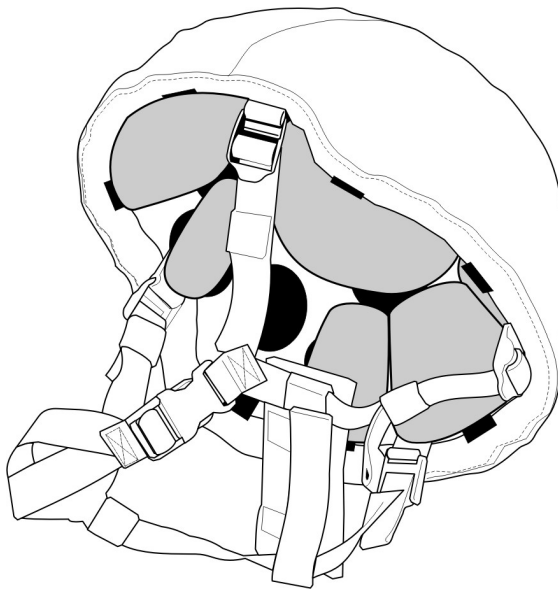
TECHNICAL MANUAL

OPERATOR'S MANUAL FOR

ADVANCED COMBAT HELMET (ACH)



***This manual supercedes TM 10-8470-204-10, dated 30 November 2002, including all changes.**

HEADQUARTERS, DEPARTMENT OF THE ARMY
31 MAY 2004

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. **Failure to observe these precautions could result in serious injury or death to personnel.**

WARNING

All seven (7) helmet pads must be worn during airborne operations and should be worn during other high-risk operations such as air assault and rappelling/mountaineering. Failure to observe this precaution could result in serious injury or death because all seven (7) pads provide maximum impact protection.

WARNING

The hardware (p-clamp, ladder lock, screw, and nut) inside the helmet--where the chinstrap retention system webbing attaches to the helmet shell--must be covered by padding during airborne and other high risk operations such as air assault and rappelling/mountaineering. The oblong/oval pad must be placed flush with the rim (edge) of the helmet and completely cover the hardware--See illustration Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear). Failure to observe this precaution could result in serious injury or death to personnel because a hard-point could contact the wearer's head.

WARNING

In order to maximize ventilation, reduction of NO MORE THAN 2 pads is authorized in non-risk situations.

WARNING

If you experience fit problems, tightness/looseness, or helmet profile is too high or too low refer to Sizing and Fitting Troubleshooting guidelines.

WARNING

When donning the helmet for the first time in a cold environment, it is necessary to wear the helmet for a few minutes or otherwise warm the pads, such as by placing in pockets, so that the pads will conform to the shape of your head. As the pads warm up and conform to the shape of your head, it may be necessary to retighten the chinstrap retention system.

WARNING

If you pull too tightly on any strap during steps 3 and 4—or if you don't position helmet on head and hold in place with one hand on top of helmet for initial adjustment as instructed in Step 2-- the helmet may become uncomfortable and tilted on your head and chin cup may become un-centered.

WARNING

For first aid treatments, refer to FM 21-11.

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LIST OF EFFECTIVE PAGES/WORK PACKAGES

Date of issue for original and changed pages / work packages is:

Original .. 0 .. 31 May 04

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 18 AND TOTAL NUMBER OF WORK PACKAGES IS 23, CONSISTING OF THE FOLLOWING:

Page/WP No.	**Change No.*	*WP/Page No.*	**Change No.*
a-b	0		
A-B	0		
i-iv	0		
WP 0001 – 0023	0		
Authentication Pg	0		
Electronic 2028 Instructions	0		

*Zero in this column indicates an original page.

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 31 May 2004

TECHNICAL MANUAL

OPERATOR'S MANUAL FOR

ADVANCED COMBAT HELMET (ACH)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA form 2028 (Recommended Changes to Publications and Blank Forms or DA Form 2028-2) directly to: Commander, U.S. Army Tank-automotive & Armament Command, ATTN: AMSTA-LC-CECT, Kansas St., Natick, MA 01760. You may also submit your recommended changes by E-mail directly to: amssbriml@natick.army.mil. A reply will be furnished directly to you. Instructions for sending electronic 2028 may be found at the back of this manual.

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont)

HOW TO USE THIS MANUAL

OVERVIEW

This manual contains operating instructions and maintenance procedures for the Advanced Combat Helmet (ACH).

This manual is divided into the following major sections:

Front Cover. Provides information about the equipment covered by the TM.

Warning Summary. Provides a summary of all warnings that apply throughout the manual.

Table of Contents. Lists chapters and work packages in order of appearance.

Chapter 1, Description and Theory of Operation. Provides descriptions, equipment data, and theory of operation information.

Chapter 2, Operator Instructions. Provides sizing information, donning information, and operating instructions in both usual and unusual conditions.

Chapter 3, Maintenance Procedures. Provides cleaning and repair instructions and maintenance procedures.

Chapter 4, Supporting Information. Provides reference information, Components of End Item (COEI)/Basic Issue Items (BII) Lists, Associated and Repair Items List, and Expendable and Durable Items List.

NAVIGATION

This TM is in work package format. All of the work packages contained within the TM are listed in the table of contents in the order they appear by chapters. The work package sequence number (e.g. WP 0001 00) is listed for each work package in the table of contents. The work package sequence number is at the top of each page of the work package and is also a part of the page number for each work package (e.g., WP 0001 00-1). The page numbers appear at the bottom of each page.

OPERATION AND MAINTENANCE

Before you use the Operator's Manual for Advanced Combat Helmet (ACH), familiarize yourself with the assembly and fitting instructions and the operating instructions (Chapter 2). Perform maintenance procedures (Chapter 3) on a regular basis. Always follow the WARNINGS and CAUTIONS.

ADVANCED COMBAT HELMET GENERAL INFORMATION

SCOPE

This manual covers the basic fitting and use instructions for the Advanced Combat Helmet (ACH), hereafter referred to as the ACH or the helmet.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS).

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your helmet needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Also please report any quality deficiencies or product defects. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to Commander, U.S. Army Tank-automotive and Armament Command, ATTN: AMSTA-LC-R, Kansas Street, Natick, MA 01760-5052. We will send you a reply.

MOST CURRENT VERSION OF THIS MANUAL

The most current version of this manual may be found at http//:www.logsa.army.mil/etms/online.htm

LIST OF ABBREVIATIONS/ACRONYMS

Components of End Item (COEI)
Basic Issue Items (BII)
Advanced Combat Helmet (ACH)

END OF WORK PACKAGE

CHAPTER 1

DESCRIPTION AND THEORY OF OPERATION

FOR

ADVANCED COMBAT HELMET (ACH)

ADVANCED COMBAT HELMET EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

The ACH is a helmet system that provides ballistic and impact protection. This system is compatible with the current night vision devices (NVG's), communications packages, and nuclear, biological, and chemical (NBC) defense equipment and body armor.

- The ACH provides ballistic protection within the full spectrum of operational environments.

- The ACH allows maximum sensory and situational awareness for the operator. This includes an unobstructed field of view and increased ambient hearing capabilities.

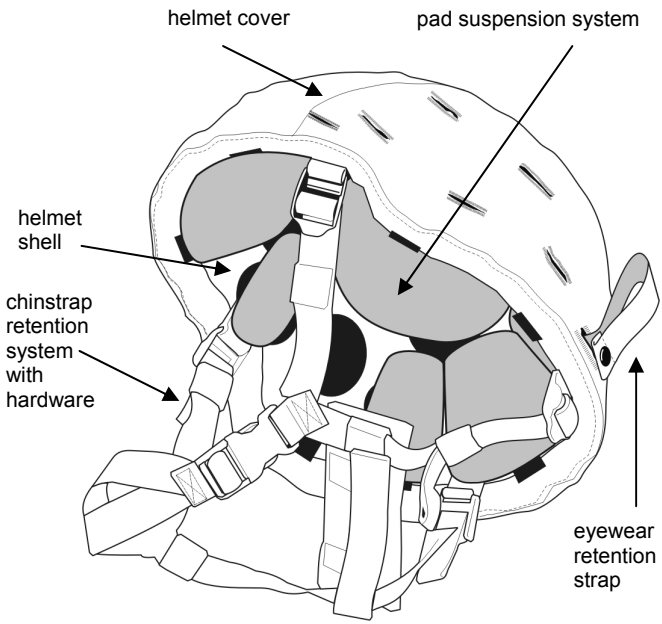
- The ACH's chinstrap retention system and pad suspension system provides unsurpassed balance, stability, and comfort. This system provides for proper size, fit, and ventilation.

- The ACH’s pad suspension system provides impact protection throughout all operational scenarios, including static-line airborne operations.

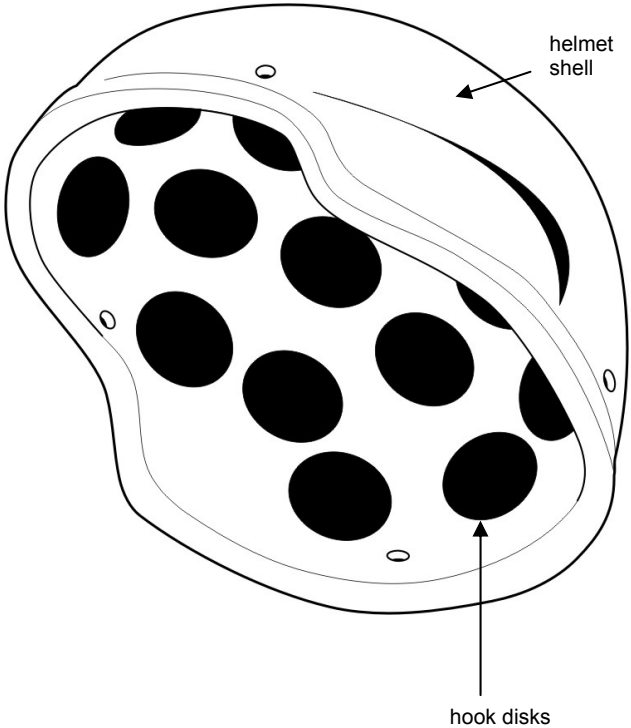
DESCRIPTION OF MAJOR COMPONENTS

The Advanced Combat Helmet is made up of the following major components, which are illustrated below:

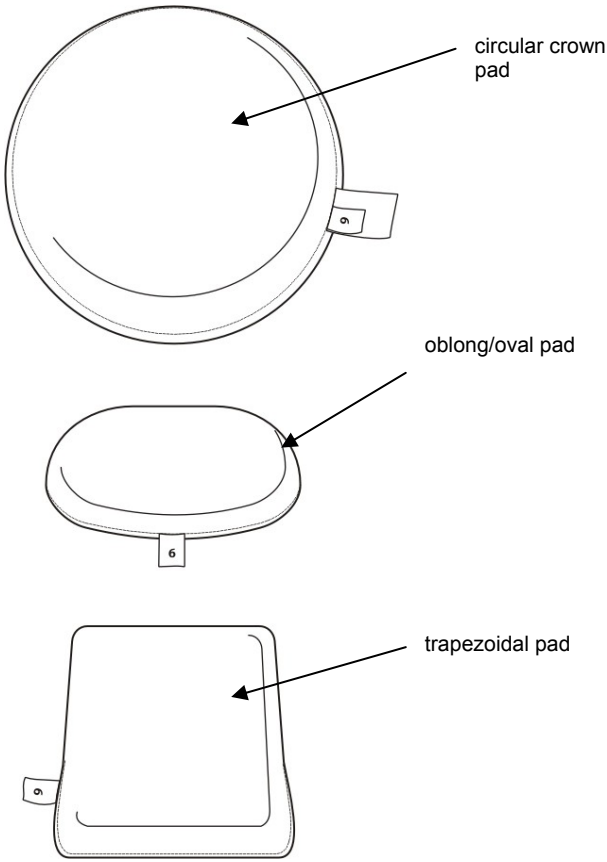
helmet shell
pad suspension system
chinstrap retention system with hardware
helmet cover
eyewear retention strap



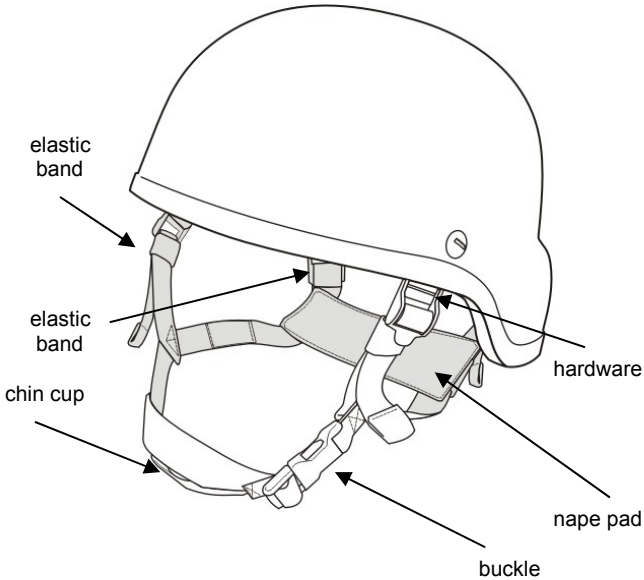
Major Components



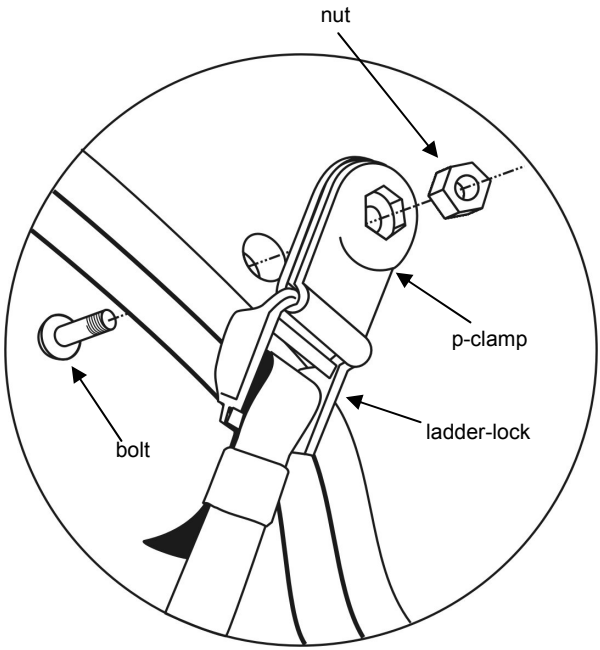
Helmet Shell



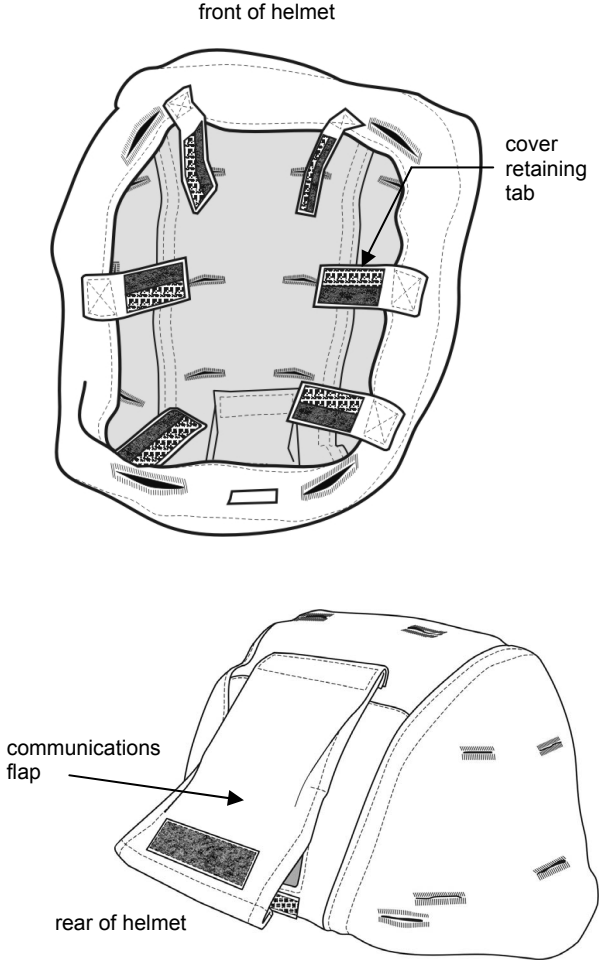
Pad Suspension System



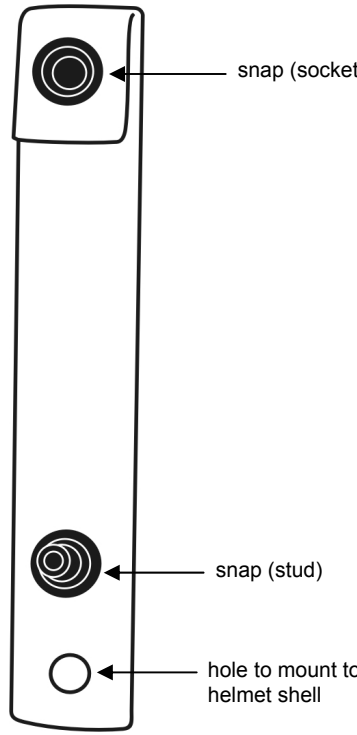
Chin Strap Retention System with Hardware



Hardware



Helmet Cover



Eyewear Retention Strap

The following are used in certain operations:

chemical protective cover
helmet band

END OF WORK PACKAGE

ADVANCED COMBAT HELMET THEORY OF OPERATION

This work package discusses theory of operation and protective qualities of the ACH.

This ACH is designed to provide the Soldier with ballistic and impact protection. It is compatible with night vision, communications, and Nuclear, Biological and Chemical (NBC) equipment. The ACH weighs approximately 3 lbs for the size medium, 3.25 lbs for the size large, and slightly more than 3.6 lbs for the extra large.

The edge cut of the shell has been reduced when compared to the Helmet, Ground Troops and Parachutists. This enables better situational awareness through improved field of vision and hearing.

The shell provides ballistic protection. The pads act as a suspension system providing sizing and fitting. In conjunction with the shell, the pad suspension system provides impact protection. In conjunction with the chinstrap retention system, the pad suspension system provides stability.

The chinstrap retention system is a four-point design, attaching to the shell at four locations. In conjunction with the pad suspension system, it provides improved stability.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

FOR

ADVANCED COMBAT HELMET (ACH)

OPERATION UNDER USUAL CONDITIONS
SIZING AND FITTING INSTRUCTIONS

This work package provides instructions for choosing the proper size ACH.

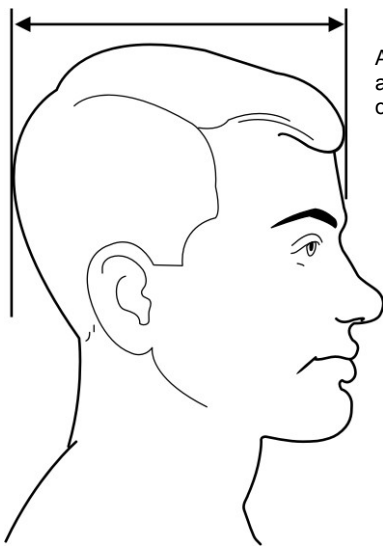
ACH Shell Sizing

Head Measuring Procedure

Use tape measure and caliper to make the following measurements. See WP 0020 00, Expendable and Durable Items List, for appropriate NSNs.

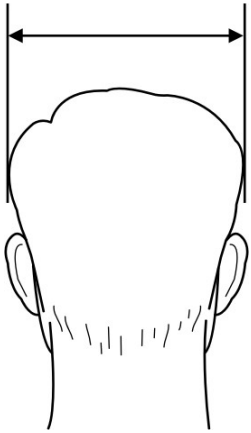
Step 1. Subject *must* be seated in upright position.

Step 2. Measure head length. Measurement is best made with a caliper. If caliper is not available, an approximate measurement can be made using a tape measure aligned with the front and back of head as shown. Record size measured.



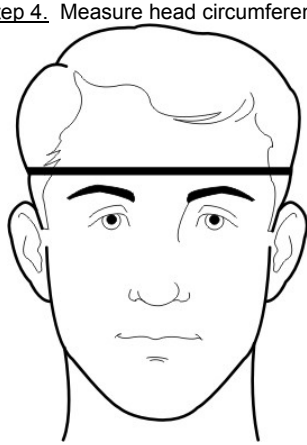
Arrows denote the proper alignment of the caliper or tape measure.

Step 3. Measure head width. Measurement is best made with a caliper. If no caliper is available, an approximate measurement can be made using a tape measure aligned with each side of head as shown. Record size measured.



Arrows denote the proper alignment of the caliper or tape measure.

Step 4. Measure head circumference. Record size measured.



Subject sits erect with head level. Measure circumference by passing tape measure just above the bony eyebrow ridges of the forehead and above both ears. The tape measure must be pulled tight.

Step 5. Using the chart below, select the helmet size based on the **largest** of the 3 measurements. If a measurement falls on the dividing line between the two sizes, select the larger size. This is the proper shell size for the soldier measured.

NOTE

If any measurement falls on the dividing line between sizes, select the larger size.

Head/Shell Sizing Chart

	Head Length	**Head Width**	**Head Circumference**
Medium Helmet Shell	Up to 7 ¾ inches (198 mm)	Up to 6 ½ inches (162 mm)	Up to 22 ½ inches (573 mm)
Large Helmet Shell	From 7 ¾ inches (198 mm) up to 8 ¼ inches (210 mm)		From 22 ½ inches (573 mm) up to 23 ½ inches (597 mm)
Extra-Large Helmet Shell	8 ¼ inches (210 mm) and over	6 ½ inches (162 mm) and over	23 ½ inches (597 mm) and over

ACH Pad Sizing

Two size pads are available—a size 6 (thinner) and a size 8 (thicker).

To select pad size:

1. Assemble helmet in standard pad configuration (see Pad Configuration in WP 0005 00). **If other equipment is to be used with the helmet, such as headset/microphone, evaluate size with that equipment (if possible).**

2. Try on helmet and evaluate fit. Proper fit is achieved when the helmet does not sit too high (crown pad dos not contact head or too much of forehead is exposed) or too low (too low on brow or not compatible with eyewear, etc.) and is not too tight or too loose (see Sizing and Fitting Troubleshooting in WP 0007 00). Shake head rapidly from side to side to check for stability. Helmet should not rotate from side to side when head is shaken. While evaluating fit, be sure to have the chinstrap retention system cinched down.

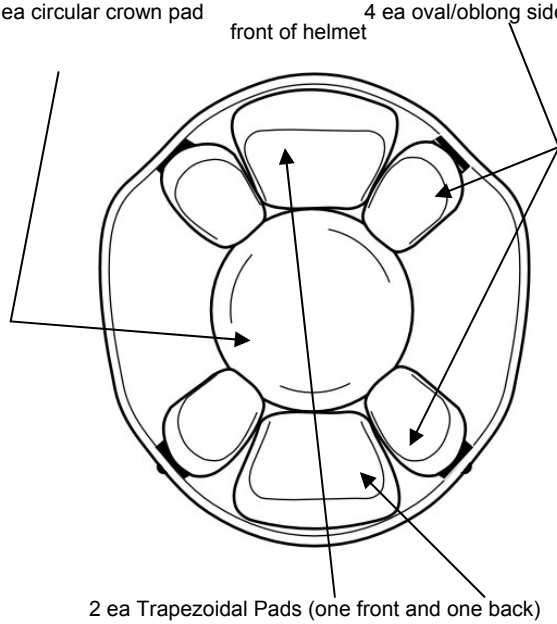
END OF WORK PACKAGE

OPERATION UNDER USUAL CONDITIONS
PAD CONFIGURATIONS

This work package provides instructions for different pad configurations.

Standard Pad Configuration

- All seven (7) pads are worn when first trying on the helmet for sizing and fitting and for airborne and other high-risk operations (see configuration for airborne operations in WP 0013 00 for additional information).



Standard Pad Configuration

Alternate Pad Configurations

Alternate pad configurations are allowed to obtain a better fit or more comfort.

• Pads can be placed in vertical or horizontal directions (as shown in illustrations) or a combination or at an angle between horizontal and vertical (diagonal).

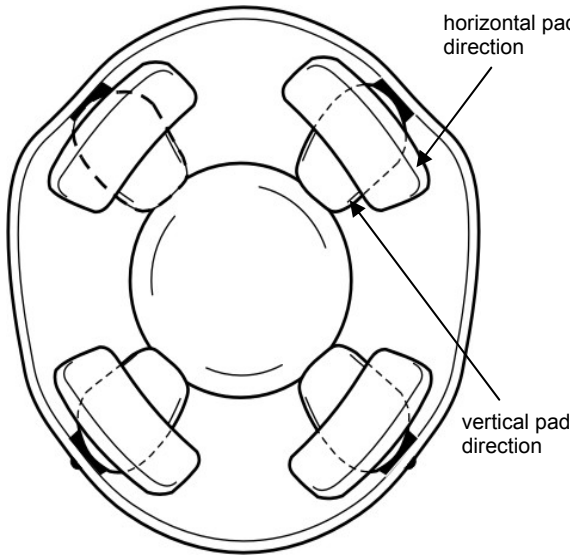
• Up to two pads (oblong/oval or trapezoidal) can be removed in non-risk situations. The circular crown pad must always remain in the helmet.

• Pads should be placed around the inside of the helmet to provide optimum comfort and stability.

• It is best to cover hardware with pads in all situations. However, hardware **MUST** be covered with pads in high-risk situations.

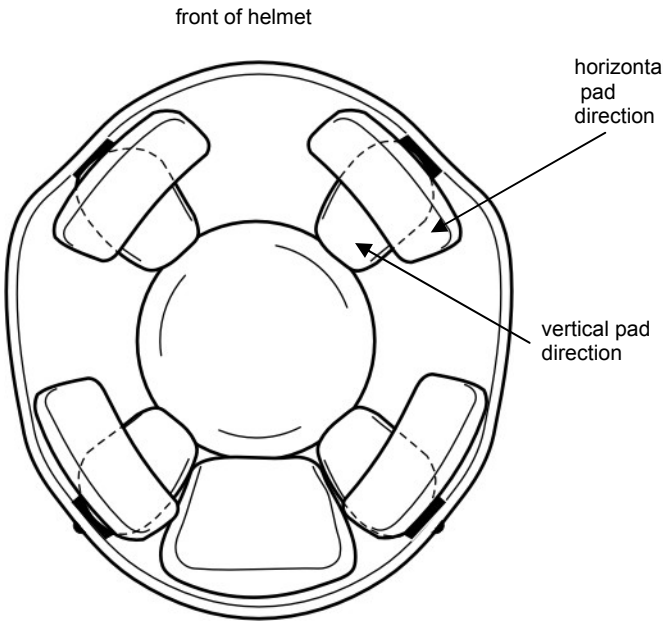
The following illustrations show alternate configurations. For reasons of clarity only, each of the illustrations shows pads in either horizontal or vertical positions but not in diagonal positions. However, the pads can be placed diagonally, at any angle.

front of helmet



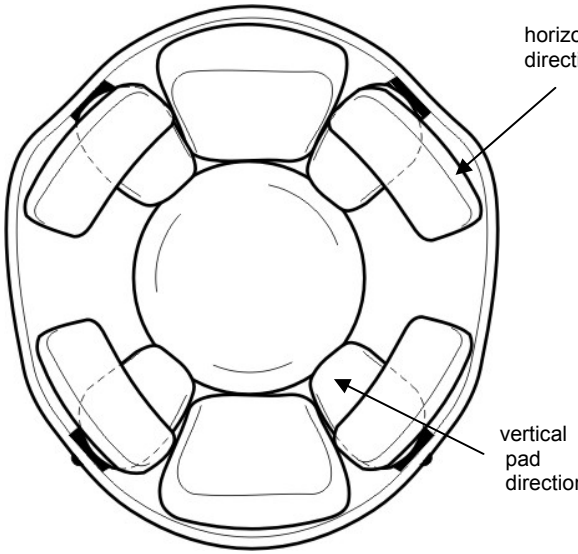
Five-Pad Configuration

The five-pad configuration is useful in hot climates.



Six-Pad Configuration

The six-pad configuration is useful for wearer's who have long heads or when wearing protective masks.



Seven-Pad Configuration

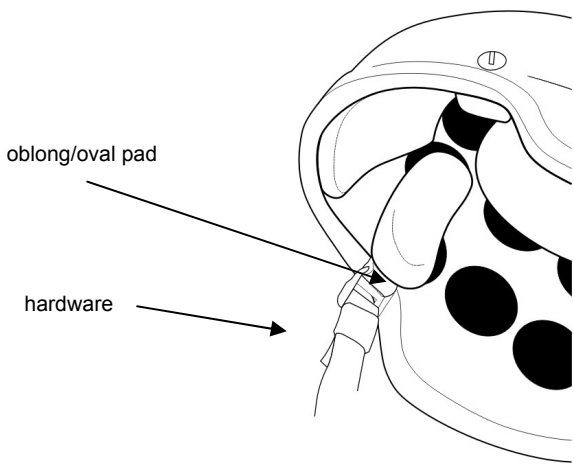
The seven-pad configuration is the standard configuration and offers the most impact protection and is required for airborne operations.

OPERATION UNDER USUAL CONDITIONS
PAD SUSPENSION ADJUSTMENT

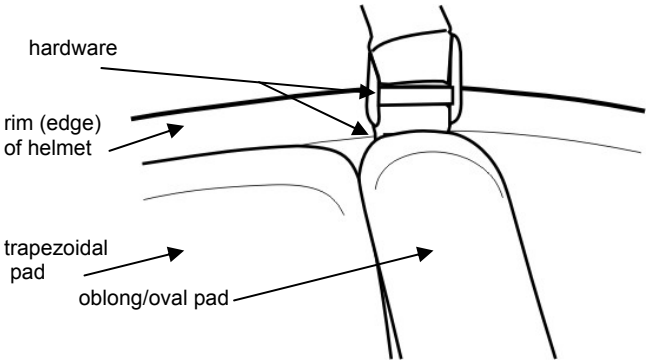
This work package provides information about the adjusting the pad suspension system. This unique suspension system is fully adjustable. The system has the following requirements and restrictions:

WARNING

The hardware (p-clamp, ladder lock, screw, and nut) inside the helmet--where the chinstrap retention system webbing attaches to the helmet shell--must be covered by padding during airborne and other high risk operations such as air assault and rappelling/mountaineering. The oblong/oval pad must be placed flush with the rim (edge) of the helmet and completely cover the hardware--See illustration Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear). Failure to observe this precaution could result in serious injury or death to personnel because a hard-point could contact the wearer's head.



Pad Placement over Hardware (Front)



Pad Placement over Hardware (Rear)

WARNING

All seven (7) helmet pads must be worn during airborne operations and should be worn during other high-risk operations such as air assault and rappelling/mountaineering. Failure to observe this precaution could result in serious injury or death because all seven (7) pads provide maximum impact protection.

WARNING

If you experience fit problems, tightness/looseness, or helmet profile is too high or too low refer to Sizing and Fitting Troubleshooting guidelines.

NOTE

When donning the helmet for the first time in a cold environment, it is necessary to wear the helmet for a few minutes or otherwise warm the pads, such as by placing in pockets, so that the pads will conform to the shape of your head. Hardware rim (edge) of helmet trapezoidal pad oblong/oval pad. As the pads warm up and conform to the shape of your head, it may be necessary to retighten the chinstrap retention system.

WARNING

Up to two pads (either oblong/oval or trapezoidal) can be removed in non-risk situations. However, the circular crown must always remain in the helmet.

NOTE

If you experience hot spots or discomfort, try rearranging the pad system to accommodate a more comfortable fit. If discomfort persists, try resizing your shell (See Sizing and Fitting Instructions, WP 0004 00 or Sizing and Fitting Troubleshooting, WP 0007 00)

The direction of the side oblong/oval pads may be changed to maximize comfort. These pads may be routed vertically from bolt to crown. This configuration maximizes airflow for better temperature regulation. These pads may be routed horizontally to make a seal around the user's head. This configuration is better suited for cold weather environments. (See Pad Configurations in WP 0005 00.)

END OF WORK PACKAGE

OPERATION UNDER USUAL CONDITIONS
SIZING AND FITTING TROUBLESHOOTING

This work package provides sizing and fitting troubleshooting techniques.

1. If helmet is too tight:

- Try arranging side pads in a horizontal configuration or diagonal direction (see pad configuration illustrations in WP 0005 00).

- If rearranging the pads does not alleviate the tightness, try the next smaller pad size.

- Try removing front pad and rearranging side pads to create space in the area you felt tightness (see pad configuration illustrations in WP 0005 00).

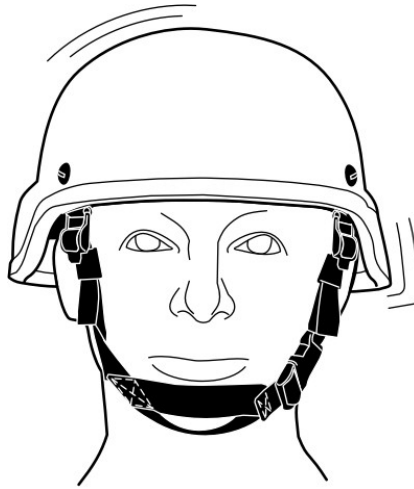
Helmet too tight

2. If too loose (Shake head from side to side while eyes are closed. If helmet slides on head, it is too loose.)

- Try a larger (thicker) pad set.

- Select the next smaller shell size.

- Increase the number of pads in shell.



Helmet too loose

3. If too high: (i.e., too much forehead exposed, crown and does not touch top of head, or wearer does not see edge of rim):

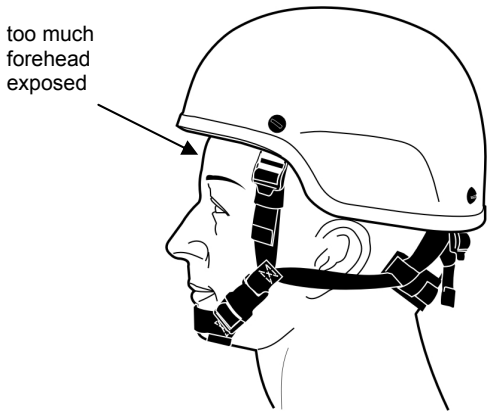
- Try smaller (thinner) sized pad set.

- Try rearranging pads (horizontal or diagonal—see pad configuration illustrations in WP 0005 00.)

- Try a larger shell size.

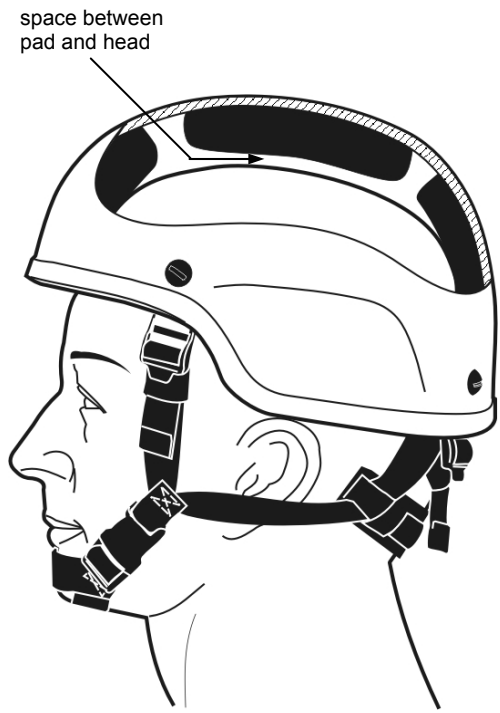
It is extremely important that the helmet not be sized and fitted to sit too high on the head. Here are some things to look for:

If too much of forehead is exposed (approximately more than ½-inch above eyebrow), then the helmet is too high.



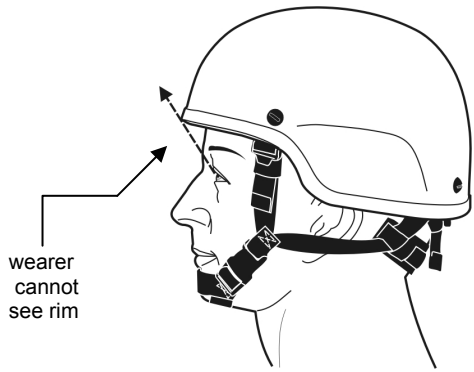
Helmet too high (too much forehead exposed)

- If crown pad does not hit head (wearer cannot feel pad), then helmet may be too high.



Helmet too high (Crown pad not touching head)

- When fitting, have subject look upward by moving eyes, but without moving head. If subject cannot see rim of helmet, helmet may be too high.



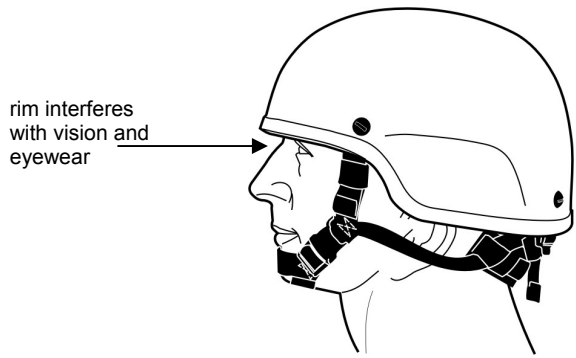
Helmet too high (looking past rim)

4. If too low: (i.e. helmet too low on brow, helmet not compatible with eyewear, or has other similar compatibility issues)

- Try larger (thicker) pad set.

- Try rearranging pads (horizontal or diagonal—see pad configuration illustrations in WP 0005 00.)

- Try a smaller helmet shell.



Helmet too low

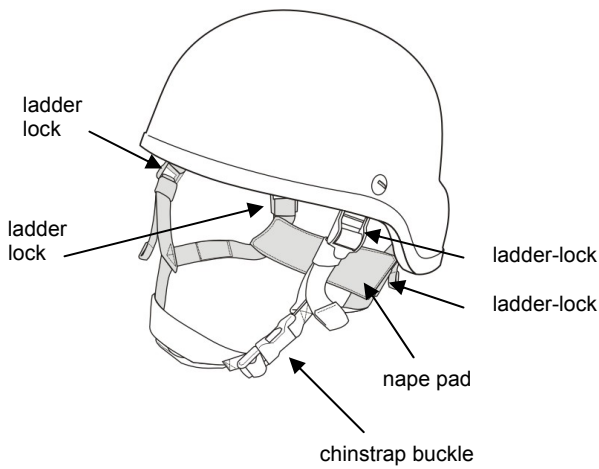
OPERATION UNDER USUAL CONDITIONS
DONNING AND DOFFING

This work package provides instructions for donning and doffing the helmet, including adjusting the chinstrap to optimize fit and comfort.

Donning: To don (put on) the helmet:

Step 1. Check number and placement of pads-- (see pad illustrations in WP 0005 00).

Step 2. Prior to donning helmet, loosen all adjustment straps (2 ladder-locks in front, 2 ladder-locks in back and the nape pad). Unbuckle chinstrap buckle.

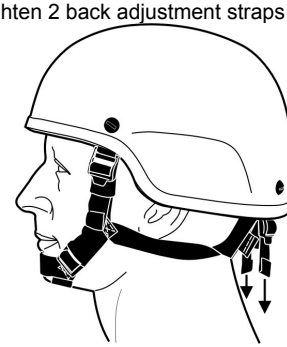


Step 3. Position helmet on head and buckle chinstrap. Hold helmet in place with one hand on top of helmet for initial adjustment.

WARNING

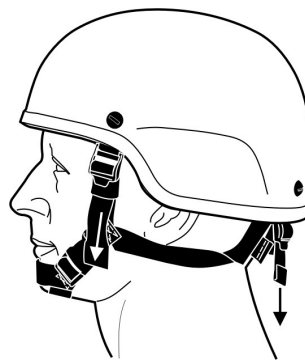
If you pull too tightly on any strap during Steps 4 and 5—or if you don't position helmet on head and hold in place with one hand on top of helmet for initial adjustment as instructed in Step 3—the helmet may become uncomfortable and tilted on your head and chin cup may become un-centered.

Step 4. Partially tighten 2 back adjustment straps (one side at a time).

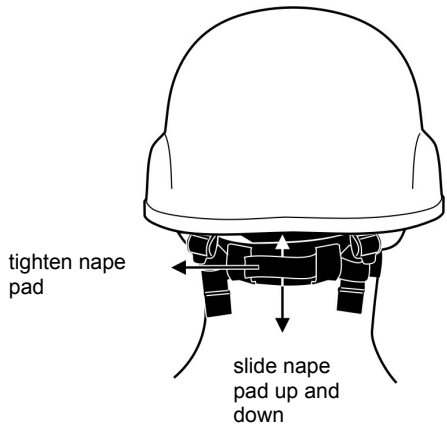


Step 5. Partially tighten 2 front adjustment straps (one side at a time).

Step 6. With both hands, fully tighten front and back adjustment straps.



Step 7. The nape pad can be can be slid up and down along the rear legs of the chinstrap. It can be positioned according to personal comfort. When tightened (see figure below) against the nape by pulling on end of webbing, the nape pad adds additional stability to the helmet such as when wearing NVGs. Keep the nape pad away from the ladder-locks while adjusting the chinstrap to prevent jamming.



Doffing: To doff (remove) the helmet:

To doff the helmet, press the sides of the center section of the buckle on the chinstrap retention system inward. Once the buckle releases, remove the helmet. To just loosen the chinstrap, push up on the ladder-lock.

END OF WORK PACKAGE

OPERATION UNDER USUAL CONDITIONS
REMOVING AND REPLACING CHINSTRAP RETENTION SYSTEM

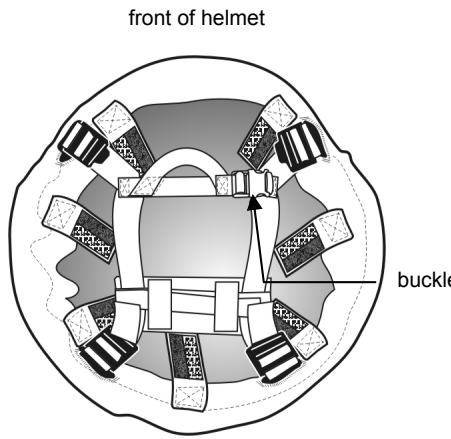
This work package provides instructions for replacing the ACH's chinstrap retention system.

1. Unthread the chinstrap retention system webbing from the ladder-lock.

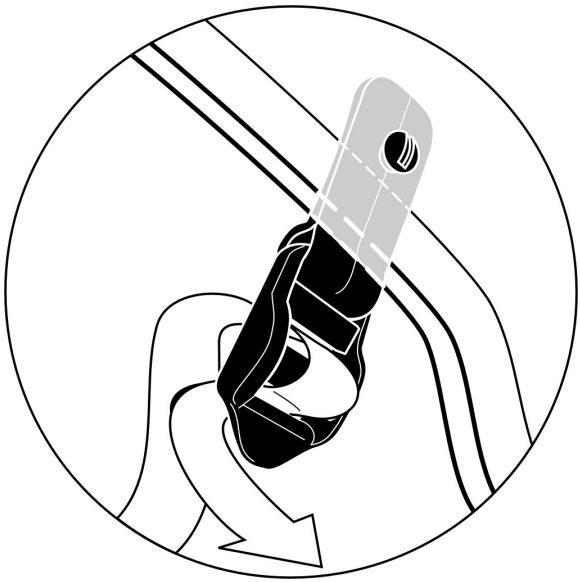
2. Lay the helmet on its crown with the front of the helmet away from you (buckle is located on right side of helmet.) Drape the replacement chinstrap retention system over the helmet with the nape-strap pad facing down on the back/rear of the helmet (see Chinstrap Retention Orientation illustration below).

3. Insert and thread the four legs of the chinstrap into their corresponding ladder locks. (See Routing of Chinstrap Retention System Webbing through Ladder Lock illustration below.) For illustration of entire assembled helmet with chinstrap retention and hardware—please refer to WP 0002. Take care to ensure that webbing is not twisted.

4. Slide elastic band over loose ends of webbing.



Chinstrap Retention System Orientation



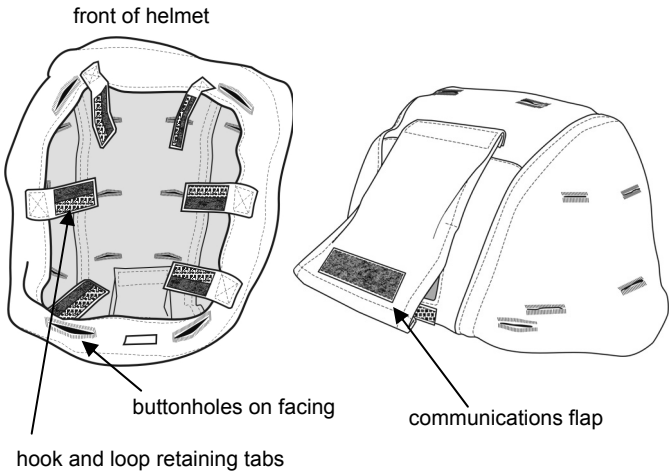
Routing of Chinstrap Webbing through Ladder Lock

END OF WORK PACKAGE

OPERATION UNDER USUAL CONDITIONS
ATTACHING HELMET COVER

This work package provides instructions for attaching the camouflage helmet cover to your ACH.

There are two covers available for the ACH: a reversible woodland/desert cover and a white (Artic) cover.



Helmet Cover (Inside) **Helmet Cover (Outside, Back)**

1. Remove the suspension pads from the inside of the helmet shell.

2. Remove the chinstrap retention system webbing (see WP 0009 00). LEAVE THE HARDWARE (P-CLAMPS AND LADDER LOCKS) ATTACHED TO THE SHELL.

3. Select the camouflage pattern to be worn and orient the cover so that the desired pattern is on the outside if using the reversible cover.

4. Align the label (found on rear of helmet cover) with the rear of the helmet shell.

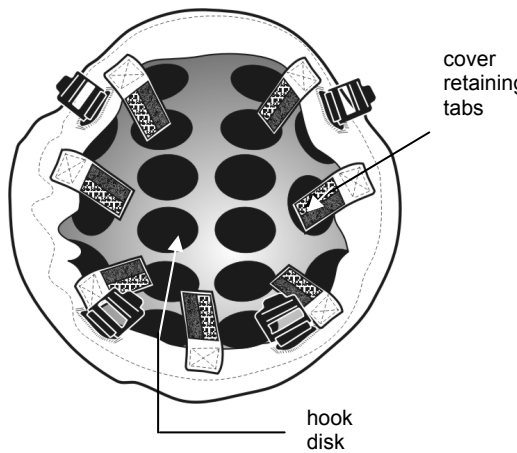
5. Pull the cover over the back and sides of helmet shell.

6. Thread each ladder-lock through the corresponding buttonhole in the cover.

7. Pull the cover retaining tabs down and attach tabs to hook disks inside helmet shell. Ensure tight smooth fit of cover by pulling the retaining tabs until tight.

8. Place suspension pads back into shell. (See WP 0005 00.)

9. Replace chinstrap retention system webbing. (See WP 0009 00 for instructions for replacing the chinstrap.)



Helmet Cover Installed

The communications flap is used to store cables from the headset-microphone that is sometimes used with the helmet.

The flap can also be used to secure goggle straps if no eyewear retention straps are available. Lift the flap and place the goggle strap under the flap. Re-secure the flap by pressing the hook and loop together.

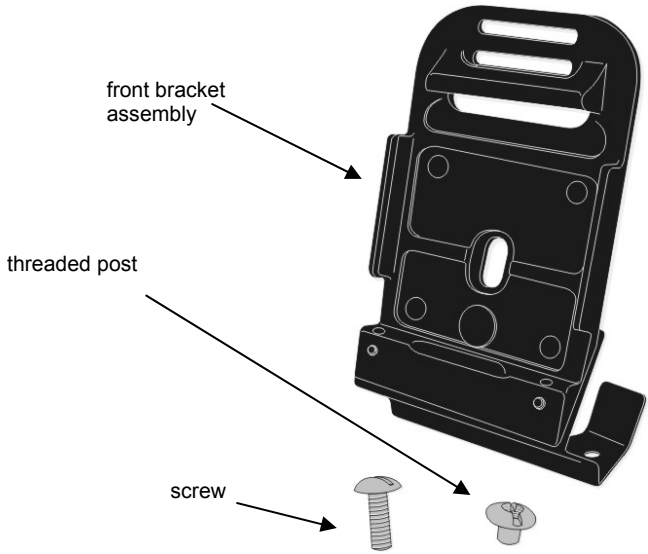
END OF WORK PACKAGE

OPERATION UNDER USUAL CONDITIONS
FRONT BRACKET ASSEMBLY KIT INSTALLATION

This work package provides instructions for installing the front bracket assembly kit on the ACH.

1. Make sure that the front bracket assembly kit has all the components. You should have a front bracket assembly, a screw, and a threaded post (see illustration below). See WP 0022 00, Associated and Repair Items List, for appropriate NSN.

2. Install the helmet cover on your helmet. See WP 0010 00 for attaching helmet cover instructions.



Front Bracket Assembly Kit Contents

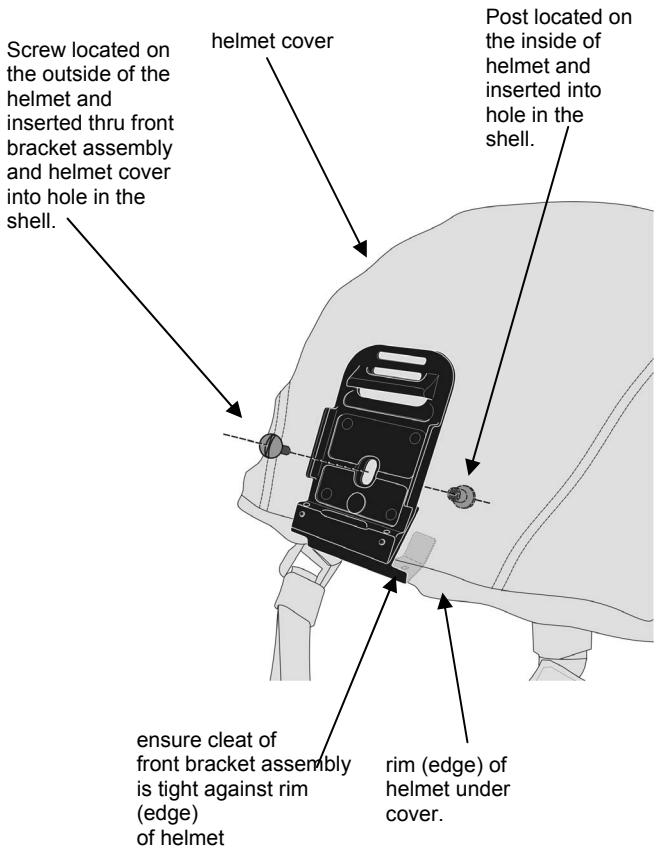
3. Place the front bracket assembly on the helmet over the helmet cover. Line up the hole in the plate, the front buttonhole in the cover, and the hole in the helmet shell (see “Front Bracket Assembly Positioned Helmet” illustration in this work package). Move the cover around to line up the buttonhole in the cover.

4. Insert the screw through the front bracket assembly, cover, and into shell from the outside of the helmet. Insert the threaded post from inside the helmet. Start to tighten the screw and post (see “Front Bracket Assembly Positioned Helmet” illustration in this work package).

5. Before completely tightening the screw, ensure that the cleat of front bracket assembly is tight against the rim of the helmet (see “Front Bracket Assembly Positioned Helmet” illustration in this work package). Push the bracket up so that the cleat is tight against the rim (edge) of the helmet while tightening the screw and post. It may be helpful to have another person assist with this step.

CAUTION

Do not over tighten the screw or the front bracket assembly may break.



Front Bracket Assembly Positioned on Helmet

NOTE

If no NVG Front Bracket is used—and the helmet has hole for front bracket—plug hole with 8-32 x 3/8 long screw and post. See WP 0021 00, Associated and Repair Items List, for appropriate NSN.

END OF WORK PACKAGE

OPERATION UNDER USUAL CONDITIONS
EYEWEAR RETENTION STRAP INSTALLATION INSTRUCTIONS

This work package provides instructions for installing the eyewear retention strap on the ACH.

1. Make sure you have two eyewear retention straps (see WP 0022 00, Associated and Repair Items List, for appropriate NSN).

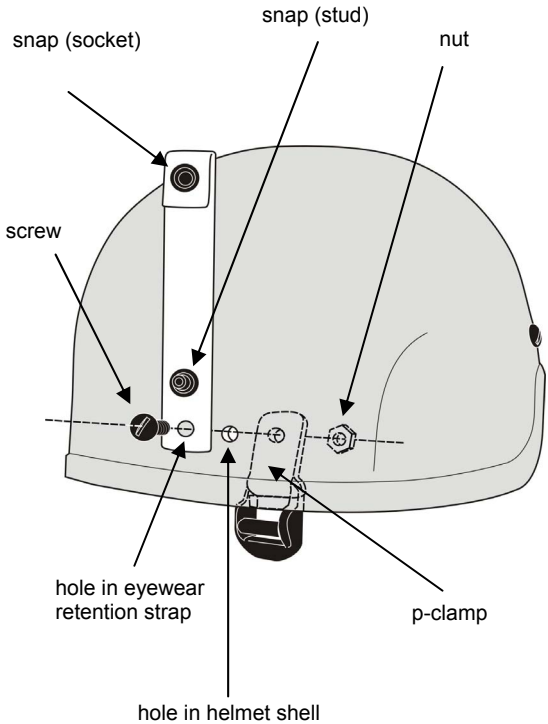
2. If the helmet cover is installed, remove the rear cover retaining tabs and slide the rear half of the cover up to expose the two rear screws. You can also remove the cover completely (see WP 0010 00).

3. Remove the two rear screws and place an eyewear retention strap over the barrel (shaft) of each of the two screws with the snap socket and stud facing away from the helmet. (See Eyewear Retention Strap and Screw Assembly illustration in this work package.) A strap is installed on each of the two rear screws.

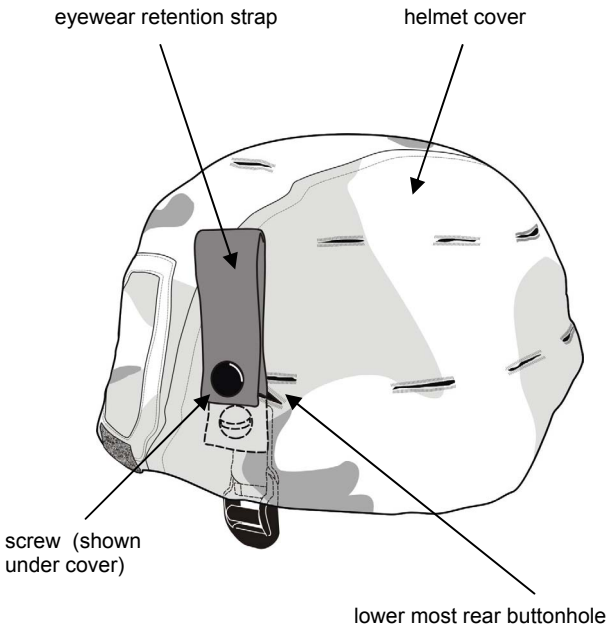
4. Insert the screws with eyewear retention straps attached into holes in helmet.

5. Place p-clamps and nuts on the screws and tighten. (See WP 0014 00, which shows screw and nut installation, for replacing the hardware.)

6. Install the helmet cover. While installing the cover, thread eyewear retention strap through lower most rear buttonhole on cover (see WP 0010 00 for attaching the helmet cover). (See Helmet with Eyewear Retention Strap Installed illustration for finished assembly.)



Eyewear Retention Strap and Screw Assembly



Helmet with Eyewear Retention Strap Installed

OPERATION UNDER USUAL CONDITIONS
CONFIGURATION FOR AIRBORNE OPERATIONS

This work package provides instructions for configuring the ACH for airborne operations as well as other high-risk operations such as air assault and rappelling/mountaineering. No other parts or components are required for airborne use of the helmet.

WARNING

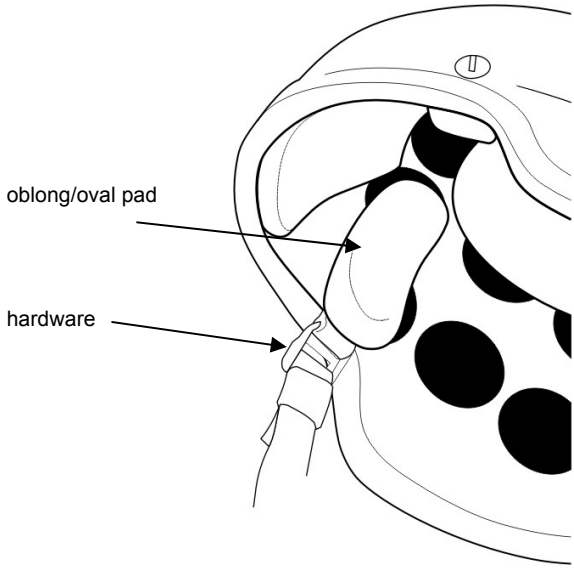
The hardware (p-clamp, ladder lock, screw, and nut) inside the helmet--where the chinstrap retention system webbing attaches to the helmet shell--must be covered by padding during airborne and other high risk operations such as air assault and rappelling/mountaineering. The oblong/oval pad must be placed flush with the rim (edge) of the helmet and completely cover the hardware--See illustration Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear). Failure to observe this precaution could result in serious injury or death to personnel because a hard-point could contact the wearer's head.

WARNING

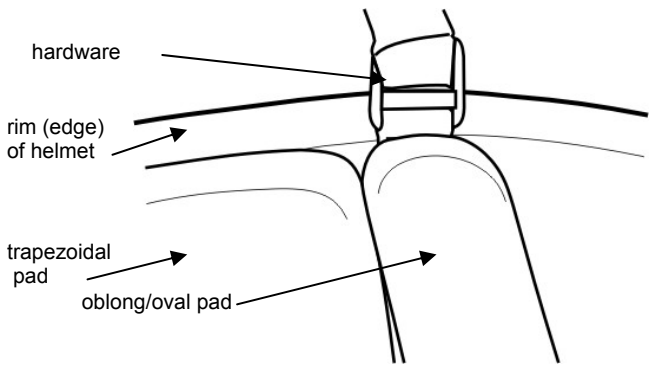
All seven (7) helmet pads must be worn during airborne operations and should be worn during other high risk operations such as air assault and rappelling/mountaineering. Failure to observe this precaution could result in serious injury or death because all seven (7) pads provide maximum impact protection.

WARNING

The rear trapezoidal pad must be placed flush with the rim (edge) of the helmet for airborne operations. If you experience helmet rotation during airborne operations the rear trapezoidal pad can be placed so that it extends ½" beyond the rim of the helmet. Placement of the rear trapezoidal pad flush or beyond the rim (edge) of the helmet prevents the hard shell from hitting your neck. (See Pad Placement over Hardware (Front) and Pad Placement over Hardware (Rear) illustrations.)



Pad Placement over Hardware (Front)



Pad Placement over Hardware (Rear)

CHAPTER 3

MAINTENANCE PROCEDURES

FOR

ADVANCED COMBAT HELMET

MAINTENANCE PROCEDURES
REPLACING THE HARDWARE

This work package provides instructions for replacing the ACH's hardware (ladder lock, p-clamp, screw, or nut).

NOTE

To replace hardware, use a standard flathead screwdriver. If this tool is unavailable, a coin may be used.

1. Remove the chinstrap retention system as described in WP 0009 00.

2. Remove the screw with a standard flathead screwdriver and lift the ladder lock and p-clamp out.

3. Replace the necessary portion (ladder-lock or p-clamp). Replace screw and nut. Ensure the proper orientation of the ladder locks by seating the nut in the recessed portion of the p-clamp. (See Hardware Installation illustration in this work package.) Tighten the screw.

4. Inspect the screws to ensure tightness. If loosening persists, use the sealing compound (thread-locking compound) (see WP 0020 Expendable and Durable Items List). Follow directions on container.

Hardware Installation

END OF WORK PACKAGE

MAINTENANCE PROCEDURES
REPLACING THE PAD SUSPENSION

This work package provides information on replacing the pad suspension.

Replacing Pad Suspension

NOTE

On one side the pads are covered with a loop material. On the other side, the pads are covered by moisture-wicking fabric. ONLY THE LOOP SIDE OF THE PAD WILL ATTACH TO THE HOOK DISKS ON THE HELMET SHELL. Press the pad against the hook disks. The loop side of the pad is green.

1. Pull the individual pads off the inner helmet hook disks.

2. Reattach suspension pads as needed. (see WP 0005 00 for Pad Configurations and WP 0006 for Pad Suspension Adjustment.)

END OF WORK PACKAGE

MAINTENANCE PROCEDURES
CLEANING INSTRUCTIONS

This work package provides instructions for cleaning the ACH.

Helmet Shell

1. Clean with mild soap and water. Use a soft brush or cloth.

2. Allow to air dry.

A small brush is useful in removing dirt from the hook disks on the inside of the shell.

Chinstrap, Helmet Cover, and Pad Suspension

1. Clean with mild soap and water. Wash by hand or in machine in the gentle cycle, cold water.

2. Allow to air dry. DO NOT MACHINE DRY.

Keeping the hook and loop clean will help to maintain its ability to stick together.

END OF WORK PACKAGE

MAINTENANCE PROCEDURES
PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Introduction

General

Preventive maintenance checks and services (PMCS) are performed to keep the ACH in operating condition. The checks are used to find, correct, and report problems. The operator is to do the PMCS tasks shown in PMCS Table 1. PMCS is to be done before, during, and after use of the ACH.

Before you use the ACH, perform PMCS.

During use of the ACH, periodically perform PMCS.

After you have used the ACH, perform PMCS.

PMCS Column Description

ITEM – The order the PMCS should be performed and a reference number for maintenance forms. INTERVAL – Tells when the check should be performed. ITEM TO BE CHECKED OR SERVICED – Tells which items to perform the PMCS procedure on. PROCEDURE – Tells the procedure to perform. If item cannot be repaired, it must be replaced. EQUIPMENT NOT READY IF – Tells what conditions render the ACH unfit to perform the mission.

Table 1. Preventive Maintenance Checks and Services

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF
1	Before	Chinstrap Retention System	Check for: 1) Cuts, frays or other damage or loose or damaged stitching in the webbing. If webbing is frayed more than ½" or has a discernable cut, or loose or damaged stitching, refer to higher level maintenance for repair.	Chinstrap webbing has cuts, frays, or other damage.
			2) Cracked, worn, or damaged hardware (p-clamp, ladder-lock, nut, screw) and buckle. Refer to higher level maintenance for repair.	Hardware or buckle is cracked, worn, or damaged.
			3) Loose screws. Tighten screws or refer to higher level maintenance if loose.	Screws loose.

2	Before	Pads	Cuts, tears or other damage to outer fabric or inner foam. If pads are torn or cut exposing the inner padding, replace.	Pads torn, cut or otherwise damaged.
3	Before	Shell	1) Gouges, scrapes, cracks, delamination or other damage to shell. If gouges, scrapes, or damage extends below the surface (below the paint), refer to higher level maintenance for repair.	Gouges, scrapes, cracks, delamination or other damage extends below the surface (below the paint).
			2) Loose or damaged edging. Refer to higher level maintenance for repair.	Edging is excessively loose or damaged.
			3) Loose or damaged hook disks. Refer to higher level maintenance for repair.	Hook disks are damaged such that they will not securely hold the pads in place.

4	Before	Cover	Cuts, frays or other damage to the fabric or cut or frayed stitching. Refer to higher level maintenance for repair.	Excessive cuts, frays, or other damage to the fabric or cut or frayed stitching.
5	During	Chinstrap Retention System	Inspect for damaged components (see Item 1)	Chinstrap components are damaged.
6	After	Chinstrap Retention System, Hardware, Pads, Shell	Perform all PMCS steps in Items 1-4 after use.	See above.

END OF WORK PACKAGE

CHAPTER 4

SUPPORTING INFORMATION

FOR

ADVANCED COMBAT HELMET (ACH)

SUPPORTING INFORMATION REFERENCES

This work package lists related field manuals, forms, technical manuals, and miscellaneous publications.

FIELD MANUALS

FM 3-5	Tactics of Chemical Warfare
FM 21-11	First Aid for Soldiers
FM 3-21.220	Static Line Parachuting Techniques and Training

FORMS

DA Form 2028	Recommended changes to Publications and Blank Forms
SF 368	Product Quality Deficiency Report

TECHNICAL MANUALS

TM 10-8400-203-23	Unit and Direct Support Maintenance Manual for General Repair Procedures for Individual Equipment
TM 11-5855-262-10-2	Night Vision Goggles AN/PVS-7B (NSN 5855-01-228-0937) (EIC: LPS) and AN/PVS-7D (NSN 5855-01-422- 54) (EIC: N/A) (TO 12S10-2PVS7-11; TM 09500A-10/1A; NAVSEA SW215-AT
TM 11-5855-306-10	Monocular Night Vision Device AN/PVS-14 (NSN 5855-01-432-0524) (EIC: N/A) (TM 10271A-10/1)

MISCELLANEOUS PUBS

DA PAM 738-750	Functional User's Manual for the Army Maintenance

END OF WORK PACKAGE

SUPPORTING INFORMATION
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

INTRODUCTION

Scope

This work package lists COEI and BII for the Advanced Combat Helmet to help you inventory items for safe and efficient operation of the equipment.

General

The COEI and BII information is divided into the following lists: Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the helmet. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the Advanced Combat Helmet in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the Advanced Combat Helmet during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) Illus Number. Gives you the number of the item illustrated. Column (2) National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes. Column (3) Description, CAGEC, and Part Number. Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the

CAGEC (Commercial and Government Entity Code) (in parentheses) and the part number.

Column (4) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. (Add the following only as applicable. Replace Xs with appropriate codes and model numbers.) These codes are identified below:

Code Used on

XXX Model XXX

XXX Model XXXX

XXX Model XXXXX

Column (5) Unit of Issue (U/I). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) Qty Rqr. Indicates the quantity required."

Components of End Item

(1) Illus Num-ber	(2) National Stock Number	(3) Description, CAGEC, and Part Number	(4) Usable on Code	(5) U/I	(6) QTY
	8470-01-476-2605	Strap, Chin Retention	N/A	ea	1
	8470-01-476-5643	Pad, Suspension System, ACH (set of size 6 pads)	N/A	set	1
	8470-01-476-5648	Pad, Suspension System, ACH (set of size 8 pads)	N/A	set	1

Basic Issue Items (BII) List

(1) Illus Number	(2) National Stock Number	(3) Description, CAGEC, and Part Number	(4) Usable on Code	(5) U/I	(6) QTY
	8415-01-487-1612	Cover, Helmet, Reversible, woodland/desert, with communication flap, size M/L	N/A	ea	1
	8415-01-515-4662	Cover, Helmet, Reversible, woodland/desert, with communication flap, size S/M	N/A	ea	1
	8415-01-515-4663	Cover, Helmet, Reversible, woodland/desert with communication flap, size L/XL	N/A	ea	1
	8415-01-476-6066	Cover, Helmet, Non-reversible, white, with communication flap, size M/L	N/A	ea	1
	8415-01-515-4286	Cover, Helmet, Non-reversible, white, with communication flap, size S/M	N/A	ea	1

Basic Issue Items (BII) List Cont'd

(1) Illus Number	(2) National Stock Number	(3) Description, CAGEC, and Part Number	(4) Usable on Code	(5) U/I	(5) QTY
	8415-01-515-4288	Cover, Helmet, Non-reversible, white, with communication flap, size M/L	N/A	ea	1
	8415-01-506-6729	Cover, Helmet, Reversible, woodland/desert, without communication flap, size M/L	N/A	ea	1
	8415-01-515-4671	Cover, Helmet, Reversible, woodland/desert, without communication flap, size S/M	N/A	ea	1
	8415-01-515-4674	Cover, Helmet, Reversible, woodland/desert, without communication flap, size L/XL	N/A	ea	1
	8415-01-506-6731	Cover, Helmet, Non-reversible, white only, without communication flap, size M/L	N/A	ea	1

Basic Issue Items List (Cont'd)

(1) Illus Number	(2) National Stock Number	(3) Description, CAGEC, and Part Number	(4) Usable on Code	(5) U/I	(6) QTY
	8415-01-515-4289	Cover, Helmet, Non-reversible, white, without communication flap, size M/L	N/A	ea	1
	8415-01-515-4289	Cover, Helmet, Non-reversible white, without communication flap, size S/M	N/A	ea	1
	8415-01-515-4290	Cover, Helmet, Non-reversible, white, without communication flap, size L/XL	N/A	ea	1
	8470-01-487-1605	Strap, Eyewear, Retention	N/A	ea	1

END OF WORK PACKAGE

SUPPORTING INFORMATION
EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the Advanced Combat Helmet. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., “Use brake fluid (item 5, WP 0098 00).”).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item (include as applicable: C = Operator/Crew, O = Unit/AVUM, F = Direct Support/AVIM, H = General Support, D = Depot).

Column (3) National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) Unit of Issue (U/I). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (3).

Table 1. Expendable and Durable Items List

(1) ITEM #	(2) LEV-EL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/I
1		5210-01-434-9493	Caliper	ea
2			Cloth	ea
3		8315-00-782-3520	Measuring tape	ea
4			Mild Soap	ea
5			Soft Brush	ea
6		8030-01-104-5392	Sealing Compound	bx

END OF WORK PACKAGE

SUPPORTING INFORMATION
TOOL IDENTIFICATION LIST

INTRODUCTION

Scope

This work package lists all common tools and supplements and special tools/fixtures needed to maintain the ACH.

Explanation of Columns in the Tool Identification List

Column (1) Item Number. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item (e.g., “Extractor (item 32, WP 0090 00)”).

Column (2) Item Name. This column lists the item by noun nomenclature and other descriptive features (e.g., Gage, belt tension).

Column (3) National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) Part Number/CAGEC. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity) which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. The manufacturer's Commercial and Government Entity Code (CAGEC) is also included.

Column (5) Reference. This column identifies the authorizing supply catalog or RPSTL for items listed in this work package.”

Item No.	Item Name	National Stock Number	Part Number/ CAGEC	Reference
1	Screwdriver			

SUPPORTING INFORMATION
ASSOCIATED AND REPAIR ITEMS LIST

This work package lists the associated and repair items you will need to operate and maintain the Advanced Combat Helmet (ACH).

	Nomenclature	U/I	NSN
1	Bracket, Lever (NVG Front Bracket Assembly)	Kit	5430-01-509-1467
2	Clamp, P, Helmet, Advanced Combat	box of 50	8470-01-506-6625
3	Cover, Helmet, Reversible, woodland/desert, with communication flap, size M/L	ea	8415-01-487-1612
4	Cover, Helmet, Reversible, woodland/desert, with communication flap, size S/M	ea	8415-01-515-4662
5	Cover, Helmet, Reversible, woodland/desert, with communication flap, size L/XL	ea	8415-01-515-4663
6	Cover, Helmet, Non-reversible, white, with communication flap, size M/L	ea	8415-01-476-6066
7	Cover, Helmet, Non-reversible, white, with communication flap, size S/M	ea	8415-01-515-4286
8	Cover, Helmet, Non-reversible, white, with communication flap, size M/L	ea	8415-01-515-4288

	Nomenclature	U/I	NSN
9	Cover, Helmet Reversible, woodland/desert, without communication flap, size M/L	ea	8415-01-506-6729
10	Cover, Helmet Reversible, woodland/desert, without communication flap, size S/M	ea	8415-01-515-4671
11	Cover, Helmet Reversible, woodland/desert, without communication flap, size L/XL	ea	8415-01-515-4674
12	Cover, Helmet, Non-reversible, white, without communication flap, size M/L	ea	8415-01-506-6731
13	Cover, Helmet, Non-reversible, white, without communication flap, size S/M	ea	8415-01-515-4289
14	Cover, Helmet, Non-reversible, white, without communication flap, size L/XL	ea	8415-01-515-4290
15	Fastener tape, Hook (hook disks)	roll of 500	8470-01-506-6742
16	Helmet, Advanced Combat (green with one NVG mounting hole, size medium shell, size 6 pads)	ea	8470-01-506-6369

	Nomenclature	U/I	NSN
17	Helmet, Advanced Combat (green with one NVG mounting hole, size medium shell, size 8 pads)	ea	8470-01-506-6373
18	Helmet, Advanced Combat (green with one NVG mounting hole, size large shell, size 6 pads)	ea	8470-01-506-6375
19	Helmet, Advanced Combat (green with one NVG mounting hole, size large shell, size 8 pads)	ea	8470-01-506-6377
20	Helmet, Advanced Combat (green with one NVG mounting hole, size extra large shell, size 6 pads)	ea	8470-01-513-6411
21	Helmet, Advanced Combat (green with one NVG mounting hole, size extra large shell, size 8 pads)	ea	8470-01-513-6414
22	Helmet, Parts Kit, includes 9 sets of size 6 pads, (1) set of size 8 pads, (400) fastener tapes (hook disks), (10) chinstrap retention systems, (10) mounting screw set, and (10) reversible covers.	kit	8470-01-506-6721
23	Ladder Lock, Helmet, Advanced Combat	box of 50	8470-01-506-6451
24	Mounting Screw, Helmet, Advanced Combat	box of 50	8470-01-506-6503
25	Nut, Helmet, Advanced Combat	box of 50	8470-01-506-6488
26	Pad, Suspension System, ACH (set of size 6 pads)	set	8470-01-476-5643

	Nomenclature	U/I	NSN
27	Pad, Suspension System, ACH (set of size 8 pads)	set	8470-01-476-5648
28	Pad, Helmet, Advanced Combat (circular crown pad, size 6)	ea	8470-01-506-6626
29	Pad, Helmet, Advanced Combat (circular crown pad, size 8)	ea	8470-01-506-6627
30	Pad, Helmet, Advanced Combat (oblong/oval pad, size 6)	ea	8470-01-506-6454
31	Pad, Helmet, Advanced Combat (oblong/oval pad, size 8)	ea	8470-01-506-6456
32	Pad, Helmet, Advanced Combat (trapezoidal pad, size 6)	ea	8470-01-506-6851
33	Pad, Helmet, Advanced Combat (trapezoidal pad, size 8)	ea	8470-01-506-6855
34	Post, Helmet (for attaching NVG Front Bracket Assembly)	box of 50	8470-01-144-5367
35	Screw, Machine (8-32 x 3/8 in long) (for plugging front NVG hole)	hd	5305-00-182-9265
36	Screw Set, Mounting includes (4) p-clamps, (4) ladder-locks, (4) bolts, (4) nuts MSA #300107A	set	8470-01-476-5631
37	Strap, Chin, Retention, size M/L	ea	8470-01-476-2605
38	Strap, Chin, Retention, size XL	ea	8470-01-519-4200
39	Strap, Eyewear, Retention	pr	8470-01-487-1605

SUPPORTING INFORMATION
OPERATOR RECORD OF HIT

OPERATOR RECORD OF HIT

Name: _____

Rank: _____ Serial #: _____

Unit: _____

Phone: _____

HELMET Size: _____ Date of Issue: _ _/_ _/_ _

Duty Being Performed When Hit: _____

Hit Caused by (circle): Fragmentation (Mine, Grenade, Booby Trap Artillery, Other)

Date of Hit: _ _/_ _/_ _

Estimated range from point of detonation: _____

Location of Hit(s) on Advanced Combat Helmet:

Continued to Perform Mission (circle one)?: Yes No

Was Personal Injury Sustained (circle one)?: Yes No

Description of Injury: _____

OPERATOR
RECORD OF HIT (cont'd)

Mail Record of Hit to postal address or responses to electronic mail address:

Postal Address:

Commander
U.S. Army Soldier and Biological Chemical Command
ATTN: AMSRD-NSC-IP-A Kansas Street Natick, MA 01760

Electronic Mail Address:

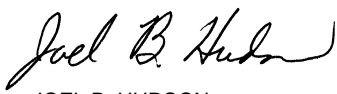
http://www.sbccom.army.mil/feedback/index.htm

END OF WORK PACKAGE

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0413105

Distribution: To be distributed in accordance with initial distribution number (IDN) 256758 requirements for TM 10-8470-204-10.

These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028.
The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: “Whomever” <whomever@avma27.army.mil>
To: amssbriml@natick.army.mil
Subject: DA Form 2028
1. ***From:*** Joe Smith
2. *Unit:* home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19--OCT--93
8. ***Pub no:*** 55--2840--229--23
9. ***Pub Title:*** TM
10. ***Publication Date:*** 04--JUL--85
11. *Change Number:* 7
12. *Submitter Rank:* MSG
13. ***Submitter FName:*** Joe
14. *Submitter MName:* T
15. ***Submitter LName:*** Smith
16. ***Submitter Phone:*** 123--123--1234
17. ***Problem:*** **1**
18. *Page:* 2
19. *Paragraph:* 3
20. *Line:* 4
21. *NSN:* 5
22. *Reference:* 6
23. *Figure:* 7
24. *Table:* 8
25. *Item:* 9
26. *Total:* 123
27. ***Text:***

This is the text for the problem below line 27.

PIN: 080445-000