical Department is force health protection. Hearing loss prevention is consistent with the goal to prevent or eliminate disease and non-battle related injuries.

d. Nuisance noise is defined as any unwanted sound that interferes with communication or the ability to achieve restful sleep periods. It capitalizes on the non-auditory effects of noise, creating stress and fatigue in dangerous combinations for Soldiers and Civilians. Acceptable noise levels are task-specific, for example, the amount of tolerable ambient noise is greater for a tactical operations center (TOC) than for a sleep tent. The presence of unwanted or intrusive noise has been heavily researched and the resulting insights can assist in short and long-term care of the deployed and garrison-based Soldiers (all ranks) and Civilians. Preservation of communication ease, including face-to-face briefings or radio communications, *significantly reduces stress levels and increases the operating efficiency* of all personnel. In addition, *sufficient sleep cycles* in the rest areas increases the immune system's ability to fight disease, sustains keen perception ability, and preserves higher mental abilities and motor skills. In essence, an alert, combat-ready Soldier is restored. Finally, nuisance noise common to the garrison community potentially interferes with hearing warning sirens or emergency signals, potentially jeopardizing the safety of all installation personnel.

e. The essential elements of the Fort Sill AHP are listed below with general details provided in DA Pam 40-501, chapters 4-9; FM 4-02.17, Preventive Medicine

Services, the Glossary; and ST 4.02-501, AHP. Procedures and services pertaining specifically to Fort Sill are provided in the following paragraphs:

- (1) Noise Hazard Identification (Chapter 3)
- (2) Engineering Controls (Chapter 4)
- (3) Hearing Protectors (Chapter 5)
- (4) Hearing Readiness & Monitoring Audiometry (Chapter 6)
- (5) Health Education (Chapter 7)
- (6) Enforcement (Chapter 8)
- (7) Program Evaluation (Chapter 9)
- (8) Operational Hearing Services (Chapter 10)
- (9) Garrison Nuisance Noise (Chapter 11)

f. Additional AHP Services available to installation units are outlined in paragraph 15 with contact information provided.

Chapter 2 Responsibilities and Implementation

2-1. The Installation Commander, Fort Sill.

- a. Meets the requirements of Army Regulation (AR) 40-5, AR 385-10 and Fort Sill Regulation 385-10.
- b. Issues a command emphasis letter endorsing the AHP at Fort Sill.
- c. Includes the Fort Sill AHP as an item of interest for the installation inspection program.
- d. Publishes an installation regulation detailing the AHP.

2-2. The Installation Medical Authority.

- a. Facilitates medical surveillance and provides staffing oversight for hearing services afforded to all military and identified Civilians exposed to hazardous noise IAW AR 40-5, DA Pam 40-501 and ST 4.02-501.

b. Appoints on orders a military audiologist to act as the AHP Manager (AHPM) for Fort Sill, with tasks outlined in section c.

c. Appoints an individual to act as the Industrial Hygiene Program Manager (IHPM) with responsibilities outlined in section d.

2-3. The Army Hearing Program Manager (AHPM). The AHPM manages and coordinates all aspects of the Hearing Program outlined in this regulation for Fort Sill. These responsibilities include:

a. Supervision of staff providing hearing examinations (monitoring audiometry) services at least annually (to include pre- and post-deployment evaluations) for all noise-exposed personnel. Uses authorized Defense Occupational Environmental Health and Readiness System-Hearing Conservation (DOEHRS-HC) audiometric instruments, computers, and guidance IAW DA Pam 40-501 Chapter 3.

b. Ensures audiometric testing records are maintained using authorized Department of Defense (DD) Form(s) 2215 and 2216, which are generated by DOEHRS-HC system. Ensures that all audiometric records are included in the medical record per AR 40-66.

c. Ensures notification of appropriate personnel (commanders, Civilian supervisors, safety and occupational health managers) when an individual has sustained a positive significant threshold shift (STS) or permanent hearing loss that may endanger the individual and others. Notification can include the need for STS follow up, a diagnostic evaluation, a DA 3349 profile form (with appropriate recommendations for maximum remediation of risks), and/or a written confirmation of a permanent hearing shift.

d. Provides operational hearing education at least annually for all noise-exposed personnel, to include IET, Advanced Individual Training (AIT), and critical leadership courses (specifically, the Company Commander/First Sergeant Course, the Drill Sergeant Course, the Pre-Command Course, and the AIT Platoon Sergeant Course).

e. Provides hearing program training for installation-directed courses, to include (but not limited to) the Safety and Field Sanitation Team (FST) Certification Courses.

f. Ensures that medically certified personnel fit noise-exposed individuals with approved earplugs, and ensures that the condition and fit of earplugs are examined at least annually.

g. Conducts unannounced inspections of noise-hazardous areas, including ranges.

h. Conducts noise surveys in field training environments (TOC, rest and common areas), training Soldiers to understand the non-auditory effects of nuisance noise and to utilize effective noise abatement strategies.

i. Reports program participation and quality assurance thru Chief, Preventive Medicine, to the Installation Medical Authority at least annually.

j. Provides training, guidance, and technical support for unit-appointed Hearing Conservation Officers\Non-commissioned Officers (HCOs) in their appointed responsibilities (outlined in section h) for managing their unit hearing programs.

k. Provides training for unit medical assets or support personnel in obtaining national certification as Army hearing technicians. Training requirements must meet standards of the Council for Accreditation in Occupational Hearing Conservation (CAOHC). These individuals will serve as the unit or school's subject matter expert on hearing conservation and support the unit with annual hearing readiness and operational requirements.

l. Provides courses for battalion and company school-level HCOs on a regular basis, instructing Soldiers in the requirements and procedures for maintaining/monitoring unit hearing readiness, proper use of hearing protection for training and deployments, nuisance noise abatement strategies, and methods for prevention of acoustic trauma while maintaining critical communication ability. Additionally, this course will cover all aspects of the hearing portion of the installation inspection program.

m. Upon request, embeds with installation units during field and range exercises to determine practical solutions for difficult hearing protection and communication requirements, using various equipment combinations and strategies.

n. Oversees AHP section staff participation in the installation inspection programs, maintaining relevant checklists, supporting documents and consistent review procedures for installation units and schools. Simultaneously assists unit personnel with achieving installation standards for operational and hearing readiness requirements.

o. Coordinates with the Installation Compensation Program Administrator (ICPA) to review claims for occupational hearing loss. Provides consultation and submits written comments through the ICPA to the Department of Labor.

2-4. Industrial Hygiene Program Manager (IHPM).

a. Performs survey of all known and suspected noise-hazardous areas and equipment and ototoxic exposures, and repeats survey within 30 days of any reported changes in equipment or work-site operation using approved and calibrated equipment.

b. Maintains current inventory of all noise-hazardous areas using DD Form 2214 or 2214C.

c. Identifies noise and ototoxic-exposed personnel, and the magnitude of their noise exposure. Provides a survey report with pertinent recommendations for appropriate personnel (commanders, supervisors and safety managers) following initial evaluations, re-evaluations or upon request).

d. Provides the AHPM with the number of noise-exposed and ototoxic-exposed Civilian personnel for the specific calendar year on an annual basis. This is required to determine AHP participation rates.

2-5. Chief, Occupational Health (OH)

a. Coordinates with the IHPM and AHPM to identify and maintain a database of all DOD Civilians that are exposed to ototoxins and high intensity noise for the HCP.

b. Schedules and performs placement, periodic and termination audiometric evaluations on DOD Civilian personnel exposed to hazardous noise.

c. Provides appropriately trained personnel to fit DOD Civilians with proper size or types of hearing protective devices.

d. Provides appropriately trained personnel to incorporate hearing loss prevention education classes in conjunction with ongoing health education as required to promote individual understanding of hearing loss prevention for HCP enrollees.

e. Ensures that preformed earplugs and all other hearing protective devices are checked on an annual basis for any signs of deterioration.

f. Refers DOD Civilians for further testing and evaluation as appropriate.

2-6. Installation Safety Program Manager (per AR 385-10, FS Regulation 385-10).

a. Evaluates hearing loss prevention requirement compliance during standard Army Safety and Occupational Health Inspections.

b. Records and monitors incidence of Occupational Safety & Health Administration (OSHA) Reportable Hearing Loss as occupational illness (repetitive trauma) or as a one time acoustic trauma on the OSHA log of injury and illness, except OSHA reportable hearing lost directly contributed to combat.

c. Coordinates safety issues related to hearing loss prevention.

d. Ensures AHPM is a member of the Fort Sill Safety and Occupational Health Advisory Council.

2-7. Commanders, Directors and Supervisors of Noise-Exposed Personnel.

a. Appoints on orders an individual (officer, non-commissioned officer, or Civilian staff) to act as the unit Hearing Conservation/Hearing Program Officer (HCO/HPO) as his/her primary appointed duty, to manage the unit hearing program with responsibilities outlined in section i. Ensures HCO/HPO completes installation-required training for hearing conservation activities.

b. Endorses the Commanding General's policy letter for the Fort Sill AHP and stresses the importance of preventive measures with a unit-level hearing conservation emphasis letter and a unit standard operating procedures (SOP) detailing the hearing program.

c. Posts and maintain noise hazard danger and caution signs and decals for all identified areas and equipment IAW AR 420-70 and the Safety Color Code Markings, Signs and Tags Information Guide.

d. Enforces the mandatory use of hearing protectors for all personnel when around noise hazard areas and takes disciplinary action as appropriate for non-compliance. Requires all Soldiers and noise-exposed personnel to maintain earplugs and the earplug carrying case as an item of individual equipment. Permanent party Soldiers (i.e. any Soldier or Cadre member who is permanently assigned to Fort Sill, including TRADOC and FORSCOM units), if routinely exposed to excessive noise, will wear the earplugs and earplug carrying case as part of the Army combat uniform (ACU), either on the Soldier's front right belt loop of the ACU trousers, on the Soldier's top right row of loops on the flack vest or in the left arm pocket of the Nomex coverall. IET, AIT and Basic Officer Leadership Course (BOLC) Soldiers will carry their earplugs and earplug case in the left arm pocket of the ACU top at all times to prevent loss during training/corrective exercises.

e. Consults with the AHPM for noise-hazardous missions requiring preservation of critical communication ability using tactical communication and protective systems (TCAPS). Ensures Soldiers are adequately trained with nonlinear systems as required.

f. Ensures medical threat briefings provided prior to unit deployments include noise hazard descriptions and preventive measures (i.e.; hearing protection and noise abatement strategies) for troops.

g. Coordinates with the IHPM to properly identify noise-hazardous personnel, areas, and positions for annotation on job descriptions when appropriate. Ensures that annotated job descriptions include requirement to wear personal protective equipment, for example, hearing protectors and noise-survey dosimeters when requested, and to report for scheduled medical examinations as required.

2-8. Commanders, Commandants and Leadership for IET and Military Courses (i.e. AIT, BOLC, etc.).

- a. Endorses the Commanding General's policy/emphasis letter for the Fort Sill AHP and stresses the importance of preventive measures with an HCO/HPO hearing conservation emphasis letter.
- b. Ensures training requirements for course itinerary includes operational hearing education class that describes the risks of noise to hearing, mitigation strategies for hearing loss prevention, the proper use and fit of hearing protection, and an introduction to tactical communication and preventive devices. Course instruction can be coordinated through the HPM to provide subject matter experts for instruction.
- c. Enforces the mandatory use of hearing protectors for all Soldiers and Cadre when around noise hazard areas (i.e. weapons firing, tactical vehicles and motor pools, simulated training exercises [including when firing blanks and/or simulating IED explosions], generators, etc.) and takes disciplinary action as appropriate for non-compliance. Requires all Soldiers and Cadre to maintain earplugs and the earplug carrying case as an item of individual equipment. Permanent party Soldiers and Cadre (i.e. any Soldier or Cadre member who is permanently assigned to Fort Sill, including TRADOC and FORSCOM units), if routinely exposed to excessive noise, will wear the earplugs and earplug carrying case as part of the ACU, either on the Soldier's front right belt loop of the ACU trousers or on the Soldier's top right row of loops on the flack vest or in the left arm pocket of the Nomex coverall. All Soldiers in training at Fort Sill (i.e. all IET, AIT, BOLC, etc.) will carry their earplugs and earplug case in the left arm pocket of the ACU top at all times to prevent loss during training/corrective exercises.
- d. Ensures IET Soldiers receive their in-processing hearing readiness evaluation and earplug fitting/briefing prior to shipping for basic training. Ensures Soldiers identified with hearing loss are returned to the RACH Audiology Clinic for diagnostic evaluation as scheduled prior to shipping for basic training.

2-9. Unit Hearing Conservation Officers\Hearing Program Officers (HCO/HPOs) [permanent party units only].

- a. Contacts the AHPM for guidance and technical support for implementing a comprehensive hearing program for the unit. Contacts the AHPM, or RACH/Fort Sill Hearing Conservation Coordinator (HCC), for educational resources, tools and documents.
- b. Ensures unit compliance for the AHP section of all installation inspection programs. Maintains the unit Hearing Program binder, which includes copies of all pertinent regulations, unit education records, and unit hearing readiness tracking records.

c. Coordinates and schedules annual, pre- and post-deployment hearing examinations for all Soldiers and noise-exposed personnel (may schedule entire unit if appropriate) by contacting the AHP section personnel located at the RACH, Audiology Section. Scheduling phone number is (580) 558-2235.

d. Ensures hearing examinations are provided using the authorized Defense Occupational and Environmental Health Readiness System - Hearing Conservation (DOEHRS-HC) audiometer equipment. Ensures appropriate DD Form 2215 and 2216 hearing test records are maintained in the individual's medical records.

e. May utilize appropriately trained individuals within the unit who are certified by CAOHC as Army hearing technicians to assist with unit hearing examinations. Contacts the AHPM, or Fort Sill HCC, for technician certification course schedules.

f. Ensures all in-processing personnel receive a hearing examination, to include hearing protection check, fit and initial installation hearing health education.

g. Maintains tracking system through the Medical Protection System (MEDPROS) for monitoring the Hearing Readiness Classification (HRC) of unit personnel. Reports unit compliance and hearing readiness rates to unit commander. Ensures Class 4 Soldiers complete required DOEHRS-HC hearing tests and Class 3 Soldiers complete diagnostic evaluations with an installation audiologist in a timely manner.

h. Ensures all Soldiers and noise-exposed personnel receive operational hearing education at least annually and maintains training roster as documentation. Coordinates with AHPM, or Fort Sill HCC, for health education course.

i. Provides input to deployment medical threat briefings, and/or to preventive medicine assets, in regards to noise hazards, hearing protection, communication enhancement, and noise abatement strategies relevant to the projected threat of the intended theater of operations.

j. Requisitions and maintains an adequate supply of approved hearing protectors, including helmets, noise muffs, or preformed (triple-flange, quad-flange or combat arms types) earplugs in preparation for training exercises and deployments. Earplugs requisition information is provided in DA Pam 40-501, tables 7-3 through 7-5, or in Appendix D.

k. Must maintain an adequate supply of approved hand-formed earplugs (i.e. EAR yellow earplugs) for visitors or personnel not possessing preformed earplugs.

l. Ensures that approved earplugs are selected and fit by an Army hearing technician or medically certified personnel. Ensures these earplugs are examined at least annually to ensure proper fit and condition. Coordinate with AHPM or Fort Sill HCC for earplug fitting training.

m. Ensures aviation or combat vehicle crewman (CVC) type helmets and noise muffs are examined for proper fit and condition at least semi-annually.

n. May obtain noise muffs through commercial sources as well as through the Federal Supply System.

o. Ensures approved earplugs carrying case is provided, free of charge, to personnel exposed to noise hazards. Ensures appropriate wear of earplugs and earplug case by unit Soldiers. (See Appendix D for order information)

p. Prepares a unit SOP detailing AHP implementations at unit level. Reviews unit range SOP for inclusion of hearing loss prevention procedures. Contacts AHPM, or Fort Sill HCC, for assistance with preparing a unit SOP.

2-10. Soldiers and Noise-Exposed Personnel.

a. Reports for in-/out-processing, pre-/post-deployment, and annual hearing examinations.

b. Maintains a pair of preformed earplugs and an earplug carrying case as an item of personal protective equipment, and keeps earplugs and carrying case in their possession as part of their uniform or load bearing vest as directed.

c. Correctly wears approved and properly fitted hearing protectors when exposed to hazardous noise (i.e. weapons firing, tactical vehicles, simulated training exercises [including when firing blanks], motorcycles, motorboats, power tools, MOUT, etc.).

d. Reports for operational hearing education at least annually.

e. Immediately reports suspected hearing loss following weapons firing or exposure to blasts/explosions in the combat or training environment to their supervisor for appropriate medical attention.

Chapter 3

Noise Hazard Identification

3-1. As a Part of the Industrial Hygiene Program, the IHPM Will:

a. Conduct noise surveys of all suspected noise-hazardous areas, vehicles, and equipment at least once and within 30 days of any change in operations.

b. Determine the time weighted average (TWA) for all Department of Defense (DOD) Civilian employees routinely working in hazardous noise areas and military personnel working in hazardous noise industrial-type operations at least once and within 30 days of any change in operations affecting noise levels.

c. Supervise and ensure industrial hygiene staff completes visits to each potentially noise-hazardous area at least once a year to fulfill requirements of AR 385-10.

3-2. Industrial hygiene technicians or personnel trained in the use of noise measurement equipment:

a. Will perform noise surveys as required. Details for survey equipment and calibration guidelines are outlined in DA Pam 40-501, para 7-5.

b. Noise surveys will be completed and documented using the DOEHRS-HC DD Form 2214 and/or DD form 2214C to identify hazardous noise survey results. Reports will be distributed and maintained IAW DA Pam 40-501, 3-2(d).

3-3. Military and DOD Civilian personnel may request a noise survey any time potentially noise-hazardous equipment is purchased or following any change in operations. In addition, previous noise survey records for specific locations can be requested. Record and survey requests can be directed to the IHPM at (580) 442-8791, or by reporting to the Department of Preventive Medicine, Reynolds Army Community Hospital (RACH), Fort Sill, OK.

3-4. Posting.

a. The unit commander or supervisor ensures that danger\caution signs and decals are posted at entrances to, on the periphery of, and on noise-hazardous equipment and vehicles in accordance with the Safety Color Code Markings, Signs and Tags Information Guide. The U.S. Army Safety Center published the Safety Color Code Markings, Signs, and Tags Information Guide in February 1994. The guide provides general information and a list of references for specific commodities, hazardous materials, and operations. The guide is not currently available in electronic format. A printed copy may be requested by contacting the Media and Marketing Division at DSN 558-2062 (334-255-2062). In addition, 29 CFR 1910.95 must be posted in all industrial, noise-hazardous areas.

b. The IHPM ensures applicable 85 dBA and 140 dBP noise contours are established and advises the unit Commander or supervisor where to locate contour signs.

**Chapter 4
Engineering Controls**

4-1. Hearing Conservation Measures. The most desirable hearing conservation measure is reducing noise levels at their source, eliminating harmful health effects. Implementation is generally feasible, if technologically and operationally practicable and cost effective. Procuring new equipment, vehicles or facilities offers the ideal

opportunity to implement noise controls. The objective is to review all acoustic specification before purchase to ensure, if possible, a steady-state level less than 85 dBA at all personnel work locations during normal operations.

4-2. Control Measures. Control measures for existing equipment and facilities to reduce steady-state noise levels below 85 dBA and impulse noise levels below 140 dBP should be employed to the maximum extent possible. In some instances, the implementation of engineering controls requires funding which is rank ordered on the installation hazard abatement plan per AR 385-10 and TB MED 503. In other instances, simple maintenance of the equipment, vehicles, or facilities will eliminate or control the hazard. Details for effective maintenance noise-control measures can be found in DA Pam 40-501, para 7-10.

4-3. Engineering Control Recommendations. An industrial hygienist from the Department of Preventive Medicine, RACH, can be consulted for engineering control recommendations and follow-up measures. The section can be contacted at (580) 442-8791.

Chapter 5 Hearing Protectors

5-1. All Personnel Working/Visiting Potentially Noise-Hazardous Areas. All personnel working within or visiting potentially noise-hazardous areas must have hearing protectors with them at all times. Permanent party military personnel will wear the earplug case containing preformed or hand-formed earplugs as a standard part of the uniform when in potentially noise-hazardous areas, either on the Soldier's front right belt loop of the ACU trousers, the Soldier's top right equipment loop of the flak vest, or the left arm pocket of the Nomex coverall. IET and AIT Soldiers will carry their earplugs and earplug case in the left arm pocket of the ACU top to prevent loss during training/corrective exercises

5-2. Hearing Protection Devices (HPDs). Hearing protection devices (HPDs) consist of earplugs, noise muffs, ear canal caps, noise-attenuating helmets, or a combination of these. A list of approved hearing protection devices for government purchase can be found in Appendix D, which includes an example of a typical HPD purchase for a military unit. Personnel may select the type of protector desired, unless the selection is medically contraindicated or inappropriate for a particular noise-hazardous environment. In-depth descriptions and maintenance recommendations of approved HPDs can be found in DA Pam 40-501, paras 7-16 and 7-18.

5-3. Issuing Hearing Protection Devices. Hearing protection devices (HPDs) are issued at no charge to all military personnel and to all DOD Civilians working in potentially noise-hazardous areas. An earplug carrying case must also be provided at no charge with each set of preformed earplugs. This case can also be used for hand-formed earplugs. Hearing protection devices are considered required personal protective equipment for military deployments.

5-4. Initial Fittings & Annual Integrity Checks. Medically-certified preformed earplug fittings will be completed during in-processing activities by the AHP Audiology Technicians located at the 95th Reception BN Inprocessing Center for inprocessing Soldiers for IET; and as required during the Occupational Health Services entry physical for DOD Civilians at the Occupational Health Clinic at RACH. Earplug re-fits and integrity checks can be completed during annual, pre-, or post-deployment hearing evaluations at the RACH Audiology Clinic, or at the Soldier Reception Processing Center at Bldg. 4700 as needed. Organic unit assets that have CAOHC certified Army hearing technicians are qualified to complete integrity checks. Units without certified technicians may request support from the AHPM or the AHP Section at (580) 558-2235.

5-5. Requisition. The unit's S-4 may request the earplugs through their own unit Supply & Acquisition (S & A) Logistics channels, as Class 8 medical supply. S-4s can get item stock number and pricing from RACH AHPM or HCC at (580) 558-2235. Units must provide the correct NSN numbers in appropriate quantities for an average unit (see Appendix D for a sample order).

5-6. Protector Requirements. Civilians and military personnel must wear appropriate hearing protection when working with or around equipment, tactical vehicles or weapons that produce hazardous levels of noise. Drill Sergeants under the Fort Sill Training Brigades should wear hear-through amplified hearing protective devices (i.e. Peltor Headsets) when on ranges and other live-fire training exercises with Soldiers, for better communication, to avoid miscommunication. THCO/hose devices can be obtained through the unit S-4, with the assistance of the AHPM at RACH. Definitions of hazardous noise are listed below. Examples of steady-state and impulse noise levels produced by common military equipment are included in Appendix B.

a. Steady-state noise levels of ≥ 85 dBA (regardless of duration) – requires single hearing protection.

b. Steady-state noise levels of ≥ 103 dBA (regardless of duration) – requires double protection (i.e.; earplugs and helmets or earplugs and noise muffs). *Caution:* the use of noise muffs precludes the use of most eyewear. If eye protection is required, minimal break of the circumaural cup at the temples by the eyewear is strongly encouraged. Any break of the seal significantly reduces the amount of noise attenuation experienced by the user.

c. Steady-state noise exposure > 108 dBA – exposure is not permitted.

d. Impulse noise levels of ≥ 140 dBP – requires single hearing protection.

e. Impulse noise levels > 165 dBP, but less than or equal to curve Z per MIL-STD 1474D, requirement four, figure 4-1, personnel must wear earplugs in combination with noise muffs or a noise-attenuating helmet.

f. Impulse noise levels greater than curve Z, TSG must approve exposure.

g. Combat scenarios and HPDs. In combat, Soldiers should wear hearing protectors, especially when firing weapons or riding in tactical vehicles or aircraft. Hearing protectors improve readiness and prevent permanent or temporary threshold shifts which impair the ability to communicate and to detect and localize quiet or low level combat sounds.

h. Combat scenarios and communication requirements. In combat, Soldiers should be fit with nonlinear HPDs (combat arms earplugs) or tactical communication and preventive systems (TCAPS) when impairment to hearing is detrimental to mission requirements (i.e. dismounted infantry operations). Appendix F lists examples of TCAPS available for trial use and training through the AHP service. To schedule training at support with TCAPS, contact the RACH/Fort Sill AHPM or HCC.

Chapter 6

Hearing Readiness & Monitoring Audiometry.

6-1. Hearing Readiness. Hearing Readiness (HR) specifically focuses on ensuring Soldiers have the required physical capabilities, personal protective equipment (i.e.; HPDs) and medical equipment that are needed to deploy. The main component of HR is monitoring audiometry. Monitoring audiometry detects changes in an individual's hearing sensitivity. This information identifies individuals who are highly susceptible to noise-induced hearing loss, allows for early identification of and intervention for hearing loss, and evaluates the effectiveness of the AHP. All hearing evaluations are to be completed on the DOEHRS-HC audiometer with results recorded on DD forms 2215 (Reference Audiogram) and 2216 (Hearing Conservation Data).

6-2. DOD Civilians. Reference audiograms for new Civilian personnel with a potential for hazardous noise exposure must be performed as soon as possible, but not later than 30 days after initial exposure. Civilians will receive hearing tests administered by the Occupational Health section of RACH upon referral to the HCP. Hearing tests can be scheduled by contacting (580) 558-2235

6-3. Noise Exposed to Ototoxins. All noise-exposed military and Civilian personnel exposed to ototoxins must receive reference, initial 90-day, annual, and termination audiograms. Follow-up hearing tests, 1 and 2, must also be provided, if required. Deaf Civilians working in noise-hazardous areas must have reference and termination audiograms.

6-4. Termination of Audiograms. Termination audiograms must be conducted as part of out-processing or when a worker is going to stop working in a designated noise-hazardous area.

6-5. Soldiers. All Soldiers, regardless of potential noise exposure, must receive reference, pre-/post-deployment, annual, and termination audiograms. Audiograms are required every 12 months, or within 6 months of (re)deployments.

6-6. Deployable Status. In order to be deployable, Soldiers must maintain a Hearing Readiness Classification (HRC) of Class 1 or Class 2. Appendix E provides the four basic HRC categories with definitions. To meet hearing readiness requirements, HCOs may schedule unit Soldiers for their DOEHRS-certified hearing tests by company, battalion or brigade by contacting the AHP section at (580) 558-2235. Tests are completed in the RACH Audiology Clinic.

6-7. Recordkeeping. Soldiers and DOD Civilians will be provided with a copy of all hearing test results for the medical record. All DOEHRS-HC data will be forwarded to the DOEHRS-Data Repository, maintained at Aberdeen Proving Grounds, on at least a weekly basis (daily uploads are strongly recommended).

6-8. MEDPROS. The Medical Protection System (MEDPROS) HR module is used to track and monitor individual and unit level HR. DD 2215 and 2216 audiograms are stored in the DOEHRS-DR and are used to calculate the HR status for MEDPROS. The DOEHRS-DR feeds the MEDPROS system on a weekly basis. Unit HCOs can obtain unit Hearing Readiness (HR) reports through the MEDPROS Hearing Readiness Reporting Options function. Soldiers and HCOs can obtain copies of test results through personal Army Knowledge Online (AKO) accounts and through the MEDPROS Web Data Entry portal. In summary:

- a. Soldiers with an HRC of Class 1 or 2 are deployable.
- b. Soldiers with an HRC of Class 3A-C are non-deployable and require a referral to an audiologist for the completion of a diagnostic evaluation, profile and/or MMRB (required for H3 profiles).
- c. Soldiers with an HRC of Class 3D-E are non-deployable and require either a hearing aid fitting and/or a 6 month supply of batteries for issued hearing aid(s).
- d. Soldiers with an HRC of Class 4A require an annual DD2215/16 hearing evaluation. A Class 4B indicates a significant threshold shift (STS) was detected on the annual hearing evaluation and requires a follow-up with the AHP section technicians within 30 days.

6-9. Testing Compliance. The AHPM will ensure installation test equipment, test methods, clinical services, diagnosis, medical and MEDPROS coding, referrals and notification processes (including OSHA reportable hearing losses) are in compliance with DA Pam 40-501, para 4-3, 7-23 through 7-25 and FM 4-02.17 Appendix B, para C-9 through C-10.

Chapter 7 Health Education.

7-1. Annual Hearing Health Education. The AHPM or designee must provide operational hearing health education at least annually to ALL military and noise-exposed Civilian personnel. Instruction requirements and educational materials are detailed in DA Pam 40-501, paras 7-19 and 7-27.

7-2. Unit HCOs. Unit HCOs are required to track annual unit requirements, coordinate instruction blocks with AHPM or RACH Fort Sill HCC by contacting (580) 558-2235, and maintain documentation for completion of course (i.e.; sign-in rosters). HCOs may also obtain educational resources for briefings from the AHP website.

7-3. IET Drill Sergeants. IET drill sergeants will be trained as subject matter experts (SMEs) in a “train-the-trainer” on hear-through communication systems (i.e. Peltor Headsets) or as needed by the AHPM or RACH/Fort Sill HCC.

7-4. Military Leadership Courses. Military/leadership courses will ensure itinerary includes at least one track which addresses operational hearing education and hearing loss prevention strategies. Courses may be coordinated through the AHPM or RACH/Fort Sill HCC at (580) 558-2235.

Chapter 8 Enforcement

8-1. Command Emphasis. The unit commander or supervisor of personnel working in noise-hazardous areas must endorse the installation commander’s command emphasis letter explaining the importance of the AHP, the Fort Sill AHP regulation, and the wearing of the earplug carrying case as part of the ACU, flak vest and/or the nomex coverall.

8-2. Compliance Measures.

a. Military and Civilian supervisors of noise-hazardous areas must enforce the mandatory use of hearing protectors and take disciplinary action (i.e.; counseling statements) as appropriate for non-compliance. Commanders must enable unit safety officers and HCOs to bring units into compliance with the Fort Sill AHP.

b. The AHPM will conduct unannounced inspections of noise-hazardous areas (including motor pools, ranges, etc.) to ensure compliance with both HP and HPD requirement and report inspection results through command channels as appropriate.

c. The IHPM will inspect noise-hazardous work areas to ensure compliance with AHP and HPD requirements during both announced and unannounced surveys.

Chapter 9 Program Evaluation

The AHP will be evaluated using both external and internal reports IAW DA Pam 40-501, Chap 9. Program effectiveness, quality assurance, and compliance indicators will be forwarded to the Installation Medical Authority on a regular basis as required.

Chapter 10 Operational Hearing Services (OHS).

10-1. Objective of Hearing Services. The primary objective of operational hearing services is to enhance Soldier survivability. Hearing is a critical sense that directly affects mission success. Activities in garrison are geared towards preserving the ability to hear in a deployed, combat environment to enable the Soldier to detect the enemy and communicate effectively in noise. Garrison OHS includes tactical communication and preventive systems, hearing loss prevention tactics and noise surveillance/abatement strategies.

10-2. Tactical Communication and Protective Systems (TCAPS). TCAPS are systems with active filters that protect hearing in the combat environment while *enhancing* the ability to hear on radios and among dismounted team members during missions.

a. Contact the Fort Sill AHPM or RACH/Fort Sill HCC for information regarding TCAPS use and procurement. Subsequent unit purchases of TCAPS will be assisted by AHPM to ensure appropriate procurement of accessories and maximization of funds.

b. Commanders must ensure their units are provided the opportunity to train with TCAPS and understand the use and importance of these devices in maintaining effective communication and situational awareness. Upon procurement, it is recommended that TCAPS are distributed on hand receipts (DA 2062) for accountability as a non-expendable item.

10-3. Noise Surveillance and Abatement. For suspected *hazardous* noise levels, refer to section 6 for standard procedures. For *nuisance* noise abatement, contact the AHPM or RACH/Fort Sill HCC for training and assistance. Field environments, including TOCs, rest areas and motor pools, will be assessed with strategies for effective abatement outlined in verbal and written reports to preventive medicine assets. Hearing officers (HCOs) will be trained in abatement during required operational and hearing readiness training courses and are responsible for implementing recommendations. *Nuisance noise* is not normally recognized, addressed or limited, but its *physiological effects (stress, fatigue) can be devastating on the Soldier, the unit, and the mission.*

a. Ideal Noise Levels. Ideal noise levels for the field environments that allow for maximum efficiency:

(1) TOCs and common areas – noise levels not exceeding 55 dBA SIL preserve the ability to communicate comfortably at distances up to 15 feet.

(2) Sleep Areas – *steady-state* noise levels of ≤ 40 dBA allow for sufficient sleep cycles. In noisy environments, however, ‘maskers’ or broadband noise (such as a fan) may be required to eliminate the negative effects of relatively low-level intrusive noise (i.e.; intermittent field radio communications). The impact of *intrusive noise* varies (i.e.; intermittent landings of rotary and fixed-wing aircraft or tactical vehicles entering/leaving the compound). The sound level will depend on the engine type and distance from the source. For example, a UH-60 helicopter will produce up to 90 dBA of intrusive noise inside a sleeping tent located 150 yards from the landing pad. This level of intrusive noise can be expected to awaken approximately 40% of tent occupants. The use of disposable foam earplugs is the best remedy for situations involving regular intrusive noise.

b. Basic Abatement Strategies. Basic strategies for nuisance noise abatement in the field are as follows:

(1) Move generators away from tents and use air conditioner extension hoses whenever feasible. The inverse square law predicts that doubling the distance from a sound source decreases intensity levels by 6 dB (a drop of 6 dB is the human perception equivalent of cutting the noise level in half).

(2) Place generators behind natural berms or enclose three sides of generators with sand bags, leaving room for proper ventilation. Point vented side of generator (normally the loudest side of equipment) away from tents.

(3) Design the TOC layout for maximum efficiency (for example, provide briefing areas away from radios). Determine which strategies work in the field environment *before* deployment.

(4) Provide foam earplugs for sleep tents to reduce effects of intrusive noise and ensure maximum ability to achieve REM sleep for Soldiers.

Chapter 11

Garrison Nuisance Noise

Nuisance noise produced by vehicles (i.e.; excessive engine noise or stereo volume levels) and in post housing must be kept to a minimum to avoid interference with the perception of warning sounds or emergency vehicle signals. Soldiers and Civilians must remain in compliance with existing safety, vehicle operation, and housing area rules to include “quiet hours.” The Garrison Commander retains inherent authority to regulate excessive noise. Disturbance by loud or unusual noise (to include the inappropriate discharge of firearms) or abusive, violent, obscene, profane or threatening language is also a citable offense under Title 21, Oklahoma Statutes, Section 1362.

Acceptable noise is context and task specific. See DA PAM 40-501, para. 6-2 for further definition and explanation of nuisance noise.

Chapter 12

Army Hearing Program Services (AHP)

12-1. Individual and Organizational Responsibility. The AHP is an individual and organizational responsibility. All commanders are encouraged to utilize the resources of the Fort Sill HPM and the AHP Services of Reynolds Army Community hospital for the development and maintenance of their unit hearing program.

12-2. Additional Hearing Services. Additional operational hearing services, which include preparatory assistance for the installation inspection programs, range and worksite consultations, custom hearing protection services, and hearing program certification workshops, are available to installation units.

12-3. Contact Information. Contact the AHP at (580) 558-2235, or through the RACH website for more information and/or assistance.

Appendix A

References

Section I Required Publications

AR 40-5

Preventive Medicine, 25 May 2007.

AR 40-66

Medical Record Administration and Health Care Documentation, 17 June 2008/RAR 4 January 2010

AR 40-501

Standards of Medical Fitness, 14 December 2007/RAR 4 August 2011

AR 385-10

Army Safety Program, 27 November 2013.

AR 420-70

Building and Structures, 10 October 1997.

CHPPM Form 326

Assessing the Effects of Sound on Sleep, 01 November 2005.

DA PAM 40-501

Hearing Conservation Program, 8 January 2015.

DD Form 2214

Noise Survey, 1 January 2000.

DD Form 2214C

Noise Survey Continuation Sheet, 1 January 2000.

DD Form 2215

Reference Audiogram, 1 January 2000.

DD Form 2216

Hearing Conservation Data, 1 January 2000.

FS Regulation 385-10

Safety and Occupational Health Program, 16 January 2013.

FM 4-02.17

Preventive Medicine Services, 28 August 2000.

MIL-STD-1472F

DoD Design Criteria Standard Human Engineering, 11 January 2012.

Safety Color Code Markings, Signs and Tags Information Guide

(Copies are available from the U.S.Army Safety Center, ATTN: CSSC-SM, Fort Rucker, AL 36362-2563).

ST 4-02.501

Army Hearing Program, 01 February 2008.

DA PAM 503

The Army Industrial Hygiene Program, 2 April 2013.

29 CFR 1910.95, Occupational Noise Exposure

(Copies are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402).

Section II

Related Publications

This section contains no entries.

Section III

Prescribed Forms

This section contains no entries.

Section IV

Referenced Forms

This section contains no entries.

**APPENDIX B
Noise Levels**

The sound levels listed in tables B-1 and B-2 are the highest typical measured values under normal operation. For most items of equipment there may be several normal operating conditions. Each condition generates a different noise level. For example, there is a 5 to 10 dB difference in noise at the driver position of a truck depending on window closure and auxiliary equipment such as heater fans. There can also be some variation among individual units of the same type of equipment. Different test reports may list somewhat different levels.

**Section B-1
Steady-State Noise**

Photo	Model	Name, Condition	Location	Speed km/hr (mph)or	Sound Level dB(A)
	M966, also: M996 M997 M998 M1037 and other non-heavy	High mobility multi- wheeled vehicle (HMMWV), at 2/3 payload	Crew positions	0(idle)	78
				48(30)	84
				88(55)	94
	M996 M997	HMMWV mini and maxi ambulance, at 2/3 payload	Patient areas	up to 88 (55)	less than 85
	M1097 M1097A2 M1113 M1114	HMMWV heavy variants, at 2/3 payload	Crew positions	up to 50 (31)	less than 85
				64(40)	88
				80(50)	92
				96(60)	98
	M1097	HMMWV heavy variant, at full payload	Crew positions	up to 40 (25)	less than 85
				96(60)	100
	M1008 M1009 M1010 M1028	Commercial utility cargo vehicle (CUCV)	In cab	below 88 (55)	less than 85
				88(55)	85 to 91

*Fort Sill Regulation 40-501, 17 August 2015

Photo	Model	Name, Condition	Location	Speed km/hr (mph)or	Sound Level dB(A)
	M1010	Ambulance	Patient Areas	all speeds	below 85
	M1080 chassis, includes M1078 M1079 M1081	Light medium tactical vehicles (LMTV 2 1/2 ton trucks), 2/3 payload	In cab	0 idle 72(45) 75(46) 88(55)	80 84 85 89
	M1092 and M1096 chassis, except M1089 wrecker	Medium tactical vehicles (MTV 5 ton trucks), 2/3 payload	In cab	0 idle 72(45) 75(46) 88(55)	80 84 85 89
	M1089	5 ton wrecker, towing, 2/3 payload	In cab	up to 48 (30) 56(35)	less than 85 87
	M984E1	Heavy Expanded Mobility Tactical Truck (HEMTT)	In cab	64(40) and below 72(45)	below 85 93.1
	M44A3 series includes M35A3 M35A3C M36A3	2 1/2-ton truck, extended life program (ESP), 2/3 payload	In cab	Idle 16(10) 32(20) 80(50)	72-81 85 87 97
	M1070	Heavy Equipment Transporter (HET), loaded	In cab	All speeds	Below 85
	M1074 M1075	Palletized load system, 16.5 tons		In cab, windows closed Windows open	All speeds 85 or below 88(55) 87 below 88(55) below 85

*Fort Sill Regulation 40-501, 17 August 2015

Photo	Model	Name, Condition	Location	Speed km/hr (mph)or	Sound Level dB(A)
	M113A3 family including M106A2 M1064A3 M1059A3 M58A3 M730A2 M901A3 M981A3	Armored Personnel Carrier A3 version. M113, M113A1, M113A2, OSV(BMP2) have similar noise levels		Idle 16(10) 32(20) 48(30) 63(40)	85-92 106 109 114 118
	M1A2, M1, M1A1 M1 chassis similar	Abrams tank Grizzly breacher, Wolverine Heavy assault bridge (HAB)	In vehicle	Idle Tac idl 16(10) 48(30) 63(40)	93 103 108 114 117
	M2A2 M2, M3, M2A1, M3A1, M3A2 similar	Bradley Fighting Vehicle	In vehicle	Idle 16(10) 32(20) 61(38)	74-95 110 115 115
	M88A2	Hercules recovery vehicle	In vehicle	various	89 to 106
	M270	Multiple Launch Rocket System (MLRS) vehicle	In vehicle	Idle Moving, various speeds	83-98 99 to 111
	M109A3E2 other versions similar	Paladin, 155 mm self-propelled Howitzer	In vehicle	Idle Moving, various speeds	83-98 99 to 111
	MEP-802A	5 kW Tactical Quiet Generator(TQG)	Operator panel	Rated load	80

*Fort Sill Regulation 40-501, 17 August 2015

Photo	Model	Name, Condition	Location	Speed km/hr (mph)or	Sound Level dB(A)
	MEP-803A	10 kW TQG	Op panel	Rated load	81
	MEP-804A	15 kW TQG	Op panel	Rated load	84
	MEP-805A	30 kW TQG	Op panel	Rated load	84
	MEP-806A	60 kW TQG	Op panel	Rated load	87
	CH-47D	Chinook helicopter	Cockpit		102.5
	UH-60A	Blackhawk helicopter	Pilot copilot		106 106
	YAH-64	Apache helicopter	Pilot copilot		104 101.3
	OH-58D	Kiowa helicopter	Right seat Left seat		101.6 100.3
	UH-1H	Huey helicopter	Pilot/copilot Max in rear		101.9 102.9

**Section B-2
Impulse Noise**

Photo	Model	Name	Location	Sound Level dB(P)
	M16A2	5.56mm rifle	Shooter	157
	M9	9mm pistol	Shooter	157
	M249	5.56mm Squad Automatic Weapon (SAW) fired from a HMMWV	Gunner	159.5
	M60	7.62mm machine gun fired from a HMMWV	Gunner	155
	M2	0.50 caliber machine gun fired from a HMMWV	Gunner	153
	MK 19 Mod 3	machine gun fired from a HMMWV	Gunner	145
	M26	Grenade	At 50 ft	164.3
	M3	MAAWS recoilless rifle	Gunner	190
	M136 AT4	Anti-Armor Weapon	Gunner	179 -190
		JAVLIN	Gunner open Position	159.9
			Gunner enclosed position & Gunner fighting position	166.2
				172.3

*Fort Sill Regulation 40-501, 17 August 2015

Photo	Model	Name	Location	Sound Level dB(P)
	M119	105MM towed Howitzer at charge 8	Gunner	183
	M198	155mm towed Howitzer firing M203 propellant	Gunner	178
	M109A5/6	Paladin, 155mm self-propelled Howitzer firing M4A2 zone 7 charge	In fighting compartment, hatches open except driver's	166.1
	M110A2	8-inch self-propelled Howitzer firing M106 projectile with a M188A1 zone 9 propelling charge,	Gunner	176.9
	M224	60mm mortar, M888 round, charge 4, QE 800 mil	0.5 m from the muzzle, 0.9 m above ground, 105 degree azimuth	185
		TOW II Missile from HMMWV	Gunner	179.4
	M29A1	81 mm mortar, M374A3 round with charge 4	1 m from the muzzle, 0.9 m above ground, 135 degree azimuth	178.8

Section B-3 **Characteristics of Individual Equipment Noise**

The following paragraphs summarize additional noise exposure considerations for common Army equipment:

a. *Trucks and High Mobility Multi-wheeled Vehicles (HMMWV)*. Noise levels increase with increasing speed and, for the HMMWV, with increasing load. The levels are below 85 dBA at low to medium speeds and can be over 100 dBA at top speed for some models. When driven mostly at low speeds with short periods at moderate or high speed trucks and HMMWVs are not hazardous. They can be hearing hazards to unprotected Soldiers if operated for long time periods at high speed.

b. *Bradley Fighting Vehicle (BFV) and derivatives*. The major noise source is the drive train, particularly the action of the track links as they round over the sprockets, idlers and wheels. For this reason, high noise levels (101 to 115 dBA) occur when the vehicle is in motion. The crew wears the CVC's helmet which has integral hearing protectors. A CVC with active noise reduction (ANR) providing added noise protection is available on newer models. The passengers (infantry squad) must rely on their own hearing protectors such as earplugs. These are less effective than the CVC with ANR. For training, the exposure time in moving carriers is restricted depending on the hearing protectors worn and the speed of the vehicle. The severest restriction is on exposure of passengers wearing the less effective earplugs.

c. *M113 Armored Personnel Carrier and derivative vehicles*. Among the loudest of Army equipment. Noise sources and hearing protection are similar to the BFV. Levels are very high when moving.

d. *Abrams Tank and derivative vehicle (Wolverine and Grizzly)*.

(1) Steady noise levels range from 96 to 117 dBA when moving. The crew wear the CVC helmet which has integral hearing protectors.

(2) On the tank, impulse noise levels at exterior commander and loader positions are above or just below the limit of hearing protector effectiveness for training depending on caliber (105 or 120 mm), cartridge model, and tube elevation. The drivers hatch should be closed at all times when firing the main gun. Training with crew heads above the hatch plane is not permitted per the user manuals for certain defined conditions. These restrictions are not applicable to battle situations.

e. *Helicopters*. In flight, helicopter crews wear the helicopter crew helmets which have integral hearing protectors. Passengers must rely on their own hearing protectors such as earplugs or ones supplied by the air operations. Training restrictions on exposure time apply, as discussed for the BFV.

f. *Generators*. Diesel powered generators from the Tactical Quiet Generator (TQG) series are quiet at the operator panel and other close-in areas if the covers are in place. Older generators have been loud with levels above 100 dBA at the panel and

above 85 dBA up to several meters away. High levels are generated by TQG if the covers are removed.

g. *Impulse noise from weapons.* All firearms produce impulse noise levels requiring hearing protection at crew positions for training. Some produce levels under certain conditions, which exceed the safe training limit for crews wearing hearing protectors.

(1) Small arms- rifles pistols, machine guns, and 40 mm grenades. Noise levels at gunner positions are low to moderate. The hazard can be serious because of the large number of rounds that can be fired by the individual shooter. Noise levels are higher in front and to the side of the muzzle than to the rear. For small arms levels at about 5 feet to the side can be higher than at the shooter position. Except very near the muzzle, all levels are within the mitigation capability of hearing protectors.

(2) Mortars. Noise levels range from low to very high because of the wide variation in charge increments and head locations. The requirement to load the cartridge through the muzzle places the head close to the muzzle, which is the source of the impulse. For the top charge on the large ground mount mortars, a safe noise level for training occurs only at 2 m from the muzzle, no higher than 0.9 m above ground. Some mortars include a funnel-shaped blast-attenuating device on the muzzle.

(3) Howitzers without fighting compartments. For the 155 mm towed and 8-inch self-propelled Howitzers the levels are medium to high depending on the charge increment, but are below the training exposure limit for protected Soldiers.

(4) Howitzers with fighting compartments. For the 155 mm self-propelled Howitzers the walls of the fighting compartment tend to attenuate the peak levels but the reverberation within the compartment aggravate the noise exposure. For some higher charges the front, top, and side hatches should be closed during training fire.

(5) Tanks. The levels above the turret hatches can be very high for some cartridges and at some tube elevations. For these, training fire with crew heads above the hatch plane is not recommended. Levels below the hatch plane, even with the hatch open, are lower.

(6) Rocket launcher vehicles. Impulse noise in the MLRS, Avenger, and FOG-M launchers are low to medium.

Appendix C

Examples of Hazardous Exposures

The following provides examples of typical exposures that meet the criteria for enrollment in a comprehensive Hearing Conservation Program:

1. Impulse & impact noise >140 decibels peak measurement (dBp):
 - a. All weapons firing (annual or periodic).
 - b. 9-mm through 50-Caliber. Ammunition
 - c. Grenades
 - d. Mortar fire
 - e. Artillery fire
 - f. Armament from all tracked and wheeled combat vehicles
 - g. Demolition with explosives
 - h. Most training rounds and simulators

2. TWA of >85 A-weighted decibels (dBA):
 - a. Operating, occupying or maintenance operations of tactical vehicles that require hearing protection (per TM/FM or operator's manual).
 - b. Operating, occupying or maintenance operations of aircraft that require hearing protection (per TM/FM or operator's manual).
 - c. Operating on or around heavy equipment or noisy machinery requiring hearing protection (per TM/FM or operator's manual).

3. Known or suspected ototoxins (ear poison):
 - a. Arsenic
 - b. Carbon disulfide
 - c. Carbon monoxide*
 - d. Cyanide
 - e. Lead and derivatives
 - f. Manganese
 - g. Mercury and derivatives
 - h. N-hexane
 - i. Stoddard solvent
 - j. Styrene*
 - k. Trichlorethylene*
 - l. Tolulene*
 - m. Xylene*

*High-priority ototoxin

**Appendix D
Earplug and Carrying Case Requisition Information*
Standard Items:**

Type & Size	Nomenclature	NSN	Fitting Requirements
Triple-flange (small) \$3.88 / package	Earplug, hearing protection, triple-flange 24 ea. / package (12 pair)	6515-00-442-4821	Small size fits (~10%) Size fitting <u>REQUIRED</u> (contact fitting POC below)
Quad-flange (regular size - fits most) \$69.97 / box	Earplug, hearing protection, quad-flange, 100 pair / box	6515-01-492-0443	Regular size fits most (~90%) Size fitting <u>REQUIRED</u> (contact fitting POC below)
Triple-flange (large) \$3.93 / package	Earplug, hearing protection, triple-flange 24 ea. / package (12 pair)	6515-00-467-0092	Large size fits (~5%) Size fitting <u>REQUIRED</u> (contact fitting POC below)
Foam Earplugs Hand-formed \$29.58 / box	Earplug, hearing protection, Foam, 200 pair / box (orange/green color)	6515-00-137-6345	Orange color must not sHCO/HPOw after insertion Disposable "back-up" use
Earplug Carrying Case \$7.61 / package	Earplug carrying case 20 / package	6515-01-100-1674	

OPTIONAL ITEMS:

Combat Arms (medium - yellow) \$476.50 / package	Combat Arms Earplug, (single-sided, dial settings) 100 ea. / package (50 pair) Requires user instruction sheet	6515-01-552-0229 Optional Item	Regular size fits most (~55%) Size fitting & Instruction sheet <u>REQUIRED</u>
Combat Arms (small-brown) \$553.00 / package	Combat Arms Earplug, (single-sided, dial settings) 100 ea. / package (50 pair)	6515-01-552-0224 Optional Item	For smallest ears (~25%) Size fitting <u>REQUIRED</u>
Combat arms (large - red) \$425.82 / package	Combat Arms Earplug, (single-sided, dial settings) 100 ea./	6515-01-552-0231 Optional Item	For larger ears (~20%) Size fitting <u>REQUIRED</u>

Example of Standard requisition:

SAMPLE ORDER FOR COMPANY SIZE UNIT (100-160 Personnel):

2 PG SM Triple flange (6515-00-442-4821) = \$ 7.76
 2 Box Quad-flange (6515-01-492-0443) = \$139.94
 2 PG LG Triple flange (6515-00-467-0092) = \$ 7.86
 6 PG of Ear Plug Cases (6515-01-100-1674) = \$ 45.66
 2 Box Foam Plugs (6515-00-137-6345) = \$ 66.42 (Always keep 2 boxes on hand)

Estimated Total Cost: = \$ 267.67

*Note: Prices are estimations and may change.

Points of Contact:

Earplug Fitting and Instructions: Contact Fort Sill Army Hearing Program Manager or Hearing Conservation Coordinator at (580) 558-2235.

Appendix E
Hearing Readiness Classification System

CLASS I	Soldier's unaided hearing is within H-1 standards for both ears. No corrective action is required. (Standards are described in AR 40-501).
CLASS II	Soldier's unaided hearing is within H-2 or H-3 standards. Soldier has a current hearing profile assigned (H-2 or H-3), and a completed MOS/Medical Retention Board (MMRB) (H-3) with no active middle ear disease or medical pathology in the ear. If a Soldier wears hearing aids, he must have hearing aids appropriate for hearing loss and a six month supply of batteries. No corrective action is required.
CLASS III	Soldiers who do meet hearing readiness standards: Soldier's unaided hearing is within H-2 or H-3 standards and no current hearing profile assigned. Comprehensive audiologic examination is required to establish profile and/or need for hearing aids.
CLASS IV	Soldiers who do not have a DOEHRs-HC audiogram in their medical record within one year. Soldier requires a hearing examination. This includes Soldiers without a reference baseline audiogram (DD Form 2215) or whose last periodic audiogram (DD Form 2216) is greater than one year old. Hearing readiness classification is unknown.
<p>Table Note: Soldiers in Class 1 and Class 2 will be considered fully ready. Soldiers in Class 3 or Class 4 are deficient. Soldiers in Class 3 or 4 at the time of medical record screening will immediately be reclassified in MEDPROS after obtaining corrective hearing/hearing aid services.</p>	

Appendix F Tactical Communication and Protective Systems

IN-THE-EAR TACTICAL COMMUNICATION AND PROTECTIVE SYSTEMS

G-1. A variety of In-the-Ear Tactical Communications and Protective Systems (ITETCAPSs) are currently available. All have the same components, which include a housing body, microphone, cables, in-the-ear inserts. An example of an ITETCAPS is shown in Figure G-1.

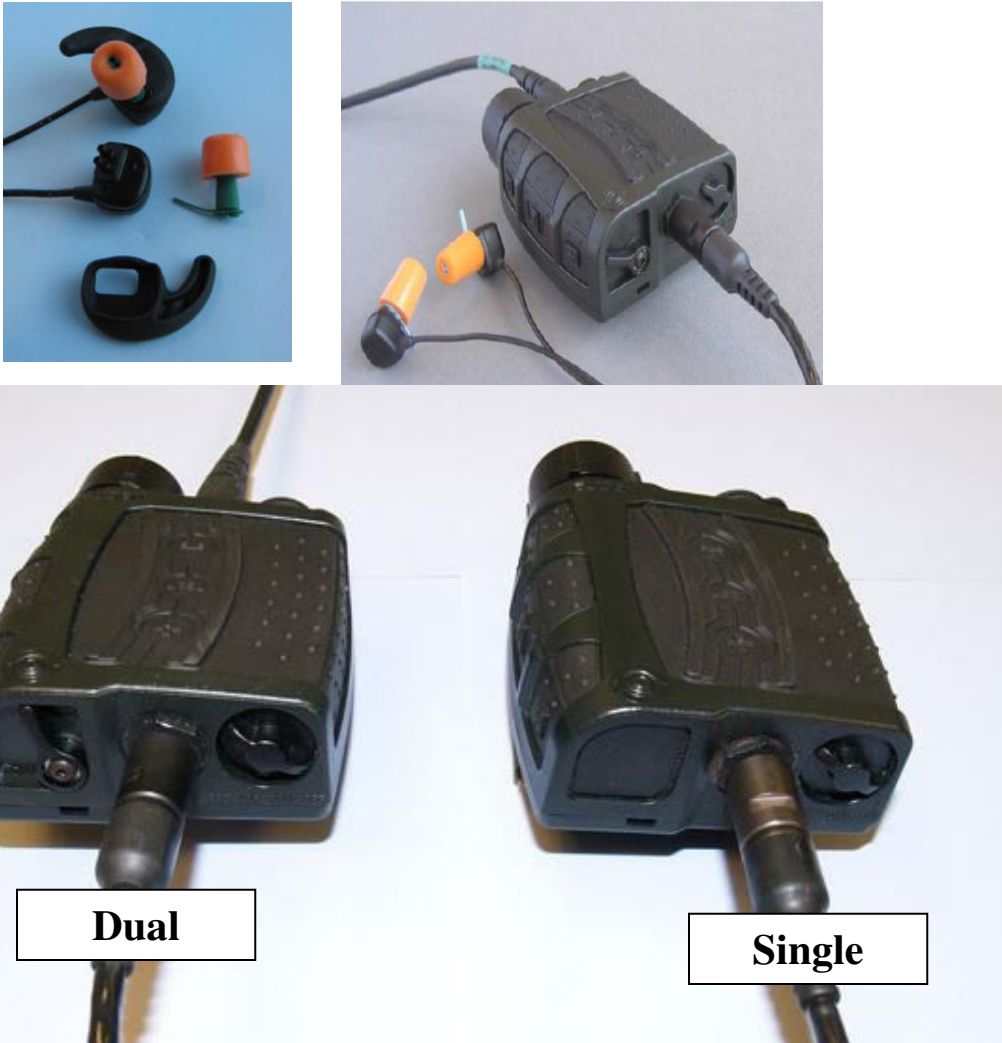


Figure G-1. In-the-Ear Tactical Communication and Protective Systems

G-1. Donning/doffing. See manufacturer specific instructions.

G-2. Controls—

- For device specific controls, refer to manufacturer's information. An example of common controls and brief description of controls is included below.

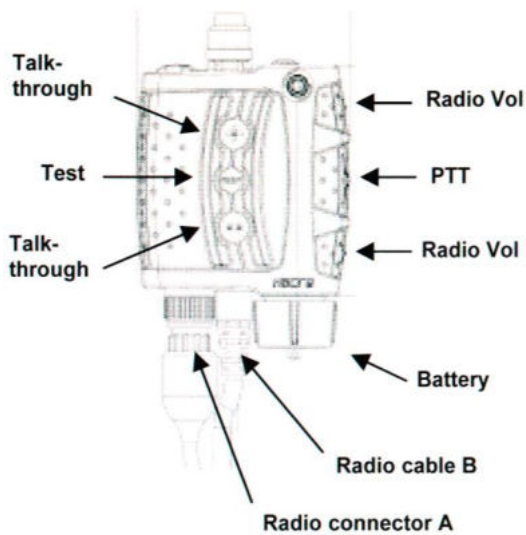


Figure G-2. Common Controls

- All devices contain a volume control similar to the graphics below. The manufacturers recommend using the lowest volume setting for the radio since an increase could cause distortion and hazardous noise levels.

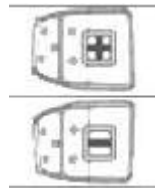


Figure G-3. Volume Control

- The push-to-talk (PTT) feature transmits the user's voice over the intercom or radio. This mode will continuously transmit in this mode as long as this mode is selected.



Figure G-4. Push-to-Talk Mode

- The voice-activated microphone (VOX) mode will detect when the user talks and transmit the signal. This is a non-continuous alternative to the PTT mode. The manufacturers recommend that in quiet environments, the volume is set to the lowest level because surrounding sounds can trigger the VOX to transmit these sounds over the radio. The VOX mode will remain on for 1 sec after the user speaks. If this results in interrupted conversation, use the PTT feature. The PTT button will override the VOX mode.
- Open microphone (O.Mic). This mode is intended for use with an intercom; however, this mode will also transmit surrounding environmental sounds. To avoid transmission of environmental sounds over radio transmission, use the VOX mode. The O.Mic mode is not recommended for use with the radio since it will constantly transmit in this mode, which can result in damage to the radio. Constant transmission will also interfere with radios on the same channel.

G-3. When connecting radios it is imperative that the user ensure that their radios are compatible with the selected ITETCAPS. Refer to the manufacturer information for compatibility information.

G-4. All devices utilize a leak test to ensure a proper ear canal seal is obtained. Active Noise Control cannot be utilized without a proper ear canal seal.

OVER-THE-EAR TACTICAL COMMUNICATION AND PROTECTIVE SYSTEMS (OTETCAPS)

PELTOR COMTAC ACH HEADSET

G-5. The COMTAC A-C-H is a circumaural headset designed to fit under the Army combat helmet (ACH). The headset allows for talk-through communication and can connect to up to 2 radios or one radio and an intercom. This device can be ordered in a 1, 2 or no channel configuration. The microphones are spatially separated microphones, which preserves some auditory localization cues. The headset provides both passive and active methods for reducing noise. The system is also equipped with a boom microphone that can be mounted on either ear and a PTT box, optional hard-wired remote PTT and a tactical keypad. System offers COMTAC MICH Kits which are field-proven substitutes to the existing MICH system. Throat microphones are also an optional feature.



Figure G-5. Peltor COMTAC II Headset

G-6. Donning/doffing.

- Pull up on headband while grasping the ear cups.

G-7. Place the device over the head and adjust the height of the cups while holding the headband in place and moving the ear cup. Ensure that the ear cup microphones are facing forward.

G-8. To remove the device, remove the headset, press the cups together and collapse the ear cups into the headband.

TRIPORT TACTICAL HEADSET or INFANTRY TACTICAL HEADSET

G-11. The Triport tactical headset (TTH)/infantry tactical headset (ITH) was designed for infantry passengers in combat vehicles, which is compatible for use with the ACH. The TTH allows for talk-through communications and the TTH was designed for infantry passengers in combat vehicles, which is compatible for use with the ACH. The TTH allows for talk-through communications and push-to-talk capabilities with an intercom and/or radios. The talk-through microphones are spatially separated, which preserves some localization cues. TTH uses a headset that is anchored by HCO/HPOok and loop straps that fit over the helmet and around the back of the neck. The ear cups also HCO/HPOuse ANR circuits. The microphone/HPOne contains a noise-cancelling microphone/HPOne that can be worn on either ear cup. The headset can be worn in a dismantled situation and is compatible with the M42 nuclear-biological-chemical (NBC) masks. The neck band and the over-the-helmet strap were designed for quick removal if the user dismantled the vehicle and wanted to replace the headset with another form of hearing protection. Cables are available to interface the TTH with two radios or a radio and an intercom.

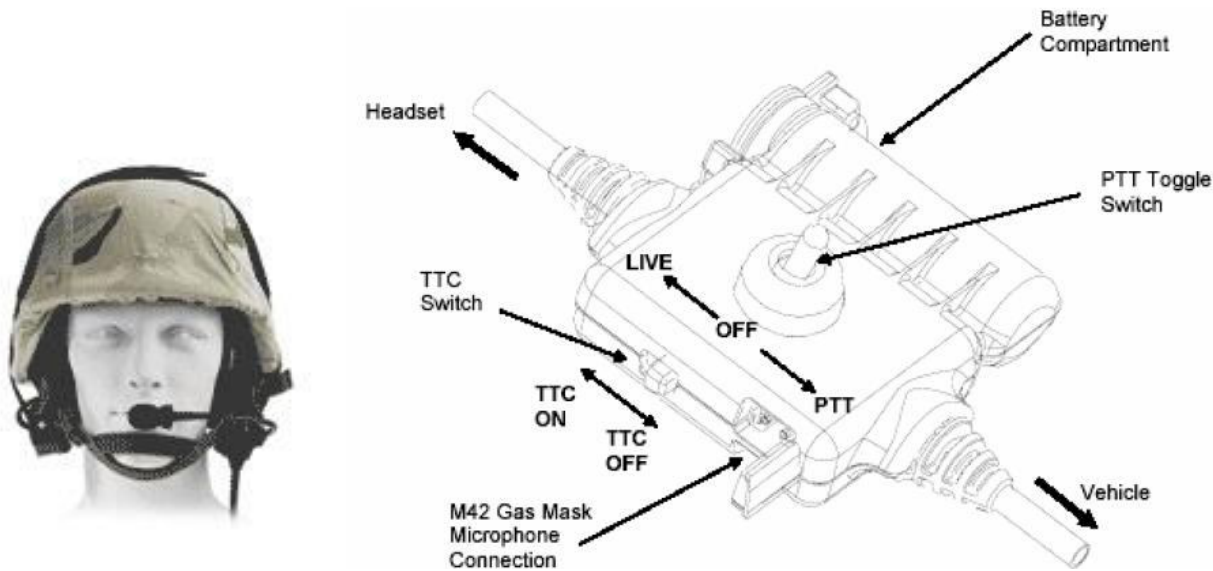


Figure G-6. Triport Tactical Headset or Infantry Tactical Headset

PRODUCT IMPROVED COMBAT VEHICLE CREWMAN (PICVC) HELMET

G-12. The PICVC helmet was designed to provide ballistic protection, intercom communication, talk-through capabilities, and hearing protection for Soldiers in combat vehicles. The ear cups pass the windblown rain test. The underlying difference between the PICVC and the CVC is that the CVC does not have talk-through microphones. The PICVC is qualified for use with the vehicle intercoms. The noise attenuation of this device is negatively affected by the use of eyewear. The liners fit from 1st percentile of female to 99th percentile of males.

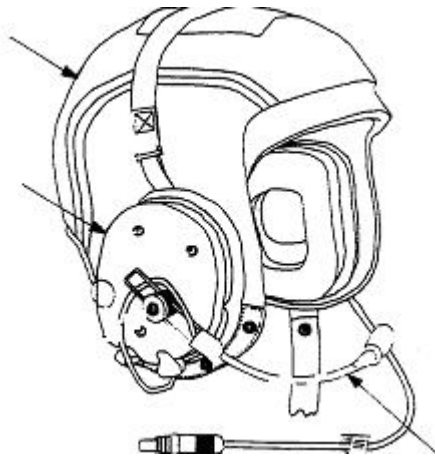


Figure G-7. Improved Combat Vehicle Crewman Helmet

G-13. Donning/doffing.

- Place the lining inside the protective shell.
- Make sure the hook and loop closure on the inside of the shell is firmly attached to the lining.
- Attach the tabs at the temples are snapped to the ear cups.
- Attach the rear snaps on the shell to the rear tab on the lining
- Move the microphone to the side and grasp each ear cup and pull out and down.
- Press down on the top of the helmet.
- Fasten the chinstrap ensuring that the helmet fits snugly.
- Adjust the nape strap.
- Position the microphone.

Glossary

Section I Abbreviations

ACH

Advanced Combat Helmet

ACU

Army Combat Uniform

AHP

Army Hearing Program (as redefined in Special Text Document 4-02.501, 01 FEB 2008)

AKO

Army Knowledge Online

ANR

Active Noise Reduction

AOC

Area of Concentration

AR

Army Regulation

CAE

Combat Arms Earplug

CAOHC

Council for the Accreditation in Occupational Hearing Conservation. Board certification (or military course equivalent) required for hearing technicians

CVC

Combat Vehicle Crewman

DA

Department of the Army

DA Pam

Department of the Army pamphlet

dB(A)

decibel, A-weighted

DOEHRS-HC

Defense Occupational Environmental Health and Readiness System-Hearing Conservation

DOEHRS-DR

Defense Occupational Environmental Health and Readiness System-Data Repository

DOD

Department of Defense

FM

Field Manual

H

Hearing Profile Level

HCP

Hearing Conservation Program (as redefined in ST 4-02.501, 01 FEB 2008)

HCOs/HPOs

Hearing Conservation Officers/Hearing Program Officers appointed by commanders at the unit level (i.e.; BDE, BN, CO)

HPDs

Hearing Protection Devices, traditional earplugs, ear muffs, canal caps, etc.

HPM

Hearing Program Manager

HR

Hearing Readiness

HRC

Hearing Readiness Classification

HS

Hearing Services

IED

Improvised Explosive Device

IHPM

Industrial Hygiene Program Manager

ITE

In-the-Ear

ITETCAPS

In-the-Ear Tactical Communications and Protective System

MAR2

Military Occupation Specialty (MOS) Administrative Retention Review

MEDPROS

Medical Protection System

MMRB

Military Occupational Specialty Medical Retention Board

NSN

National Stock Number

OTE

Over-the-Ear

PTT

Push-to-Talk

RACH

Reynolds Army Community Hospital

REM Sleep

Rapid eye movement sleep, a state of sleep that recurs cyclically several times during a normal period of sleep and that is characterized especially by increased neuronal activity of the forebrain and midbrain, depressed muscle tone, dreaming, and rapid eye movements

SOP

Standard Operating Procedure

ST

Special Text

STS

Significant Threshold Shift - a change in an individual's hearing levels. Can be positive (hearing has worsened) or negative (hearing has improved).

TBMED

Technical Bulletin, Medical

TCAPS

Tactical Communication and Protective Systems

TTC

Talk-Through Communications

TTS

Temporary Threshold Shift

TOC

Tactical Operations Center

TSG

The Surgeon General

TWA

Time Weighted Average

VOL

Volume

VOX

Voice-Activated Microphone

Section II

Terms

Decibel

Decibel is a unit of measurement for sound, abbreviated dB.

Frequency

Frequency is perceived by the listener as pitch. The unit of measure for frequency is Hertz (Hz). Humans can detect pitches ranging from 10-10,000 Hz.

Intensity

Intensity is perceived by the listener as loudness. Intensity is measured in decibels (dB). Decibels are normally referenced to a scale, such as **dB_A** or **dB_{HTL}**. The A scale is used for measuring noise, the HTL scale is used for measuring individual hearing ability. The term **SIL** indicates the speech interference level of background noise.

Threshold

Threshold represents the softest sound level a listener can detect about 50% of the time the sound is presented. Human hearing is measured with an audiometer. The unit of measure for human hearing is dB (HTL) (Hearing Threshold Level). Audiometers usually measure hearing from 0 to 110 dial. 0 dB does not mean the absence of sound it represents a reference of the softest sound level the human hearing mechanism can detect.

Ranges of Hearing

- -10 - 25 dB HTL Normal hearing
- 26 - 40 dB HTL Mild hearing loss
- 41 - 65 dB HTL Moderate hearing loss
- 66 - 90 dB HTL Severe hearing loss

- 90 + dB HTL Profound hearing loss

Audiogram

Audiogram-is a written representation of human hearing. Audiograms may be written in graph or serial format.

Serial

Serial uses numbers in a table to depict thresholds. The forms used to record hearing thresholds for hearing conservation are serial audiograms.

DD2215

Reference audiogram, also called a baseline audiogram

DD2216

Periodic, Annual, Pre-/Post-deployment, 90-Day, Follow-up, Termination or Other audiograms

Graph

Uses a graph to depict threshold.

Section III

Special Abbreviations and Terms

This section contains no entries.

MCUA-RM



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Resources

DISTRIBUTION:
Fort Sill Intranet
428th FA BDE
434th FA BDE
75th FA BDE
30th ADA BDE
31st ADA BDE
RACH, MEDDAC
DENTAC