

# AIR FORCE QUALIFICATION TRAINING PACKAGE (AFQTP)



for  
READINESS  
(3E9X1)

**MODULE 17**

**PERSONAL PROTECTIVE EQUIPMENT**

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Career Field Education and Training Plan (CFETP) references from 1 Apr 97 version.

OPR: HQ AFCEA/CEOT  
AFCEA/CEO

Certified by: HQ  
(Colonel

William R. Pearson)

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**INTRODUCTION**

*Air Force Qualification Training Packages (AFQTPs)* are step-by-step procedural guides describing how to perform a certain task identified in the Specialty Training Standard (STS) portion of the Career Field Education and Training Plan (CFETP). The procedures represent the Air Force's standardized method of accomplishment for personnel in the Readiness specialty. In addition, the authors of these AFQTPs have included hints and personal expertise to aid the trainee in perfecting their skills on the task or the piece of equipment associated with the task.

*AFQTPs do not take the place of on-the-job training.* An AFQTP is intended to:

- Standardize the training procedure for a task/piece of equipment.
- Enhance the On-the-Job Training (OJT) Process.
- Provide “just-in-time” training for a task/piece of equipment.
- Provide the minimum knowledge on a task/piece of equipment when a unit does not have the equipment.

*Put this package to use.* We hope you'll find it a valuable tool, which aids you in becoming a competent Readiness journeyman/craftsman. These AFQTPs were written by TSgt Ron Childs with the assistance of MSgt Troy Odden, and edited by MSgt Lorenzo P. Bower and TSgt Ron Childs under the direction and guidance of HQ AFCESA/CEOT. If you have any recommendations for improvement or change, please contact the Readiness Career Field Manager at the address below.

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This AFQTP book contains the following sections:

- **Introduction.** This section gives an overview on the purpose of AFQTPs and their use.
- **Trainer's Guide.** The guide contains information the trainer needs to know in order to manage the trainee's completion of AFQTPs.
- **Trainee's Guide.** The guide contains information the trainee needs to know about completing AFQTPs.
- **Improvements/Correction Letter.** This section contains an *Improvement/Corrections Letter* to make recommendations concerning this training product.
- **AFQTP Completion Verification.** Page for trainee and trainer to verify completion of the AFQTPs for the Readiness AFS.
- **AFQTPs.** This section contains the *Task Training Guide* (step-by-step instructions), background information, review questions, confirmation key, and performance checklist for each Readiness AFQTP. The performance checklist is used by the trainer to verify that a trainee has learned the objectives for each AFQTP. (These are not the final tests.)
- **AFQTP Tests.** Element Tests are not included in this book. Initial Element Tests will be sent out on disks to all Unit Training Managers who will manage and control these tests. Upgrade versions of these tests will be made available on future revisions of CerTests. Failure to manage the tests compromises the integrity of the AFQTP evaluation process and the overall training program. Exact testing procedures will be left to the discretion of the individual units. (**Note:** Unit Training Managers should refer to AFI 36-2301, *Professional Military Education*, for specific responsibilities of a Test Control Office.)

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**TRAINER'S GUIDE**

*These Air Force Qualification Training Packages (AFQTPs)* were developed to enhance on-the-job training (OJT) for Readiness personnel. This guide will help you lead the trainee in gaining enough knowledge to perform the specified tasks. It will also aid task certifiers in evaluating trainees for task certification.

*It is important for you and your trainee to know* that an AFQTP does not replace hands-on training, nor will successful completion of an AFQTP meet the requirement for task certification. AFQTPs' intentions are listed in the Introduction Section of this guidebook.

AFQTPs were written for a trainee to satisfy one or more tasks identified in the Readiness Specialty Training Standard (STS). To best instruct the trainee on the tasks, they were divided into numerous AFQTPs. Each AFQTP has a *Task Training Guide* explaining what the trainee must learn (learning objectives), training references, and most importantly, step-by-step instructions the trainee must follow to accomplish the task.

*As the trainer, you play a vital role* in the training process. It is important that you understand and perform your responsibilities and duties in administering the AFQTPs. Your responsibilities are:

- Review the AFQTP with the trainee. You have the flexibility to arrange training for each module, unit, and AFQTP in the order you decide, based on your schedule and local conditions.
- Review the AFQTP with the trainee and:
  - a. Ensure the trainee meets the prerequisites for taking the AFQTP.
  - b. Review the training references with the trainee to better understand each learning objective.
  - c. Ensure the trainee understands the learning objectives. If the trainee has any questions, clarify the AFQTP objective expectations.
  - d. Go over the AFQTP process with the trainee and ensure they understand the requirements for successful completion.
  - e. Establish a time schedule for the trainee to complete the entire AFQTP module.

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*The AFQTP Process is as follows:*

- Unit Training Manager will issue each trainee copies of the AFQTPs applying to their AFS. Each shop will maintain a binder with all the AFQTPs, without the answer keys.
- Trainer reviews the AFQTP list with the trainee going over the different modules, units, and AFQTPs.
- Trainer and trainee determine a time schedule for the trainee to complete the entire AFQTP module. Do not leave it open-ended. Remember, the objective of the AFQTP program is for the trainee to gain knowledge, so allow sufficient time for the trainee to learn each task thoroughly.
- Included as part of the trainee's AFQTP package are review questions and a confirmation key. Trainees will answer the review questions upon completion of the learning objectives. The trainee can use the *Task Training Guide* and additional technical references in order to answer the questions. The trainee will then verify their answers using the confirmation key. It is highly recommended that the trainer remove this confirmation key from the back of the module prior to administering the QTP to the trainee.
- Upon notification from the trainee that they are ready to test, the trainer will first evaluate the trainee's Readiness using the AFQTP's performance checklist. Once you are satisfied the trainee understands the learning objective, arrange with the Unit Training Manager for the trainee to take the AFQTP test. To pass, the trainee must score a minimum of 80%. The trainer will review any missed questions with the trainee to ensure understanding of the material.
- If the trainee does not meet the learning objectives, the trainer and the trainee need to review the missed areas until the trainee meets the objectives. Conduct feedback sessions with the trainee on each AFQTP as often as you feel is necessary.
- After the trainee successfully completes an AFQTP, the trainee may proceed onto the next AFQTP within the module/unit. Upon the trainee's successful completion of an entire AFQTP, the trainer and trainee will sign the AFQTP Completion Verification page. The trainer will enter a completion notification on an AF Form 623a, *On-the-Job Training Record Continuation Sheet*, in the trainee's training record.

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**TRAINEE'S GUIDE**

*These Air Force Qualification Training Packages (AFQTPs)* were developed to enhance your on-the-job training (OJT). They provide you with the standardized steps necessary to complete the mandatory tasks identified in the Specialty Training Standard (STS) section of your Career Field Education and Training Plan (CFETP). AFQTPs are not intended to replace hands-on training or substitute for task certification.

Subject matter experts (the authors) have made the learning process more effective by subdividing the training material into teachable modules, units, and AFQTPs. Your trainer has the flexibility to arrange training for each module/unit/AFQTP in the order that best meets your schedule and local conditions. Each AFQTP has a *Task Training Guide* which identifies the training references, prerequisites, tools, learning objectives, and the step-by-step procedures for accomplishing the task.

*Prior to beginning an AFQTP* there are a number of things you should do:

- Ensure your trainer explains the AFQTP process and your responsibilities in that process.
- Review the module/unit/AFQTPs and the *Task Training Guide* with your trainer.
- Review the training references to better understand the objective of each module and to ensure you meet all the prerequisites. If you have any questions about the objective or learning expectations, ask your trainer. Ask early on so you do not flounder through an AFQTP only to learn you misunderstood the learning objective.

***AFQTP Testing***

Each AFQTP has review questions to help determine if you achieved the learning objectives. You can use the *Task Training Guides* or technical references when completing the review questions. A review question confirmation key is also included with each AFQTP. The review questions provide immediate feedback, thereby reinforcing learning. Ask your trainer to explain any questions you don't understand. Refer to applicable references for more detailed information.

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When you feel you are ready to test on an AFQTP, inform your trainer. The trainer will use the performance checklist to evaluate your mastery of the learning objectives. If your trainer determines you are ready, you will be scheduled to take the AFQTP test. Your Unit Training Manager will administer the test, you must score a minimum of 80% to successfully pass an AFQTP test. After you successfully pass the AFQTP test, you and your trainer will sign the AFQTP Completion Verification page. In addition, the trainer will enter the completion on an AF Form 623a, *On-the-Job Training Record Continuation Sheet*, in your training records.

***Keep in mind, passing an AFQTP does not relieve you of the responsibility to become hands-on certified, if required.*** If you do not successfully accomplish an objective, your trainer will review the missed areas with you. You will be given additional time to learn the material until the objective is successfully met.

**HINT:**

Within normal workload constraints, set aside sufficient time to work on the package. Studies into effective training programs indicate that the best trainees reserve the same time each day to complete their study. Pace yourself, establish a schedule, and stick to it. Give yourself top priority to become qualified.

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**IMPROVEMENTS/CORRECTIONS LETTER**

MEMORANDUM FOR HQ AFCESA/CEXR

FROM:

SUBJECT: Improvement/Correction to AFQTP 3E9X1-XX.XX

1. *List any improvements/corrections you may have about this AFQTP. Please be specific as to the page, reference, and element.*
2. *Please include your name, organization, address, DSN and fax so we can contact you if we have any questions or need some clarification with your recommendations.*

(Send your comments to the address listed in the *Introduction* section of this guidebook.)

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# MODULE 17

## PERSONAL PROTECTIVE EQUIPMENT

### *AFQTP Completion Verification*

AFQTP	Trainer's Signature	Trainee's Signature	Date Completed
17.1.2. Inspect			
17.1.3. Use			
17.1.4. Maintain			
17.3.2.2. Inspect			
17.3.2.3. Use			
17.3.2.4. Maintain			
17.4. Use field gear equipment, such as helmets, web belts, canteen, and flak vests.			

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**MODULE 17**

**AFQTP UNIT 1**

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**(PROTECTIVE MASK 17.1.)**

**INSPECT (17.1.2.)**

**USE (17.1.3.)**

**MAINTAIN (17.1.4.)**

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**INSPECT**

***Task Training Guide***

<b>STS Reference Number/Title:</b>	(17.1. Protective Mask) 17.1.2., Inspect 17.1.3., Use 17.1.4., Maintain
<b>Training References:</b>	<ul style="list-style-type: none"> <li>• T.O. 14P4-15-1, Chemical-Biological Mask Type MCU-2A/P.</li> <li>• T.O. 14P4-1-151, Chemical-Biological Canisters and Filter Elements and Serviceability List.</li> <li>• T.O. 14P4-9-31, Masks, Protective Field M17, M17A1, and M17A2 and Accessories</li> <li>• Readiness Training Package C9 M17 Protective Mask and Accessories</li> <li>• Readiness Training Package C10 MCU-2A/P Protective Mask and Accessories</li> </ul>
<b>Prerequisites:</b>	<ul style="list-style-type: none"> <li>• Possess as a minimum a 3E931 AFSC.</li> </ul>
<b>Equipment/Tools Required:</b>	<ul style="list-style-type: none"> <li>• MCU 2A/P (or M17 series if size requires it).</li> </ul>
<b>Learning Objective:</b>	<ul style="list-style-type: none"> <li>• Trainee will demonstrate the ability to inspect, use, and maintain a MCU/2A-P and M17A2 Protective Mask.</li> </ul>
<b>Samples of Behavior:</b>	<ul style="list-style-type: none"> <li>• Trainee will complete all task steps in Attachment 3 of Readiness Training Package C10, MCU-2A/P Protective Mask and Accessories.</li> <li>• Trainee will complete all task steps in Attachment 3 of Readiness Training Package C9, M17A2 (Extra Small) Protective Mask and Accessories.</li> </ul>
<b>Notes:</b>	
<ul style="list-style-type: none"> <li>• Use of the applicable technical order (T.O.) is mandatory.</li> </ul>	

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## INSPECT, USE, AND MAINTAIN

**Background:** Readiness Technicians are responsible for training Air Force Personnel on the proper use of the protective mask. You must be highly proficient with all aspects of the protective mask. The mask is the single most important piece of protective equipment in a chemical-biological environment. It protects the face, eyes, and respiratory tract from chemical and biological agents and radioactive dust particles. Proper inspection, use, and maintenance can save your life. This module will cover the MCU-2A/P Protective Mask then the M17A2 Protective Mask.



**Figure 1. MCU-2A/P Protective Mask**

**The MCU-2A/P Series Protective Mask** (Figure 1), is the Air Forces primary protective mask. When equipped with a serviceable C-2 canister installed, it protects the wearers face, eyes, and respiratory tract from chemical and biological warfare agents and radioactive dust particles. It will also protect against riot control agents such as tear gas. The mask has the following features:

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Figure 2. Voicemitters

### TWO VOICEMITTERS

The MCU-2A/P has two voicemitters (Figure 2), the front one is for face-to-face speech and the side one is for use with communications equipment such as a telephone or radio.



Figure 3. Drinking Tube and Internals

### DRINKING TUBE

The drinking tube enables you to drink from a canteen equipped with an M1 canteen cap. There is an external connector that inserts into the canteen cap and an internal tube that leads to your mouth (Figure 3)

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**Figure 4. Flexible Eyelens**

**FLEXIBLE EYELENS**

Has a flexible eyelens (Figure 4) with a good field of vision, which enhances the use of binoculars, gun scopes, or other optical equipment.



**Figure 6. Interchangeable Canister**

**INTERCHANGEABLE CANISTER**

The user can select which side the C-2 canister is attached to the mask, allowing the mask to adapt to the users prominent side (Figure 6). For instance if you are right handed you will move the canister to the left side. This will allow you to conduct wartime operations, such as firing an M16 without the filter being in the way.

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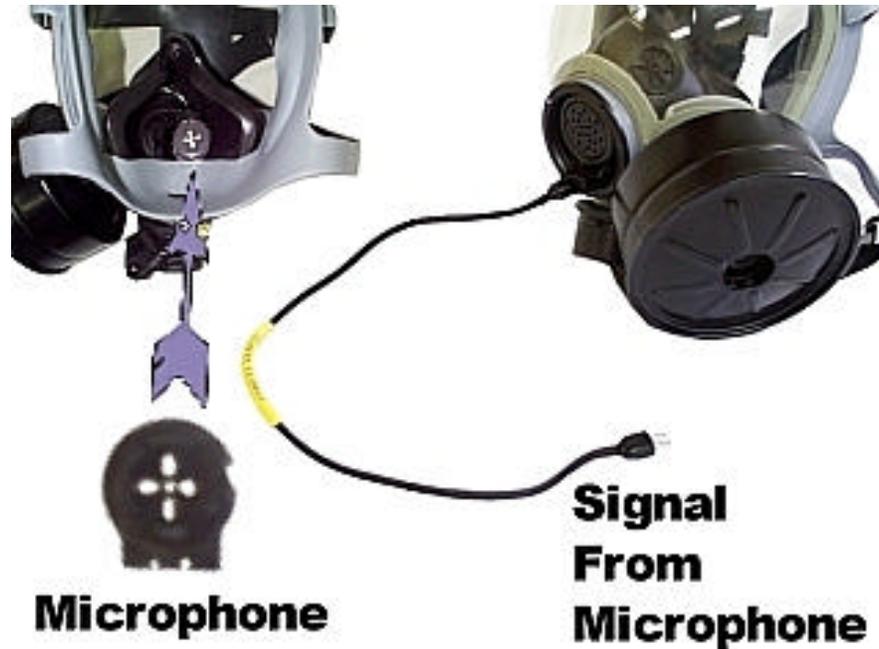


Figure 7. Micmitter

### MICMITTER

The MCU-2A/P is equipped with a micmitter (Figure 7), which allows the use of a specialized microphone while wearing the mask.



Figure 8. Spectacles

### SPECTACLES

The MCU-2A/P can be worn with approved mask compatible spectacles (Figure 8). Spectacles are ordered through your installation's optician.

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**Figure 9. Mask Sizes**

### **SIZES**

The proper size mask is essential to providing maximum protection. There are three mask sizes, which are identified by raised letters on the front facepiece portion of the mask above the eyelens (Figure 9). The mask will be marked with an S, M, or L for short, medium, or long.



**Figure 10. Protective Hood for the Ground Crew Ensemble**

### **PROTECTIVE HOOD**

The MCU-2A/P comes with a protective hood for use with the Ground Crew Ensemble (Figure 10) or you will be using the hood that is integrated with the new JS-LIST (Figure 11).

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**Figure 11. Integrated JS-LIST hood**

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**Field  
Protective  
Hood**

**Carrier**



**Waterproofing  
Bag**

**Outserts**



**Voice Projection  
Unit**

**Figure 12. MCU-2A/P Accessories**

**ACCESSORIES (Figure 12)**

The MCU-2A/P comes with:

- Mask Carrier-for carrying the mask
- Protective Hood-to protect exposed parts of the head and neck
- Water Proof Bag-to protect the mask in moist conditions
- Clear and Smoked Outserts-to protect the flexible lens

Voice Projection Unit are not included with the mask, but can be ordered to enhance the wearers communications.

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**Figure 13. MCU-2A/P Carrier**

**MCU-2A/P CARRIER**

The MCU-2A/P comes with a mask carrier (Figure 13). The mask is inserted into the carrier in an upright position with the bubble facing away from the wearer. The carrier can be worn on the side or leg with attached carrier strap or connected to a web belt (Figure 14).



**Figure 14. Wearing the Mask Carrier**

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## PRINCIPLES OF OPERATION

With the mask on and properly adjusted it works as soon as you inhale:

- The air comes in through the C-2 canister, which filters out toxic agents, before air enters the facepiece (Figure 15).
- The air then passes through the one-way inlet valve (Figure 16) and hits the air deflector (Figure 17). The air is deflected across the lens to prevent fogging.
- The air is drawn through the one-way nosecup valves (Figure 18). The nosecup prevents warm, exhaled air from fogging the lens.
- When you exhale, the air escapes the mask through the one-way outlet valve, (Figure 19) then out the outlet valve cover (Figure 20).



**Figure 15. Air Passes Through the Filter**



**Figure 16. Air Passes Through the One-Way Disk**

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Figure 17. Air Deflected Across Lens



Figure 18. Air Passes Through Valves



Figure 19. Air Escapes Through Outlet Valve    Figure 20. Air Passes Through Cover

Next you will demonstrate the ability to inspect, use, and maintain the MCU-2/P Series Mask.

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*To perform this task complete the following steps:*

**Step 1:** Ensure you have the following items available

- MCU-2/P Series Mask and Accessories
- Readiness Training Package C10, MCU-2/P Series Mask and Accessories
- T.O. 14P4-15-1, Chemical-Biological Mask Type MCU-2/P
- T.O. 14P4-1-151, Chemical-Biological Canisters and Filter Elements Procedures and Serviceability List

**Step 2:** Read RTP C10, MCU-2/P Series Mask and Accessories.

**Step 3:** Compete all tasks in Part III of RTP C10, MCU-2/P Series Mask and Accessories, Student Performance Standards.

### **M17A2 (X-Small) Protective Mask and Accessories**

The M17A2 (Figure 21), with serviceable M13A2 filters installed, protects your face, eyes, and respiratory tract from chemical and biological warfare agents and radioactive dust particles. It will also protect against riot control agents such as tear gas. Extra Small M17A2 Protective masks are the only M17A2's being maintained in the Air Force inventory. This is to fill a need to protect personnel with faces that are too small for the MCU-2A/P Mask. They will remain in the Air Force inventory until a replacement for the MCU-2A/P has been fielded.



**Figure 21. M17A2 Protective Mask**

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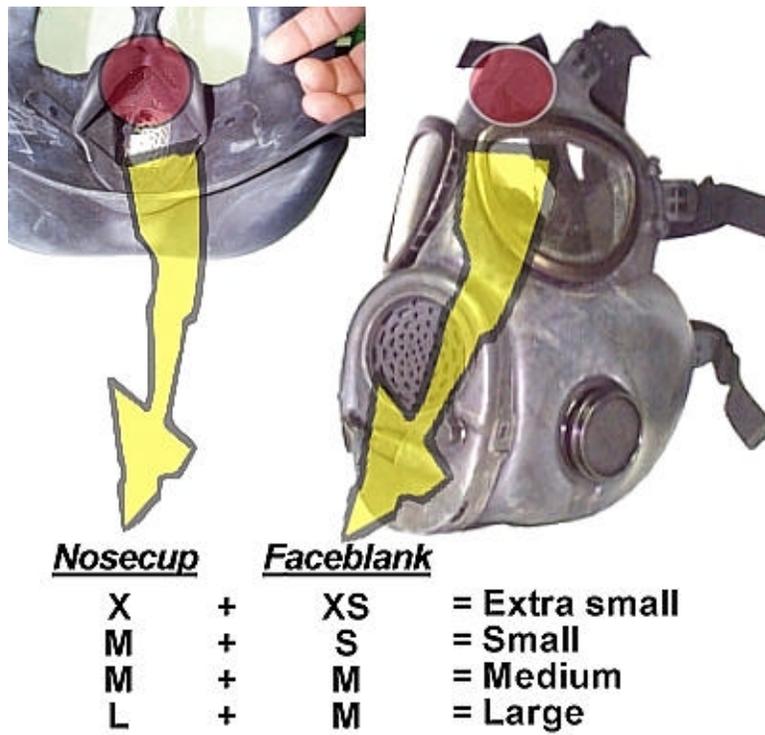


Figure 22. M17A2 Sizes

**SIZES**

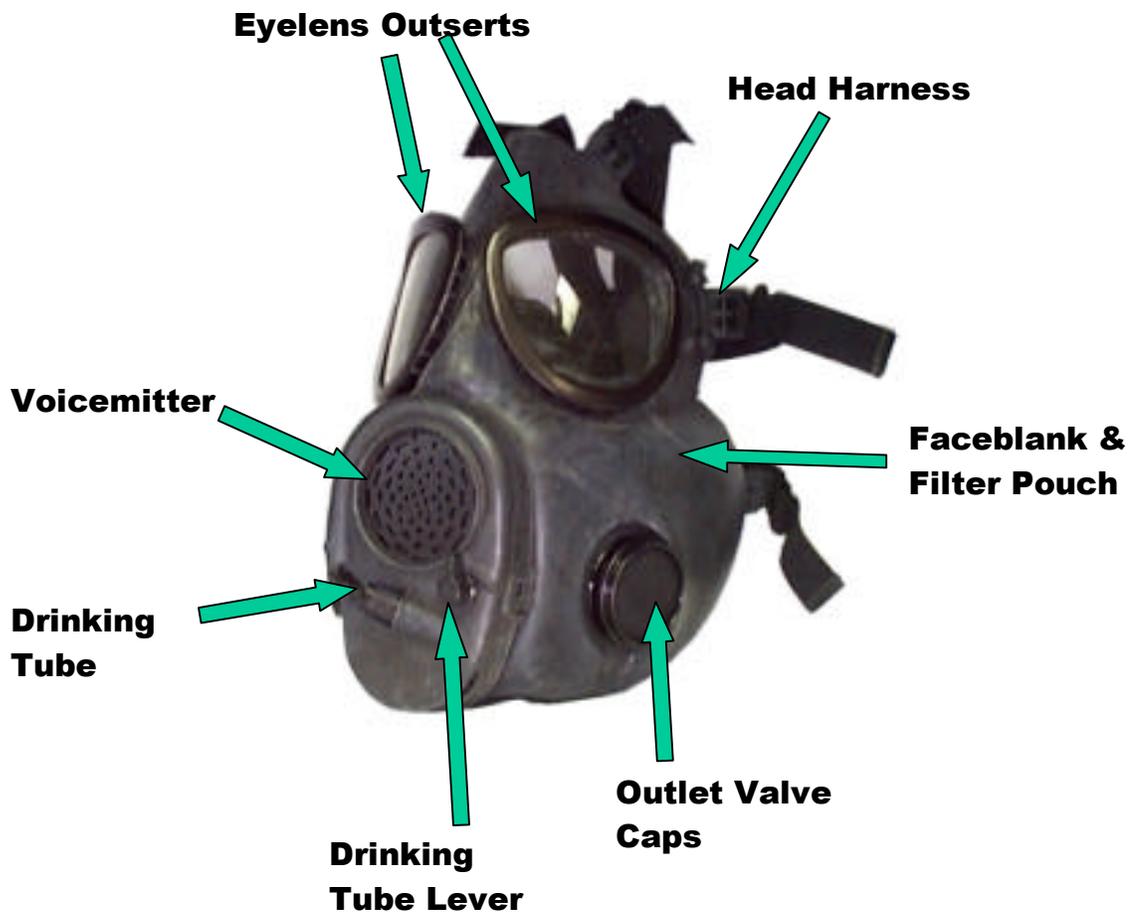
To determine the size of the M17A2 Protective mask you must look at the letter inside of the nosecup and on the top front portion of the faceblank (figure 22). Figure 23 shows you exactly what to look for on the extra small, which is the only M17A2 protective mask still in the inventory.



**Extra Small**

Figure 23. Extra Small Mask

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**Figure 24. Major Components of the M17A2 Protective Mask**

**MAJOR COMPONENTS (Figure 24)**

The M17A2 Protective Mask has the following major components are:

- Eyelens/Outserts
- Head Harness
- Faceblank with Filter Pouches
- Voicemeter
- Drinking Tube
- Drinking Tube Lever
- Inlet Valve Caps
- Filters

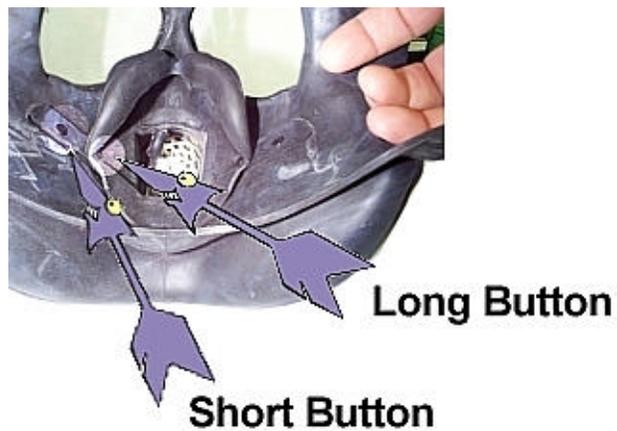
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**Figure 25. Filter Element Location**

**FILTER ELEMENTS**

The Filters on the M17A2 are located in pouches on the cheeks of the mask. These cheek pouches are accessed through buttons on the inner portion of the mask (Figure 26).



**Figure 26. Button Location**

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## THEORY OF OPERATION

The M17A2 Protective Mask filters air in the following manner:

- Air is drawn into the mask through the inlet valve caps, which filter out dust and large particles. It then flows in one direction through the filter elements, which filter out contamination.
- Filtered air is then directed to the eyelens by the deflector tubes to prevent fogging. It enters the nosecup through the nosecup valves and into the wearer's respiratory system.
- Exhaled air passes into the nosecup and is directed out the exhalation valve by the nosecup and nosecup valves. It exits the mask through holes in the bottom of the outlet valve cover.



**Figure 27. Air Passes Through the Inlet Valve**



**Figure 28. Air is Deflected over Eyelenses**

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**Figure 29. Air Passes Through Nosecup Disks**



**Figure 30. Air Exits Through Outlet Valve Disk**

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Next you will demonstrate the ability to inspect, use, and maintain the M17 A2 Protective Mask.

***To Perform this task complete the following steps:***

**Step 1:** Ensure you have the following items available

- M17A2 (X-Small) Protective Mask and Accessories
- Readiness Training Package C9, M17A2 (X-Small) Protective Mask and Accessories
- T.O. 14P4-9-31, Mask, Protective Field M17, M17A2, and Accessories
- T.O. 14P4-1-151, Chemical-Biological Canisters and Filter Elements Procedures and Serviceability List

**Step 2:** Read RTP C9, M17A2 (X-Small) Protective Mask and Accessories

**Step 3:** Compete all tasks in Part III of RTP C9, M17A2 (X-Small) Protective Mask and Accessories, Student Performance Standards.

**NOTE:**

Doffing procedures for a contaminated mask are covered in AFQTP 14.6.3.3 (Conduct Contamination Control Area (CCA) procedures).

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**Review Questions  
for  
Inspect, Use, and Maintain**

Question	Answer
1. What technical order covers the MCU 2A/P protective mask?	a. T.O. 14P3-1-141 b. T.O. 14P4-1-213 c. T.O. 14P4-15-1 d. T.O. 13P5-2-151
2. When is the mask inspected?	a. Upon issue to the individual, by the individual b. Every six months after removal from the packaging, during peacetime c. At least every seven days during wartime d. All the above
3. What form is used to document the inspection?	a. AF Form 1754 b. DD Form 1754 c. AF Form 1574 d. DD Form 1574
4. Due to the short time from agent detection to mask donning, you must don, clear, and seal the mask and adjust the hood in ____ .	a. 90 seconds b. 15 seconds c. 9 seconds d. 45 seconds
5. Left handed individuals are authorized to position the carrier on their right side.	a. True b. False
6. At 70°F the hood is worn so that the outlet valve cover is _____.	a. Outside hood b. Inside hood c. Doesn't matter at 70°F d. None of the above
7. Which straps are loosened when doffing the MCU-2A/P mask?	a. Forehead straps b. Temple straps c. Neck straps d. No straps are loosened
8. Once issued, who performs mask PMCS?	a. Base Supply b. CE Readiness c. The individual the mask is issued to d. None of the above
9. What parts of the MCU-2A/P mask can the user repair?	a. User can't repair mask, only CE Readiness personnel can repair masks b. User can't repair mask, only Base Supply personnel can repair masks c. User can repair all parts d. None. There are no repairable parts on the mask
10. The user may replace the MCU-2A/P front	a. True

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Question	Answer
voicemitter.	b. False
11. The head harness of the M17 series mask can be used on the MCU-2A/P.	a. True b. False
12. Alcohol based towelettes (or equivalent) may be used for expedient sanitation of the MCU-2A/P mask.	a. True b. False

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Performance Checklist		
Step	Yes	No
1. Did trainee properly complete all task steps in Attachment 3 of Readiness Training Package C10, MCU-2A/P Protective Mask and Accessories?		
2. Did trainee properly complete all task steps in Attachment 3 of Readiness Training Package C9, M17A2 (Extra Small) Protective Mask and Accessories?		

**FEEDBACK:** Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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**MODULE 17**

**AFQTP UNIT 2**

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**(17.3.2. GROUND CREW CHEMICAL DEFENSE  
ENSEMBLE/JOINT SERVICEMAN LIGHTWEIGHT INTEGRATED  
SUIT TECHNOLOGY (JS-LIST))**

**INSPECT (17.3.2.2.)**

**USE (17.3.2.3.)**

**MAINTAIN (17.3.2.3)**

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## INSPECT, USE, AND MAINTAIN

### *Task Training Guide*

<b>STS Reference Number/Title:</b>	(17.3.2. GROUND CREW CHEMICAL DEFENSE ENSEMBLE/JOINT SERVICE LIGHTWEIGHT INTEGRATED SUIT TECHNOLOGY (JS-LIST)) 17.3.2.2., Inspect 17.3.2.3., Use 17.3.2.4., Maintain
<b>Training References:</b>	<ul style="list-style-type: none"> <li>• Technical Order (T.O.) 14P3-1-141, Groundcrew Chem-Defense Ensemble.</li> <li>• T.O. 14P4-15-1, Chemical-Biological Mask Type MCU-2A/P</li> <li>• Readiness Training Package C11, Groundcrew Chem-Defense Ensemble (GCE)</li> <li>• Readiness Training Package C14, Joint Service Lightweight Integrated Suit Technology Chemical Protective Overgarment (JSLIST OG)</li> </ul>
<b>Prerequisites:</b>	<ul style="list-style-type: none"> <li>• Possess as a minimum a 3E931 AFSC.</li> </ul>
<b>Equipment/Tools Required:</b>	<ul style="list-style-type: none"> <li>• Ground Crew Ensemble / JS-LIST OG.</li> </ul>
<b>Learning Objective:</b>	<ul style="list-style-type: none"> <li>• Trainee will demonstrate the ability to inspect, maintain and use the Groundcrew Chem-Defense Ensemble.</li> </ul>
<b>Samples of Behavior:</b>	<ul style="list-style-type: none"> <li>• Trainee will properly accomplish all task steps listed in attachment 3 of Readiness Training Package C11, Groundcrew Chem-Defense Ensemble or Readiness Training Package C14, Joint Service Lightweight Integrated Suit Technology Chemical Protective Overgarment (JSLIST OG).</li> </ul>
<b>Notes:</b>	
<ul style="list-style-type: none"> <li>• Use of the applicable technical order (T.O.) is mandatory.</li> <li>• Trainee will complete this module using whatever suit is available.</li> </ul>	

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## INSPECT, USE, MAINTIAN

**BACKGROUND:** Protective suits provide individual protection by preventing field concentrations of chemical and biological warfare agents from physical contact with the wearer. The Air Force currently uses the Ground Crew Ensemble (GCE) and is gradually replacing it with the Joint Service Lightweight Suit Technology (JS-LIST) Chemical Protective Overgarment (CPO).

The JS-LIST is the DoD's program to replace existing battledress overgarments and chemical protective overgarments with new protective equipment for all services. The goal of the JS-LIST program is to field a better-fitting, lightweight, and launderable chemical protective suit for personnel operating in nuclear, biological, and chemical (NBC) environments.

### CONCEPTS OF THE JS-LIST:

The JS-LIST (Figure 1.) evolved out of the US Marine's Saratoga Suit program. The Saratoga Suit was a two piece overgarment made of carbon sphere technology. Instead of layering the char-coal protection into the suit fabric, the charcoal protection is formed into tiny beads and woven into the suit fabric. Because of carbon sphere technology, the Saratoga Suit would have offered better protection from chemical agents, less of a thermal burden than fielded battledress, and made laundering of the suits a reality. JS-LIST revamped and expanded the Saratoga Suit program to address all the Services' requirements for chemical protective equipment. Better protection, less of a thermal burden, better-fitting jacket and pants, better protection and fit for footwear covers, and laundering and decontamination capability are a few of the requirements JS-LIST now incorporates in the next generation chemical protective ensemble, gloves, and footwear covers.



**Figure 1. JSLIST**

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## GCE COMPONENTS

The GCE consists of the following components

- **Mask/Filters/Hood**-Either the MCU-2A/P or the M17A2 XS Protective mask.
- **Overgarment**- The overgarment is a two-piece garment (jacket and pants) made of two layers of permeable material. The outer nylon and cotton layer is treated with a rain repellent. The inner layer is charcoal-impregnated foam. When chemical agents contact the overgarment, the outer layer absorbs and spreads the agent and prevents saturation of the charcoal inner layer. There are presently two types of overgarments available. The chemical protective overgarment (CPO) was the first type fielded. It can be distinguished by its solid olive drab color. The CPO is now seen only in a training environment. The other garment is the battle dress overgarment (BDO). It can be distinguished by its camouflage pattern. This newer version provides better water repellence, protection, and durability.
- **Gloves/Inserts**- The protective gloves are gauntlet style meaning they're long; covering the forearm and made of butyl rubber. They come in four sizes: small, medium, large, and extra large, and two thickness' 7 and 14 mm.
- **Footwear Covers**-There are four styles available, the old four- and five-eyelet fishtailed style footwear covers, and the Green and Black Vinyl Overboots (GVO and BVO).



Figure 2. GCE Components

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### JSLIST COMPONENTS

The JSLIST is made up of basically the same components as the GCE, but with improvements being made to the overgarment (Figure 3 and 4) Footwear Covers (Figure 5) and eventually the gloves. As was previously mentioned the JSLIST will be phased into the inventory as the GCE's shelf life expires. AF units will start seeing the overgarment (Jacket & Pants) first then new footwear covers and gloves.

The new ensemble will come in two main designs consisting of an overgarment (worn over the duty uniform) and a duty uniform (worn over underclothing). The Air Force's requirement is for the duty uniform design. Both designs come with an integrated hood and second skin mask (latex shell covering the mask from contamination) eliminating the need for the butyl rubber hoods worn with the MCU 2A/P chemical/biological protective masks. The new ensemble will fit the wearer better since it will be split-sized and split-issued (the jacket and pants are packaged separately and are configured in upper torso and pant length sizes). A person will be able to wear a medium-small/regular/large jacket and large-short/medium/long pants. The new ensemble will be field launderable and decontaminable. The multi-purpose overshoe (MULO) will be made of a rubber compound which is weather-proof, and chemical and petroleum resistant. The MULO will have better soles for traction and will come sized to fit combat boots (a size 8 MULO fits a size 8 man-sized combat boot). The MULO will replace the fish-tailed chemical protective overshoe and the green or black vinyl overshoe currently fielded.



**Figure 3. JSLIST Jacket**

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**Figure 4. JSLIST Trouser**



**Figure 5. MULO**

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Now you are going to demonstrate the ability to inspect, use, and maintain the Groundcrew Chem-Defense Ensemble.

*To perform this task complete the following steps:*

**Step 1:** Ensure you have the following items available

- GCE or JSLIST (whichever is available)
- Readiness Training Package C11, Groundcrew Chem-Defense Ensemble
- Readiness Training Package C14, Joint Service Lightweight Integrated Suit Technology Chemical Protective Overgarment (JSLIST OG)
- T.O. 14P3-1-141, Groundcrew Chem-Defense Ensemble
- T.O. 14P4-15-1, Chemical-Biological Mask Type MCU-2A/P
- T.O. 14P4-9-31, Mask, Protective Field M17, M17A2, and Accessories
- T.O. 14P4-1-151, Chemical-Biological Canisters and Filter Elements Procedures and Serviceability List

**Step 2:** Read RTP C9, M17A2 (X-Small) Protective Mask and Accessories or RTP C14, Joint Service Lightweight Integrated Suit Technology Chemical Protective Overgarment (JSLIST OG) according to what suit you have available at your installation.

**Step 3:** Compete all task steps in Part III, Student Performance Standards.

**NOTE:**

Doffing procedures for a contaminated suit is covered in AFQTP 14.6.3.3 (Conduct Contamination Control Area (CCA) procedures).

## REVIEW QUESTIONS

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**FOR  
INSPECT, USE, AND MAINTAIN**

<b>Question</b>	<b>Answer</b>
1. What components make up the JS-LIST overgarment?	a. A one piece overgarment b. Coat and trousers with integral hood c. Coat and trousers with detachable hood d. Coat, trousers, overboots, improved protective gloves, and 2 <sup>nd</sup> skin mask
2. The GCE CPO and BDO have the same shelf-lives.	a. True b. False
3. What is the approved method(s) for documenting GCE inspections?	a. Air Force forms b. Command prescribed forms c. Data automated systems d. All of the above
4. The BDO must be changed within _____ hours after contact with a liquid chemical agent.	a. 6 b. 12 c. 24 d. 72
5. Within how many hours after a vapor chemical agent contact has occurred should the JS-LIST OG be exchanged?	a. 24 hours b. 12 hours c. 6 hours d. 3 hours
6. Washing the JS-LIST OG eliminates its capability to protect against chemical warfare agents.	a. True b. False
7. How is the GCE size for a wearer determined?	a. By the individual's BDU size b. By the individual's height c. By using the T.O. Overgarment Size Estimation Guide d. All the above
8. Body armor is worn under the GCE.	a. True b. False
9. Doffing procedures for uncontaminated and contaminated GCEs / JS-LISTs are the same.	a. True b. False
10. Overgarments in factory bags that have been opened should be considered serviceable provided the overgarment has not been exposed to _____.	a. direct moisture b. smoke c. fuel or solvent vapors d. All the above
11. What actions, if any, do you take if the overgarment factory bag is torn and the	a. seal bag tear with high quality adhesive tape

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visible fabric is damaged?	b. condemn the overgarment, use for training or dispose of it c. No actions are taken d. All the above
12. Machine laundering is an acceptable method of cleaning the JS-LIST OG.	a. True b. False

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**INSPECT, USE, AND MAINTAIN**

<b>Performance Checklist</b>		
<b>Step</b>	<b>Yes</b>	<b>No</b>
1. Did Trainee properly accomplish all task steps listed in attachment 3 of Readiness Training Package C11, Groundcrew Chem-Defense Ensemble. Or Readiness Training Package C14, Joint Service Lightweight Integrated Suit Technology Chemical Protective Overgarment (JSLIST OG)		

**FEEDBACK:** Trainer should provide both positive and/or negative feedback to the trainee. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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**MODULE 17**

**AFQTP UNIT 4**

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**USE FIELD GEAR EQUIPMENT SUCH AS HELMETS,  
WEB BELTS, CANTEEN, AND FLAK VEST**

**(17.4.)**

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## USE FIELD GEAR EQUIPMENT SUCH AS HELMETS, WEB BELTS, CANTEEN, AND FLAK VEST

### *Task Training Guide*

<b>STS Reference Number/Title:</b>	17.4., Use field gear equipment such as helmets, web belts, canteen, and flak vest.
<b>Training References:</b>	<ul style="list-style-type: none"> <li>• FM 21-15, Care And Use of Individual Clothing and Equipment.</li> </ul>
<b>Prerequisites:</b>	<ul style="list-style-type: none"> <li>• Possess as a minimum a 3E931 AFSC.</li> </ul>
<b>Equipment/Tools Required:</b>	<ul style="list-style-type: none"> <li>• Helmet, canteen, web belt, and flak vest.</li> </ul>
<b>Learning Objective:</b>	<ul style="list-style-type: none"> <li>• Trainee will demonstrate the ability to use field gear equipment such as helmets, web belts, canteen, and flak vests.</li> </ul>
<b>Samples of Behavior:</b>	<ul style="list-style-type: none"> <li>• Trainee will demonstrate how to use a protective helmet.</li> <li>• Trainee will demonstrate how to use a canteen.</li> <li>• Trainee will demonstrate how to use a web belt.</li> <li>• Trainee will demonstrate how to use a flak vest.</li> </ul>
<b>Notes:</b>	
<ul style="list-style-type: none"> <li>• Use of the applicable technical order (T.O.) is mandatory.</li> </ul>	

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### USE FIELD GEAR EQUIPMENT SUCH AS HELMETS, WEB BELTS, CANTEEN, AND FLAK VEST

**Background:** Chemical and biological agents aren't the only weapons that require protective equipment. Since conventional weapons present lethal projectile and fragmentation hazards, you must familiarize yourself with the helmet, web belt, canteen, flak vest, (Figure 1) and other field gear equipment such as the all-purpose lightweight individual carrying equipment (A.L.I.C.E.) pack, which carries items such as ammunition, first aid kits, and tools.



**Figure 1. Field Gear**

**Notice.** This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

*To perform this task, follow these steps:*

**Step 1: Inspect field gear.**

- Helmet.
  - Inspect the adjusting system and suspension system for rusted buckles, mildew, and fraying of the material.
  - Check the helmet for cracks
  
- Flak vest.
  - Look for tears, punctures, or damage to outer cover.
  - Damaged or dirty hook and pile fasteners.
  - Broken or missing elastic laces.
  
- Web Belt.
  - Inspect for tears in webbing, bent buckles and adjusting clamps.
  - No repairs can be made.
  - Turn in damaged belts for replacement.
  
- Canteen.
  - Punctures.
  - Cracked cap.
  - Leaks from other sources.
  
- Load bearing harness.
  - Inspect for tears in webbing, bent buckles and adjusting clamps.
  - No repairs can be made. Turn in damaged harnesses for replacement.
  
- First aid kit.
  - Inspect for holes and tears.
  - Ensure clip is operational.
  
- Ammo pouch.
  - Inspect for holes and tears.
  - Ensure clip is operational.

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**Step 2: Don field gear.**

- Helmet (Figure 2). The helmet we have today is a laminated one-piece kevlar construction. The helmet provides adequate protection to the head against fragmentation. See Figure 1.
  - Helmet components consist of:
    - Camouflage kevlar helmet cover.
    - Chin strap.
    - Suspension net.
    - Elastic band.
    - Sweatband



**Figure 2. Kevlar Helmet**

- Care:
  - Do not use as a shovel, hammer, or any other purpose other than a helmet. Structural strength may fail.
  - Keep clean of dirt, mud, and sweat to prevent premature wear of the chinstrap and suspension system.

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- Flak Vest (Figure 3). The flak vest provides adequate protection to the head against fragmentation. Commonly referred to as “body armor”, This kevlar based flak vest is designed so the three upper back sections adjust independently from each other and the lower back section adjusts under the upper section, allowing full movement as body positions change.
  - Features:
    - Velcro fasteners are used for closing and opening,
    - Two Velcro closed front pockets
    - Grenade loops.
    - Durable water repellent Woodland camouflage nylon outer shell.



**Figure 3. Flak Vest**

**NOTE:**

This is NOT a bulletproof vest it is designed to stop fragments only!

- Care: Keep flak vest clean and in usable condition.

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**All-Purpose Lightweight Individual Carrying Equipment (A.L.I.C.E.).** The A.L.I.C.E. is made up of components for the fighting load (items needed immediately) and additional components for the existence load (items for sustainment during longer periods of time). These components are designed for use in all environments --- hot, temperate, cold-wet regions, and even in cold-dry arctic regions.



**Figure 4. Web Belt, Canteen/Cover, M1 Canteen Cap**

- Web belt (Figure 4). The web belt provides the capability to carry other gear such as the canteen, ammunition, first aid kits, and other items based on your specialty.
  - The adjustable belt is issued in two sizes, medium and large.
  - Care:
    - Clean belt of dirt and mud. Eyelets in the belt tend to collect mud.
    - Do not use bleach cleaning fluids, or dyes.
    - Stretch belt back to original shape while it dries. Never dry in direct sunlight.
    - Do not launder or dry in automatic washing equipment.
- Canteen.
  - Made of plastic and available in one or two quart capacities.
    - Tighten the cap very tight to ensure a gas tight seal.
  - Care:
    - Wash canteen and cup with warm, soapy water.
    - Rinse thoroughly.
    - Keep drained and dry when not in use.

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- Canteen cover. If possible during hot weather keep inner liner of the cover wet to help water in canteen cool. Keep cover dry in winter. Inner lining provides some protect against freezing.
  - Carries plastic canteen and metal cup.
  - Small pocket to carry water purification tablets.
  - Care:
    - Clean cover of dirt and mud.
    - Do not use bleach cleaning fluids, or dyes.
    - Stretch belt back to original shape while it dries.
    - Do not launder or dry in automatic washing equipment.
  
- Suspenders or Load bearing harness. Transfers some of the weight of the items attached to the web belt and itself to the shoulders.
  - Made of the same material as the web belt and attaches to the web belt.
  - Issued in one size only and adjustable.
    - Care:
      - Clean harness of dirt and mud.
      - Do not use bleach cleaning fluids, or dyes.
      - Stretch belt back to original shape while it dries.
      - Do not launder or dry in automatic washing equipment.
  
- First-Aid Pouch.
  - Features a snap closure and one A.L.I.C.E. belt clip.
  - Contains limited items to perform some first aid buddy care on others and yourself.
  - Some contain only a first aid dressing.
  
- 30-Round Ammo Pouch.
  - A plastic quick release closure.
  - Metal A.L.I.C.E. belt clips.
  - Two hand grenade pockets.
  - Designed to hold three 30-round M16/AR15 magazines or two M14 20-round magazines.
  - Can be opened with one hand.

## **Wear**

- Upon issue:
  - Adjust web belt to fit snug around waist.
  - Attach suspenders to web belt and adjust.
  - Attach all accessories (canteen, first aid kit, ammo pouch) to the web belt.
  - Make necessary adjustments to the suspenders and web belt to fit comfortably.
  
- Actual use:
  - Adjust web belt and suspenders to accommodate the weight of the water in the canteen, ammo, and other items you have attached to them.

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- Also adjust web belt and suspenders to the type of clothing worn; BDUs, cold weather gear, GCE or JS-LIST OG, etc.

**NOTE:**

The canteen cap can be replaced with the M1 canteen cap allowing you to drink from the canteen through the drinking tube of the protective mask.

**Review Questions**  
**for**  
**Use Field Gear Equipment Such as Helmets,**  
**Web Belts, Canteen, and Flak Vest**

Question	Answer
1. The helmet and flak vest provide you protection from _____.	<ul style="list-style-type: none"> <li>a. Small caliber weapons</li> <li>b. Fragmentation</li> <li>c. Bayonets</li> <li>d. All the above</li> </ul>
2. The purpose of the suspenders is to?	<ul style="list-style-type: none"> <li>a. Hold your pants up</li> <li>b. Transfer some of the weight of the equipment on the web belt to your shoulders</li> <li>c. Hold your canteen</li> <li>d. Hold your weapon</li> </ul>
3. What defect would condemn the web belt?	<ul style="list-style-type: none"> <li>a. Tears</li> <li>b. Bent buckles</li> <li>c. Bent adjusting clamps</li> <li>d. Any of the above</li> </ul>

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**USE FIELD GEAR EQUIPMENT SUCH AS HELMETS,  
WEB BELTS, CANTEEN, AND FLAK VEST**

<b>Performance Checklist</b>		
<b>Step</b>	<b>Yes</b>	<b>No</b>
1. Can trainee properly inspect field gear and identify defects?		
2. Can trainee wear field gear?		

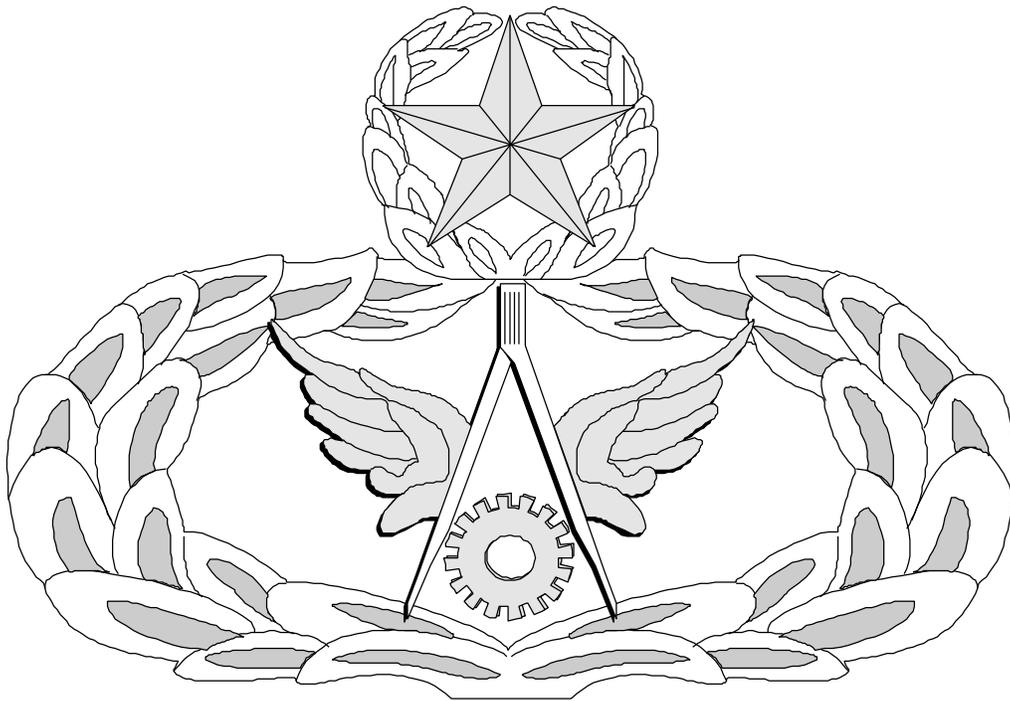
**FEEDBACK:** Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

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# Air Force Civil Engineer

## QUALIFICATION TRAINING PACKAGE (QTP)

### REVIEW ANSWER KEY



For  
**READINESS**

(3E9X1)

**MODULE 17**

**PERSONAL PROTECTIVE EQUIPMENT**

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**Key-1**

INSPECT, USE, MAINTAIN

(3E9X1-17.1.2., 17.1.3., & 17.1.4.)

Question	Answer
1. What technical order covers the MCU 2A/P protective mask?	c. T.O. 14P4-15-1
2. When is the mask inspected?	d. All the above
3. What form is used to document the inspection?	d. DD Form 1574
4. Due to the short time from agent detection to mask donning, you must don, clear, and seal the mask and adjust the hood in ____ .	b. 15 seconds
5. Left handed individuals are authorized to position the carrier on their right side.	b. False
6. At 70°F the hood is worn so that the outlet valve cover is _____.	b. Inside hood
7. Which straps are loosened when doffing the MCU-2A/P mask?	c. Neck straps
8. Once issued, who performs mask PMCS?	c. The individual the mask is issued to
9. What parts of the MCU-2A/P mask can the user repair?	d. None. There are no repairable parts on the mask
10. The MCU-2A/P front voicemitter may be replaced by the user.	b. False
11. The head harness of the M17 series mask can be used on the MCU-2A/P.	a. True
12. Alcohol based towelettes (or equivalent) may be used for expedient sanitation of the MCU-2A/P mask.	a. True

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INPSECT, USE, MAINTAIN

(3E9X1-17.3.2.2., 17.3.2.3., & 17.3.2.4.)

Question	Answer
1. What components make up the JS-LIST overgarment?	b. Coat and trousers with integral hood
2. The GCE CPO and BDO have the same shelf-lives.	b. False
3. What is the approved method(s) for documenting GCE inspections?	d. All of the above
4. The BDO must be changed within _____ hours after contact with a liquid chemical agent.	c. 24
5. Within how many hours after a vapor chemical agent contact has occurred should the JS-LIST OG be exchanged?	a. 24 hours
6. Washing the JS-LIST OG eliminates its capability to protect against chemical warfare agents.	b. False
7. How is the GCE size for a wearer determined?	c. By using the T.O. Overgarment Size Estimation Guide
8. Body armor is worn under the GCE.	b. False
9. Doffing procedures for uncontaminated and contaminated GCEs / JS-LISTs are the same.	b. False
10. Overgarments in factory bags that have been opened should be considered serviceable provided the overgarment has not been exposed to _____.	d. All the above
11. What actions, if any, do you take if the overgarment factory bag is torn and the visible fabric is damaged?	b. Condemn the overgarment, use for training or dispose of it
12. Machine laundering is an acceptable method of cleaning the JS-LIST OG.	a. True

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**USE FIELD GEAR EQUIPMENT SUCH AS HELMETS,  
WEB BELTS, CANTEEN, AND FLAK VEST**

**(3E9X1-17.4.)**

<b>Question</b>	<b>Answer</b>
1. The helmet and flak vest provide you protection from _____.	b. Fragmentation
2. The purpose of the suspenders is to?	b. Transfer some of the weight of the equipment on the web belt to your shoulders.
3. What defect would condemn the web belt?	d. Any of the above

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