

TM 3-4240-348-10

**TECHNICAL MANUAL
OPERATOR INSTRUCTIONS**

**MASK, CHEMICAL-BIOLOGICAL:
LAND WARRIOR, M45**

(NSN 4240-01-447-6989 - EXTRA SMALL)

(NSN 4240-01-447-6987 - SMALL)

(NSN 4240-01-447-8967 - MEDIUM)

(NSN 4240-01-447-6988 - LARGE)

See back of cover for warning, distribution statement, and destruction notice.

**HEADQUARTERS, DEPARTMENT OF THE ARMY
21 JANUARY 2000**

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WARNING SUMMARY

This publication describes physical and chemical processes that may require the use of chemicals, solvents, paints, or other commercially available material. The user of this publication should obtain the material safety data sheets Occupation Safety and Health Act (OSHA) Form 20 or equivalent from the manufacturer or suppliers of materials to be used. The user must become completely familiar with the manufacturer/supplier information and adhere to the procedures, recommendations, warnings, and cautions of the manufacturer/supplier for the safe use, handling, storage, and disposal of their materials. The following are general safety precautions and instructions that personnel must understand and apply during many

phases of operation and maintenance to ensure personal safety and health and the protection of DOD property. Portions of this may be repeated elsewhere in this publication for emphasis.

WARNING AND CAUTION STATEMENTS

WARNING and CAUTION statements have been strategically placed throughout this text prior to operating or maintenance procedures, practices, or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION). A WARNING or CAUTION will apply each time the related step is repeated.

WARNING SUMMARY (CONT)

Prior to starting any task, the WARNINGS or CAUTIONs included in the text for that task must be reviewed and understood. Refer to the materials list at the beginning of the appropriate manual section for materials used during maintenance of this equipment. This warning summary contains the WARNINGS and CAUTIONs included in the manual. The detailed warnings for hazardous materials only are listed separately in the warning summary as the "Hazardous Materials Warnings" section.

The following are general precautions that personnel must understand and apply during operation and maintenance of the mask:

- The mask will not protect the wearer against ammonia or carbon monoxide gases. It is not effective in confined spaces when the oxygen content of the air is too low.
- You must check your facepiece for leaks when fitted and each time the facepiece is put on. A leaky facepiece will not protect you from toxic agents.
- Do not wear glasses or contact lenses with your mask.
- If your drinking system is leaking, chemical agents could be swallowed/inhaled resulting in sickness and/or death.

HAZARDOUS MATERIALS WARNINGS

Warnings for hazardous material in this manual are associated with items you will come in contact with while maintaining your mask. For each hazardous material used, a material safety data sheet (MSDS) is required to be provided and available for review. Consult your local safety and health staff concerning any questions on hazardous chemicals, MSDSs, personal protective equipment requirements and appropriate handling and emergency procedures.

EXPLANATION OF SINGLE HAZARD SYMBOLS



The symbol of drops of a liquid onto a hand shows that the material will cause burns or irritation of human skin or tissue.



The symbol of a person wearing goggles shows that the material will injure the eyes.



The symbol of a human figure in a cloud shows that vapors of a material present a danger to life or health.



The symbol of a skull and crossbones shows that a material is poisonous or is a danger to life.



The rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition or high pressure.



The symbol of a flame shows that the material can ignite and burn personnel.

This Hazardous Materials Warnings section gives the complete warnings for hazardous material used in this manual. To help the user understand the potential hazards of these materials, a more detailed warning for these materials and an explanation of the hazard symbols follow.

HAZARDOUS MATERIALS WARNINGS

Material/Icon

Warning

ISOPROPYL RUBBING ALCOHOL, USP
HDX-22 (CAGEC 1DZ38)



Isopropyl alcohol is flammable, volatile and toxic to the eyes, skin, respiratory tract and digestive system. Skin and eye protection is required. Avoid repeated or prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition. Store and use in cool areas. Vapors may explode when subjected to high temperatures.

FIRST AID

For first aid refer to FM 21-11.

HEALTH/ENVIRONMENTAL HAZARD

There are two Mask Filter Canisters, the C2 and the C2A1.

- The C2 canister contains ASC Whetlerite Carbon that contains Chromium VI. Chromium VI is a known carcinogen if inhaled or swallowed. Consult your supporting medical activity if you have any questions or problems. Damaged or unusable canisters are classified as hazardous waste.
- The C2A1 canister is chromium-free, but must continue to be disposed of in accordance with State and Local Environmental laws.
- DO NOT throw away damaged or unusable canisters as ordinary trash.
- DO turn in damaged or unusable canisters to your hazardous waste management office or Defense Reutilization and Marketing Office (DRMO).

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TM 3-4240-348-10

LIST OF EFFECTIVE PAGES/WORK PACKAGES

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TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 128
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h blank	0	3-10 blank.....	0
A	0	A-1 – A-2.....	0
B blank.....	0	B-1 – B-4.....	0
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1-0 – 1-10	0	D-1 – D-4	0

* Zero in this column indicates an original page.

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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 or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Technical Director, Edgewood Chemical Biological Center, ATTN: AMSSB-RBD-B, Aberdeen Proving Ground, MD 21010-5423. A reply will be furnished to you.

HEADQUARTERS, DEPARTMENT OF THE ARMY

21 JANUARY 2000

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HOW TO USE THIS MANUAL

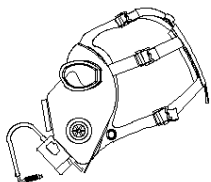
This manual contains operating instructions and operator maintenance procedures for the M45 Land Warrior Mask. At the beginning of each chapter, you will find an index of the topics covered in the chapter.

Instructions for operator maintenance procedures are contained in Chapter 3. In using these procedures, you must familiarize yourself with the entire maintenance procedure before beginning a specific maintenance task.

Read all the Warnings before you begin operating your equipment. Read each procedure completely before beginning a task. References in the manual are to pages, paragraphs, and appendixes or other publications as applicable.

NOTE

Only right-hand firing versions of the mask with the dynamic microphone assembly are shown in this manual



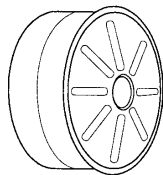
Facepiece



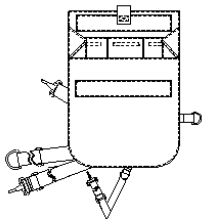
Second Skin



Faceform



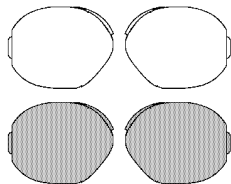
Canister



Carrier



Waterproof Bag



Clear and Neutral Gray Outserts

Fig 1. Mask, Chemical-Biological: Land Warrior, M45

CHAPTER 1

INTRODUCTION

SECTION I. GENERAL INFORMATION

1.1 SCOPE. The Scope of this manual is described in the following subparagraphs.

1.1.1 Type of Manual. Operator's manual.

1.1.2 Model Number and Equipment Name. Mask, Chemical-Biological: Land Warrior, M45.

1.1.3 Purpose of Equipment. To protect your face, eyes, and lungs from field concentrations of chemical-biological (CB) agents and radiological fallout particles.

1.1.4 Special Limitations on Equipment. Does not protect against ammonia or carbon monoxide gases. Does not protect you in closed spaces where there is not enough oxygen in the air.

1.2 MAINTENANCE RECORDS AND FORMS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS) as contained in maintenance management update.

1.3 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S). Send us an EIR to let us know why you don't like the design or performance of your mask. You, the user, are the only one who can tell us what you don't like about your equipment. Put it on an SF 368 (Quality Deficiency Report). Mail it to U.S. Army Soldier and Biological Chemical Command (SBCCOM) Rock Island Site, ATTN: AMSSB-RSO-ADM (RI), Rock Island, IL 61299-7390.

1.4 CORROSION PREVENTION AND CONTROL (CPC).

1.4.1 Corrosion Prevention and Control. CPC of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials can be a corrosion problem.

1.4.2 Quality Deficiency Report. If a corrosion problem is identified, it can be reported using Standard Form 368, Quality Deficiency Report. Use of key words such as "corrosion", "rust", "cracking" or "deterioration" will assure that the information is identified as a CPC problem. The form should be mailed to to U.S. Army Soldier and Biological Chemical Command (SBCCOM) Rock Island Site, ATTN: AMSSB-RSO-ADM (RI), Rock Island, IL 61299-7390.

1.5 DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE. Refer to TM 43-0062-31, Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use, for methods of destruction.

1.6 PREPARATION FOR STORAGE OR SHIPMENT. To prepare the M45 Land Warrior Mask for storage, refer to para 2.9 of this manual. Preparation for shipment instructions are described in TM 3-4240-348-20&P.

1.7 WARRANTY INFORMATION. The M45 Landwarrior Mask is warranted for defects in materials or workmanship for 2 years from the date of fielding. The user initiates the warranty process by documenting failures on a SF 368 (Quality Deficiency Report). Mail it to to U.S. Army Soldier and Biological Chemical Command (SBCCOM) Rock Island Site, ATTN: AMSSB-RSO-ADM (RI), Rock Island, IL 61299-7390.

The user will then be contacted and provided disposition instructions.

1.8 LIST OF ABBREVIATIONS.

AAL	Additional Authorized List
BII	Basic Issue Items
CAGEC	Contractor and Government Entity Code
CB	Chemical and Biological
CPC	Corrosion Prevention and Control
CTA	Common Table of Allowances
DA PAM	Department of the Army Pamphlet
DRMO	Defense Reutilization and Marketing Office
EIR	Equipment Improvement Recommendation
FM	Field Manual
JTA	Joint Table of Allowances
MSDS	Material Safety Data Sheets
OSHA	Occupational and Safety Hazard Agency
PMCS	Preventive Maintenance Checks and Services
SOP	Standing Operating Procedures
TAMMS	The Army Maintenance Management System
TDA	Table of Distribution and Allowances

SECTION II. EQUIPMENT DESCRIPTION AND DATA

1.9 EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

1.9.1 Characteristics.

- Facepiece made of silicone rubber, with an in-turned periphery for improved seal.
- Second skin provides protection against penetration of liquid agent.
- Close-fitting eyelenses shaped to improve peripheral vision.
- Microphone pass-through for communication interface.
- Filter canister is quickly and easily replaced.
- Transported and stored in carrier.

1.9 EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (CONT).

1.9.2 Capabilities.

- Interchangeable nose cups (five sizes) can be installed to improve fit, comfort, and vision.
- Front and side voicemitters are used for face-to-face and phone communication.
- Drink tube allows soldier to drink while wearing the mask.
- Filter canister has interoperability with North Atlantic Treaty Organization (NATO).
- Compatible with optical sighting/night vision devices.
- Optical inserts provide vision correction.

1.9.3 Features. Major features of the mask are the silicone rubber faceblank, which provides a seal against CB agents, a canister which filters particulate matter and agents from the air, front and side voicemitters which transmit the user's voice outside the facepiece, and a drink tube which allows the user to drink while wearing the mask.

1.10 EQUIPMENT DATA.

Weight (with carrier) 4.3 lbs (1.92 kg)

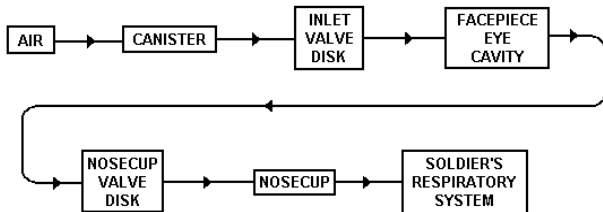
Dimensions (in carrier) 12 x 11.5 x 5 in (30.5 x 29.2 x 12.7cm)

SECTION III. THEORY OF OPERATION

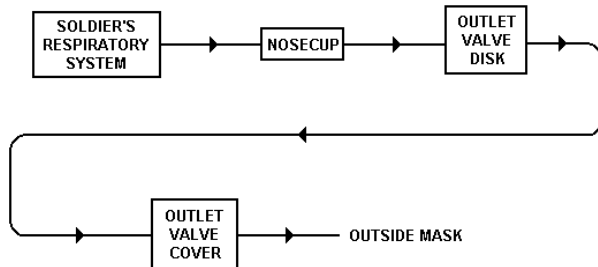
1.11 PROTECTION THEORY. The M45 Land Warrior protects the head, neck, face, and respiratory tract of the soldier from chemical and biological agents and other particles. Protection is provided by the agent-resistant facepiece, second skin, and hood. Although all three components protect the soldier against CB agents in gaseous form, the second skin and hood provide increased liquid agent protection. The facepiece protects the respiratory system of the soldier by filtering contaminated air while maintaining an airtight seal against the face. All outside air is forced to enter the canister, which filters chemical and biological agents before entering the facepiece. The facepiece maintains a facial seal using a system of valves that open and close during inhalation and exhalation.

1.11 PROTECTION THEORY (CONT)

1.11.1 Inhalation. As a soldier inhales, a facial seal is maintained by the outlet valve closing on the outlet valve housing. The vacuum causes outside air to pass through the canister, which filters the contaminated air. Filtered air then travels past the inlet valve disk into the faceblank eye cavity. Once in the eye cavity, the filtered air flows over the inside of the eyelenses to reduce fogging and past the nosecup valves into the nosecup. Some air may enter the nosecup by flowing between the nosecup and the nose/chin area, but most will enter through the nosecup valve disks. Once the filtered air enters the nosecup, the air enters the soldier's respiratory system.



1.11.2 Exhalation. As the soldier exhales, the inlet valve disk seats against the inlet valve gasket to prevent the soldier from inhaling exhaled air. Also, the nosecup valve disks seat against the nosecup seats to prevent exhaled air from entering the eye cavity which results in fogging of the eyelenses. Exhaled air is then directed to the outlet valve disk, which is forced open. The overall result of the outlet valve disk opening the nosecup and inlet valve disks closing is that the facial seal is maintained. Exhaled air flows past the outlet valve disk and into the outlet valve cover, where it is directed outside the mask.



1.11 PROTECTION THEORY (CONT)

1.11.3 Additional Features. The M45 Land Warrior Mask also provides the user with face-to-face, phone and platform communication capabilities as well as a drinking capability. Face-to-face and phone communication is provided by voicemitters, which contain grills and thin membranes. The grill protects the membrane, which allows sound to pass through it but not CB agents. Ground communication is provided by a microphone and microphone cable, which connect at the outlet valve housing. The microphone cables may be connected to the platform helmet to interface with communication systems. The drinking system consists of internal and external drink tubes. When connected to the M1 canteen cap, the external drink tube coupling plunger is pushed back by the cap pin. This creates an opening in the coupling, so that liquid may pass through it and into the soldier's mouth via the internal drink tube. When not in use, the plunger inside the external drink tube coupling seats to prevent air or liquids from entering the internal drink tube and facepiece.

CHAPTER 2

OPERATING INSTRUCTIONS

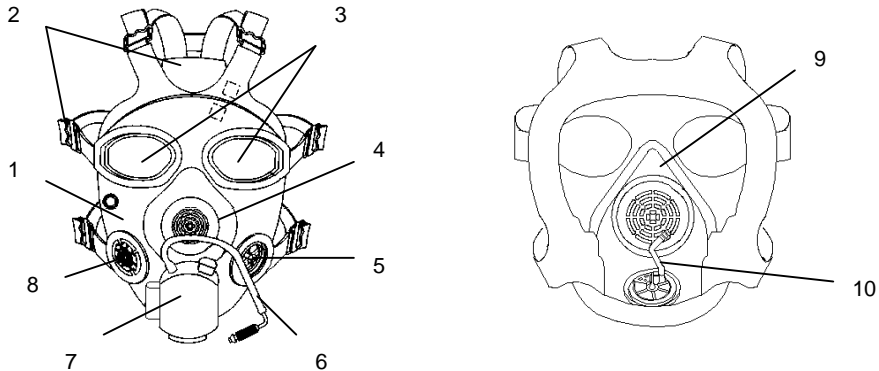
Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2.1 GENERAL

Make sure you are familiar with the location and operation of all mask parts and additionally authorized items before attempting to use the mask.

2.2 DESCRIPTION OF MASK

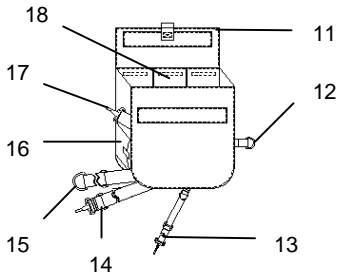
2.2.1 Facepiece consists of a silicone rubber faceblank (1) with an in-turned periphery, head harness (2), eyelenses (3), front voicemitter (4), sideport (5), external drink tube (6), outlet valve cover (7), side voicemitter (8), nosecup (9) and internal drink tube (10).



2.2.2 Second Skin is made of agent resistant rubber and fits over the facepiece. It provides additional protection against liquid agents. The Second Skin is issued in three sizes and is marked with XS/S (extra small/small), M (medium) or L (large) above the left eyelens opening.



2.2.3. Carrier is a cloth bag that provides for storage and carrying of the mask and additionally authorized items. It includes a quick-opening flap with hook and pile fastener (11), D ring (12), shoulder strap (13), short adjustable strap (14), waist strap (15), identification slot (16), short strap (17), and pockets (18) for storage.

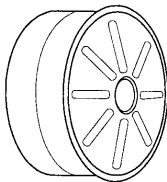


2.2 DESCRIPTION OF MASK (CONT).

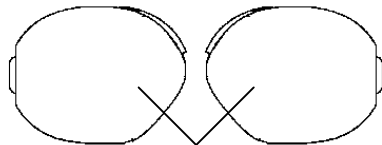
2.2.4 Faceform is a plastic mold that fits inside the facepiece during storage for more than 30 days.



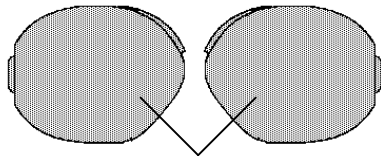
2.2.5 Canister attaches to facepiece sideport, and filters out harmful particles from outside air.



2.2.6 Outserts consist of clear (19) and neutral gray (20) lenses that fit over the facepiece eyelenses to protect them from damage.



19



20

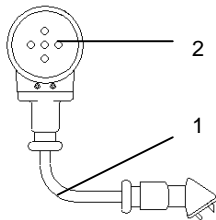
2.2 DESCRIPTION OF MASK (CONT).

2.2.7 M1 Waterproof Bag keeps mask dry when required during excessively long periods of heavy rain, river crossings, beach landings and during similar operations.

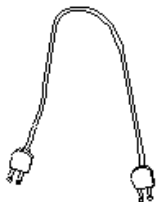


2.3 Description of Additionally Authorized Items (APP C)

2.3.1 Microphone Positioner (1) consists of a flexible wire that fits between the Dynamic Microphone (2) and outlet valve housing.

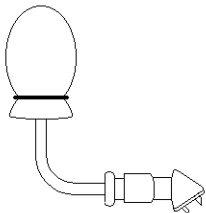


2.3.2 Microphone Cable is approximately 20 inches long, and contains a 2-pin connector on each end. The cable connects to the front of the outlet valve housing and the helmet receptacle. The cable enables connection to the platform communication system by connecting the mask to the helmet.

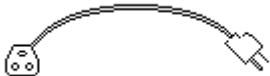


2.3 Description of Additionally Authorized Items (APP C)

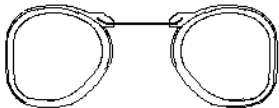
2.3.3 Landwarrior Microphone consists of a microphone and flexible wire that connects to the back of the outlet valve housing.



2.3.4 Landwarrior Microphone Cable is approximately 6 inches long, and contains a 3-pin connector on each end. The cable connects to the front of the outlet valve housing and the helmet receptacle. It enables connection to the platform communication system by connecting the mask to the helmet.



2.3.5 Optical Inserts are a set of plastic frames that fit inside the mask over the eyelenses. They are available by medical prescription for personnel who require vision correction (AR 40-63).



2.3.6 Canteen with M1 Canteen Cap allows external drink tube to be connected to the canteen. The cap contains a hole that allows connection to the external drink tube.

2.3.7 M8 Chemical Agent Detection Paper consists of a book of perforated sheets of chemically treated, dye-impregnated paper. Chemicals in the paper cause specific color changes when contacted by liquid nerve or blister agents. A color comparison bar-chart is printed inside the front cover. Instructions for use are on the book cover.

2.3.8 M295 Individual Equipment Decontaminating Kit is used primarily for decontaminating individual equipment. Instructions for use are printed on the container and packets.

2.3.9 M291 Skin Decontaminating Kit is used primarily for skin decontamination. Instructions for use are printed on the container and packets

SECTION II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2.4 INTRODUCTION TO PMCS TABLE.

2.4.1 General. The Operator PMCS table has been provided so you can keep your equipment in good operating condition. The PMCS table is arranged to provide procedures for checks and services to be performed before, during and after operation of the mask. A thorough initial inspection to include sizing, fitting, fit testing, and after use inspection is critical to ensure it is providing you with maximum protection. If you have not used your mask for a lengthy period of time, specific checks are required in addition to the before checks to assure that your mask is ready to be used. Shortcomings which DO NOT limit the operational capability (form, fit or function) are not noted in this TM. These minor discrepancies should be attended to and maintained to prevent them from becoming deficiencies. The following paragraphs provide information on how to use the PMCS tables. Report any malfunctions or failures on the proper DA Form 2404, or refer to DA PAM 738-750.

2.4.2 Inspections. The most detailed inspection and PMCS of your mask is accomplished after each time you use it and when you first receive it. The BEFORE, DURING and AFTER PMCS checks are assigned to assure that the mask is ready for use without causing you to spend a lot of time on your mask before beginning a mission. Therefore, it is vital, for your safety, that you perform all of the checks in the interval listed. BEFORE PMCS assures that

all the parts of your mask are present and verify the most important components of the mask are operational. The DURING PMCS procedures check those items which are most readily checked while operating the mask. The AFTER PMCS procedures provide a detailed check of the mask to assure that any items which are not performing properly are repaired prior to any additional use. In the event that you have not used your mask for a lengthy period of time, perform all BEFORE, DURING, AND AFTER PMCS prior to using the mask. This will allow you to correct any problems which may have occurred during storage.

2.4.3 WARNINGS and CAUTIONS. WARNINGS and CAUTIONS appear before the applicable procedures. You must observe all WARNINGS and CAUTIONS to prevent serious injury to yourself or others and to prevent damage to your equipment.

2.4.4 PMCS Procedures. The following paragraphs describe the information presented in each column of the PMCS table.

2.4.4.1 Item Number Column. Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indication at fault. Item numbers also appear in the order that you discover before, during, or after operation. You DO NOT need to record faults that you fix.

2.4 INTRODUCTION TO PMCS TABLE (CONT).

2.4.4.2 Interval Column. This column tells you when you must do the procedure in the procedure column. Do your BEFORE PMCS just before you operate the mask or deploy. Do your DURING PMCS while you are using the mask. Do your AFTER PMCS right after use or before you store it.

2.4.4.3 Item to Check/Service Column. This column identifies the item to be checked or serviced.

2.4.4.4 Procedure Column. This column gives the procedure you must do to check or service the item listed in the Item to Check/Service column. This will tell you if the equipment is ready or available for the intended mission or for operation. You must do the procedure at the time stated in the interval column.

2.4.4.5 Not Fully Mission Capable If Column. Information in this column only tells you what deficiencies will keep your mask from being capable of operating safely. DO NOT use you mask if a check and service shows a fault listed in the column. Shortcomings or minor discrepancies which DO NOT limit operational capability or safety of use may require corrective actions and continued surveillance, but does not “deadline” the mask.

2.4.4.6 Other Table Entries. Be sure to observe all special information and notes that appear in your table.

	Page
Before PMCS	2-14
After PMCS	2-30

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

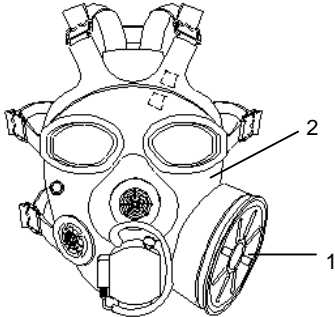
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
1	Before	Canister	<p>Check that canister(1) is securely attached to facepiece (2).</p>  <p>The diagram shows a gas mask with a large, cylindrical filter canister attached to the side. The facepiece has two large eye lenses and a central breathing valve. A line labeled '2' points to the facepiece, and a line labeled '1' points to the filter canister.</p>	Filter canister cannot be securely attached to the facepiece.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

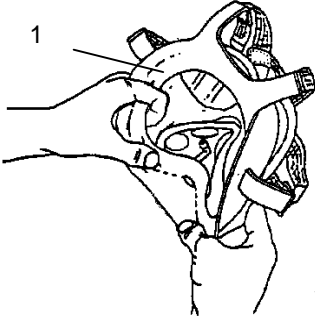
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
2	Before	Mask	<p>Run finger under inner lip (1) to make sure folded material doesn't stick together.</p>  <p>The diagram shows a hand holding a mask. A line labeled '1' points to the inner lip of the mask, which is being inspected by a finger. The mask has various straps and a filter.</p>	Inside surfaces are damaged or cannot be separated.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

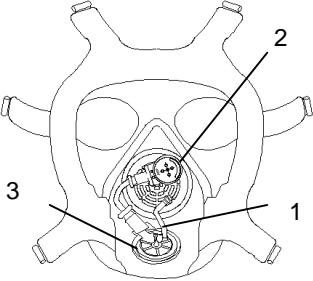
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
3	Before	Internal Drink Tube and Microphone Assembly	<p>Check that internal drink tube (1) and microphone assembly (2) (if issued) are present and securely attached to outlet valve housing (3).</p>  <p>The diagram shows a top-down view of a helmet's internal structure. Callout 1 points to a tube extending from the front of the helmet towards the bottom. Callout 2 points to a circular assembly with a cross symbol in the center, located near the front of the helmet. Callout 3 points to a circular housing at the bottom of the helmet where the tube and microphone assembly meet.</p>	Internal drink tube or microphone assembly are missing or loose.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
4	Before	Nosecup Assembly	<p>a. Check that nosecup (1) is attached to front voicemitter (2) and outlet valve housing (3).</p> <p>b. Run finger along inner lip (4) of nosecup to ensure it is not sticking.</p> <p>c. Check that nosecup is not stuck to inside of facepiece.</p>	<p>Nosecup is pulled away from voicemitter/outlet valve housing.</p> <p>Inside surfaces are damaged or cannot be separated.</p> <p>Nosecup cannot be separated from facepiece.</p>

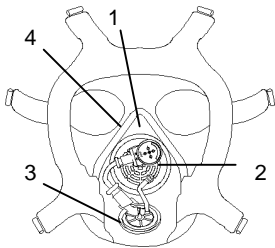


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
4	Before	Nosecup Assembly (Cont)	<p>d. Check that nosecup valve disks (5) are present and seated on nosecup valve seats.</p> <p>e. Rotate disks to be sure they are not stuck, curled, or torn.</p>	<p>Nosecup valve disks are missing or not seated on inside of nosecup valve seats.</p> <p>Disks are stuck, curled or torn.</p>

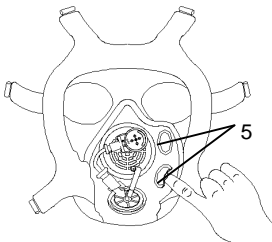


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
5	Before	Inlet Valve Assembly	<p>a. Fold back left side of nosecup to fully expose inlet valve assembly. Check that inlet valve disk (1) is present and positioned in the slot on the cage and post assembly (2). Check cage for cracks.</p> <p>b. Check inlet valve disk for tears and curls. Make sure disk lies flat.</p>	<p>Inlet valve disk is missing or not positioned on the cage and post assembly. Cage is cracked, missing or not positioned on inlet valve gasket.</p> <p>Inlet valve disk has cuts, tears, curls or does not seat against inlet valve gasket.</p>

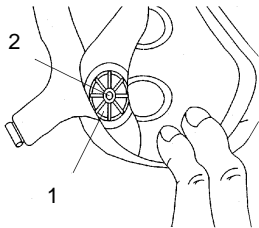


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

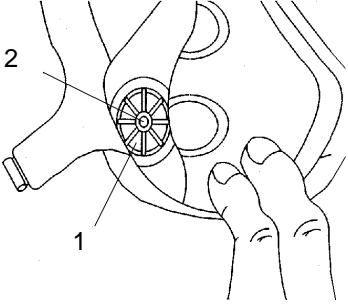
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
5	Before	Inlet Valve Assembly (Cont)	<p>c. Rotate inlet valve disk (1) and cage and post assembly (2) with finger. Make sure it lies flat and doesn't stick.</p>  <p>The diagram is a line drawing showing a hand interacting with a mechanical component. The hand is shown from the side, with the index finger and thumb positioned to rotate a part. The part has a circular disk with radial spokes (labeled '1') and a surrounding cage and post assembly (labeled '2').</p>	Inlet valve disk sticks.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

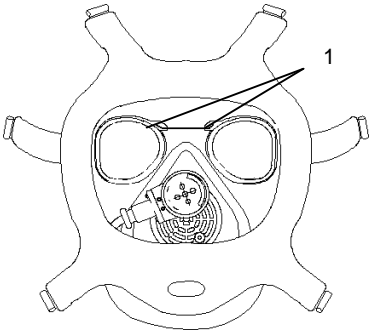
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
6	Before	Vision Correction Inserts	Ensure inserts (1) are attached to facepiece (if issued). 	Inserts will not attach to facepiece.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

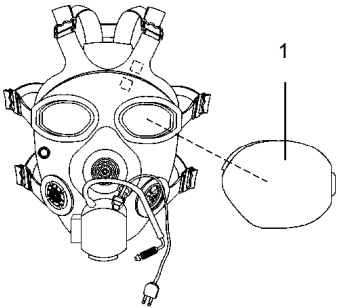
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
7	Before	Outserts	<p>Check that outserts (1) are installed and securely attached to facepiece.</p>  <p>The diagram shows a front view of a respirator facepiece with various attachments including a filter, a microphone, and a connector. To the right, a circular outsert is shown separately, with a dashed line indicating its position on the facepiece. A vertical line with the number '1' at the top points to the outsert.</p>	Outserts are missing or will not attach securely to facepiece.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
8	Before	Microphone Cable	Check to see that microphone cable (1) is attached securely to the receptacle on the facepiece (if issued).	Microphone cable cannot be attached securely to facepiece, or cable is cut or cracked.

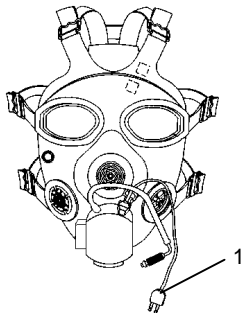


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

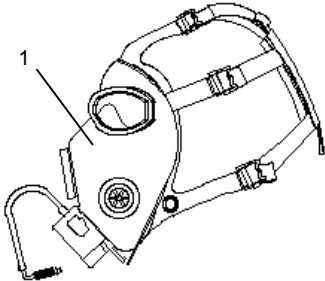
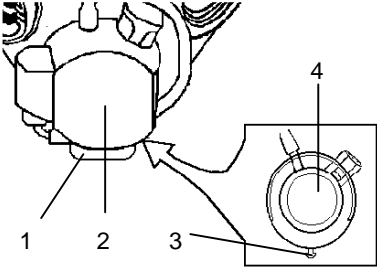
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
9	Before	Second Skin	<p>Check that second skin (1) is present and properly installed.</p>  <p>The diagram shows a side view of a helmet with several straps and buckles. A callout line labeled '1' points to a circular area on the front of the helmet, which is the location of the second skin.</p>	Second skin is missing or installed incorrectly.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
10	Before	Outlet Valve Disk and Outlet Valve Cover	a. Grasp tab (1), pull and stretch bottom portion of outlet valve cover (2) over the barb (3). Check that outlet valve disk (4) is present and not curled, distorted, or dirty.	Outlet valve disk is missing, curled, distorted, or dirty.



The diagram shows a perspective view of an outlet valve assembly on the left and a magnified view of the outlet valve disk on the right. In the perspective view, callout 1 points to a tab on the side of the outlet valve cover, callout 2 points to the cover, and callout 3 points to a barb on the disk. In the magnified view, callout 4 points to the disk.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

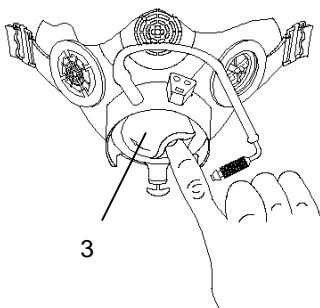
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
10	Before	Outlet Valve Disk and Outlet Valve Cover (Cont)	<p>b. With finger, rotate outlet valve disk (3) to ensure it is not sticking.</p> <p>c. Replace outlet valve cover.</p>  <p>The diagram shows a top-down view of a mechanical outlet valve assembly. A hand is shown with the index finger touching a circular disk, which is labeled with the number '3'. A leader line connects the number '3' to the disk. The assembly includes various hoses, a central valve body, and mounting brackets.</p>	Outlet valve disk is sticking and cannot be rotated.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

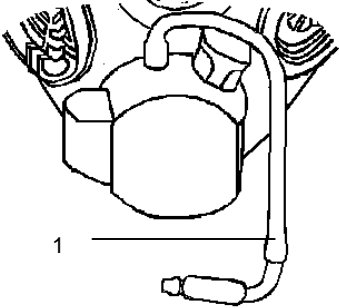
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
11	Before	External Drink Tube	<p>Check that external drink tube (1) is present and securely attached.</p> 	External drink tube is missing or loose.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
12	Before	Waterproof Bag	<p>a. Check waterproof bag (1) for cracks, tears, holes or brittleness.</p> <p>b. Check that rubber bands (2) are in bag and are not sticky, broken or brittle.</p>	<p>Waterproof bag is torn, has holes, or is brittle.</p> <p>Rubber bands are missing, or are sticky, broken, or brittle.</p>

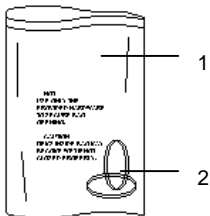


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
13	Before	Mask	Don Mask in accordance with para 2.4 and check mask for leaks.	Mask leaks.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

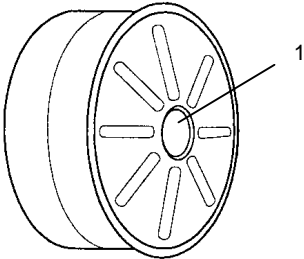
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
1	After	Canister	<p>a. Check canister air intake (1) for clogs.</p> <p>b. Check canister replacement criteria (para 2.3.).</p> 	<p>Canister intake is clogged.</p> <p>Canister is expired.</p>

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
2	After	Microphone Cable	<p>a. Check microphone cable (1) for cuts, cracks and bent pins (2) (if issued).</p> <p>b. Check that microphone cable is attached securely to the receptacle (3) in the facepiece.</p>	<p>Microphone cable is cut, cracked or has bent pins.</p> <p>Microphone cable will not securely attach to facepiece.</p>

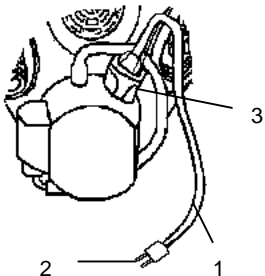


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)


Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
3	After	Second Skin	Inspect second skin for cracks, tears and splits. 	Second skin is cracked, torn or split.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
4	After	External Drink Tube	<p>a. Check external drink tube (1) for cuts, cracks or holes.</p> <p>b. Check external drink tube for tight connection to the outlet valve housing (2) and quick disconnect coupling (3).</p>	<p>External drink tube is missing, or has cuts, cracks or holes.</p> <p>External drink tube connection to outlet valve housing or quick disconnect coupling is loose.</p>

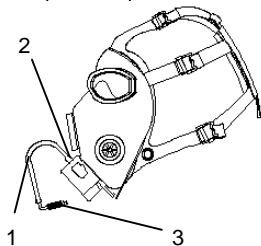


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
5	After	Outlet Valve Disk and Outlet Valve Cover	<p>a. Grasp tab (1), pull and lift bottom of outlet valve cover (2) over barb (3). Check cover for cuts, holes and tears.</p> <p>b. Check that outlet valve disk (4) is seated and is not curled, torn, dirty, punctured or distorted. Rotate disk to ensure it is not sticking.</p>	<p>Outlet valve cover is cut, torn or punctured.</p> <p>Outlet valve disk is curled, sticking, punctured, dirty, distorted, torn or will not seat.</p>

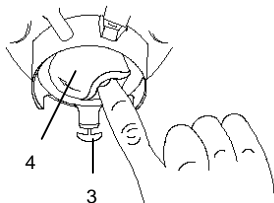
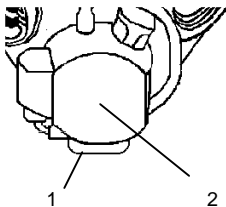


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
5	After	Outlet Valve Disk and Outlet Valve Cover (Cont)	<p><u>WARNING</u></p> <p>Do not use paper to remove moisture from outlet valve cover, outlet valve disk, or outlet valve seat. Paper may break up and lodge in outlet valve area causing leakage.</p> <p>c. Wipe moisture from outlet valve (4) and seat (5) with cheesecloth (Item 3, App D).</p>	Outlet valve disk or seat cannot be cleaned.

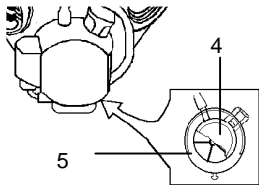


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
5	After	Outlet Valve Disk and Outlet Valve Cover (Cont)	<p>d. Check outlet valve seat (5) for dirt, nicks, or cracks. Smooth outlet valve disk (4) so it lies flat on seat.</p> <p>e. Check that barb (6) is not broken or cracked.</p> <p>f. Wipe moisture and dirt from outlet valve cover (2) with cheesecloth (Item 3, App D) and check for cuts, tears or holes.</p> <p>g. Reinstall cover.</p>	<p>Outlet valve seat is nicked or cracked, or disk will not seat properly.</p> <p>Barb is cracked or broken.</p> <p>Outlet valve cover is cut, torn, has holes, or will not seat firmly over outlet valve.</p>

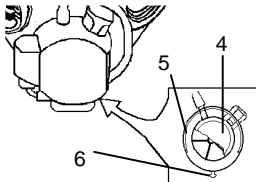


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

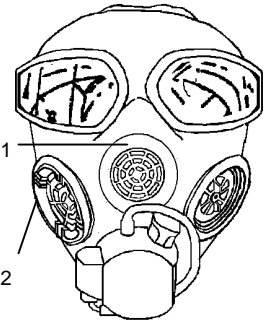
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
6	After	Voice-mitters	Check front (1) and side (2) voice-mitters for dirt, cracks, punctures or obstructions. 	Voice-mitters are dirty or damaged.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
7	After	Head Harness	<p>a. Check buckles (1) for bends, cracks, or corrosion. Pull on head harness straps to ensure buckles hold straps.</p> <p>b. Put on facepiece (para 2.4) and check head harness for loss of elasticity.</p> <p>c. Check for dirt. Check each strap for cuts, tears, missing parts or deterioration such as mildew or fraying.</p>	<p>Buckles are missing, broken, or will not hold straps.</p> <p>Head harness will not hold mask firmly against face.</p> <p>Head harness is dirty, cut, torn, frayed, has missing parts or is deteriorated.</p>

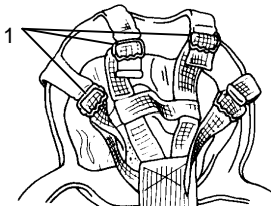


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

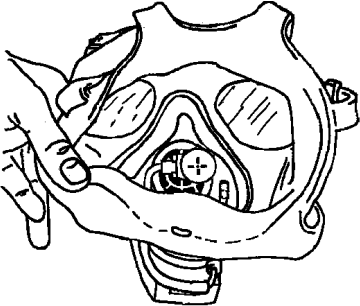
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
8	After	Facepiece	<p>Inspect facepiece for dirt, holes, tears and splits. Look closely at the inside of the facepiece where it touches your skin.</p> 	Mask has holes, tears, splits, or soft spots that allow air to enter.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
9	After	Internal Drink Tube	<p>a. Check internal drink tube (1) for cuts, cracks or holes.</p> <p>b. Ensure that internal drink tube opening is oriented so you can drink with the mask on.</p>	<p>Internal drink tube has cuts, cracks or holes.</p> <p>Internal drink tube is oriented so that you cannot grasp it with your mouth.</p>

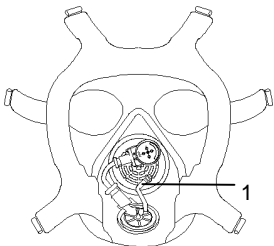


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
10	After	Inlet Valve Assembly	a. Fold back left side of nosecup to fully expose inlet valve assembly. Check that inlet valve disk (1) is present and properly positioned on cage and post assembly (2).	Inlet valve disk is missing or not positioned on the cage and post assembly.
			b. Check inlet valve disk for tears, curls or dirt. Make sure inlet valve disk lies flat.	Inlet valve disk has tears, curls, or does not seat against inlet valve gasket.
			c. From outside the mask, blow on inlet valve disk to ensure it isn't sticking.	Inlet valve disk sticks.

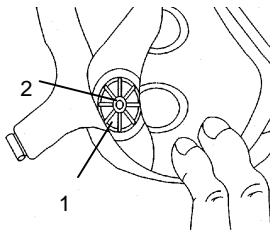


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

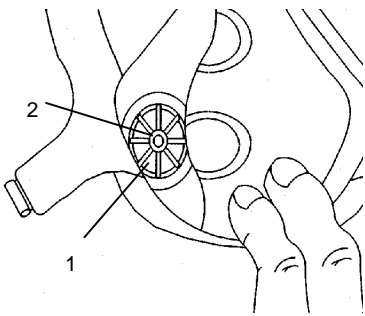
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
10	After	Inlet Valve Assembly (Cont)	<p>d. Check inlet valve cage and post assembly for distortion.</p> 	Inlet valve cage and post is damaged or won't rotate freely.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

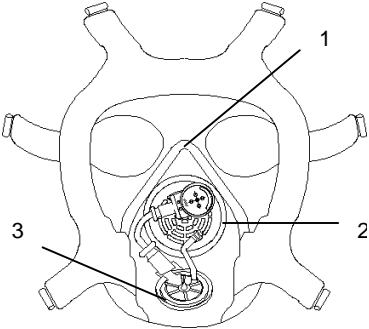
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
11	After	Nosecup	<p>a. Check that nosecup (1) is not pulled away from back of outlet valve housing (2) and front voicemitter (3).</p> 	Nosecup is pulled away from back of outlet valve housing or front voicemitter.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
11	After	Nosecup (Cont)	<p>b. Check that nosecup and nosecup valve seats are free of dirt. Check nosecup for cracks, cuts, tears and holes. Look at inside of nosecup inner lip where it touches your skin.</p> <p>c. Rotate nosecup valve disks (4) to ensure they are not sticking, Check that valve disks are not dirty, curled or torn.</p>	<p>Nosecup is dirty, cracked, cut or has holes. Nosecup valve seats are dirty.</p> <p>Nosecup valve disks are torn, missing, dirty or stuck to nosecup.</p>

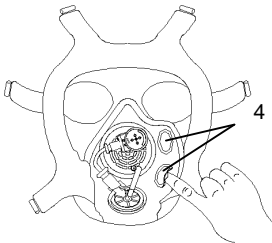


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

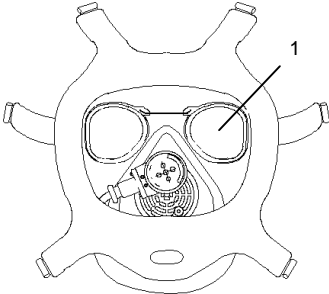
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
12	After	Vision Correction Inserts	Inspect vision correction inserts (1) (if issued) for loose or broken lenses, and frames that will not attach to facepiece. 	Loose, broken or missing lens or frame. Insert frame disconnected from facepiece.

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
13	After	Outserts, Eyelenses and Eyerings	<p>a. Remove outserts (1) by grasping tab (2) and pulling away from mask.</p> <p>b. Check outserts for cracks, scratches or discoloration that affect vision.</p> <p>c. Check eyelenses (3) for cracks, scratches, dirt or stains that affect vision.</p> <p>d. Check eyerings (4) for cracks.</p>	<p>Outserts are broken, distorted or discolored.</p> <p>Eyelenses are cracked, scratched or stained enough to affect vision.</p> <p>Eyerings are cracked.</p>

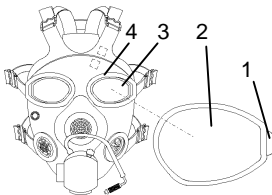


Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

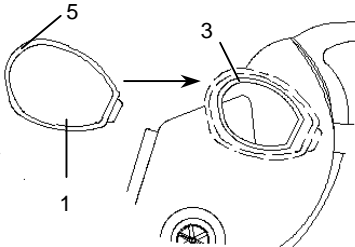
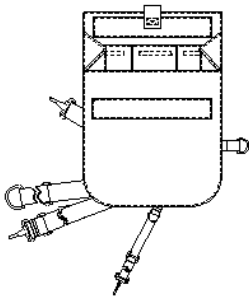
Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
13	After	Outserts, Eyelenses and Eyerings (Cont)	<p>e. Install outserts (1) onto eyerings (3) by snapping front edge (5) into place first.</p> 	

Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Item No.	Interval	Location	Procedure	Not Fully Mission Capable If:
		Item to Check/Service		
14	After	Carrier	<p>a. Empty carrier and check for dirt, tears, holes or missing buckles, d-rings, straps, strap hooks and hardware. Check seams for broken stitches.</p> <p>b. Ensure hook and pile fasteners hold carrier flap securely.</p> <p>c. Stow your mask (para 2.9).</p>	<p>Carrier is torn, seam stitching is loose, or buckles, d-rings, straps, or strap hooks are missing.</p> <p>Carrier flap will not stay closed.</p>



2.2 MANDATORY REPLACEMENT PARTS.

There are no mandatory replacement parts needed for PMCS.

2.3 CANISTER REPLACEMENT CRITERIA.

WARNING

Wear a protective mask and proper protective clothing in accordance with local SOP when replacing a canister exposed to toxic agents.

See NBC protection, FM 3-4 for proper filter replacement criteria. Turn in damaged or unusable canisters to your hazardous waste management office or Defense Reutilization and Marketing Office (DRMO).

SECTION III. OPERATION UNDER USUAL CONDITIONS

2.4 DONNING YOUR MASK.

WARNING

Keep face clean-shaven. An unshaven face could cause a bad seal between face and facepiece.

Soldiers should not wear hairstyles which possibly would interfere with the fit of the facepiece.

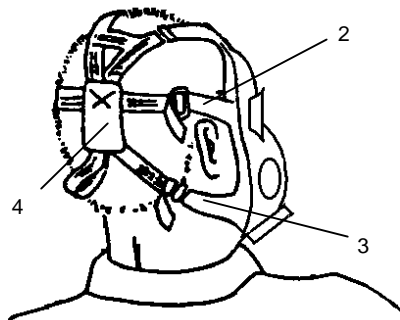
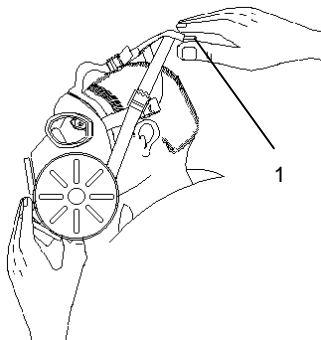
Do not overtighten the headharness. Overtightening may cause the mask to leak and will make it more uncomfortable to wear.

Excessive head movement may cause face seal to leak.

- a. Stop breathing, close eyes and remove headgear.
- b. Remove mask from carrier.

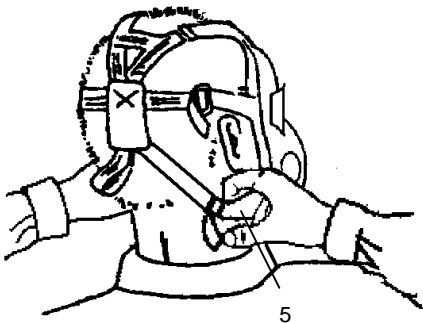
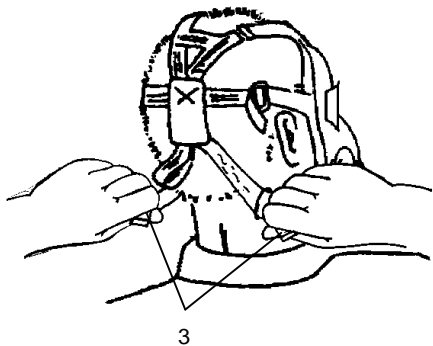
c. Put your chin in chin pocket and with free hand push hair back away from hairline. Press mask snugly against your face.

d. Grasp tab (1) and pull head harness over your head. Be sure your ears are between the temple straps (2) and cheek straps (3) and headpad (4) is centered at the back of your head.

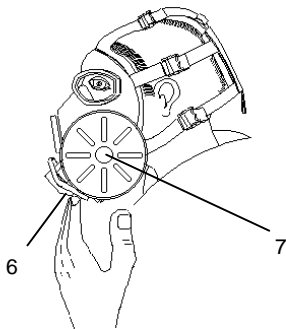


2.4 DONNING YOUR MASK (CONT).

e. Tighten both cheek straps (3) at the same time. Pull both cheek tabs (5) out approximately 2 inches to properly seat mask on face.



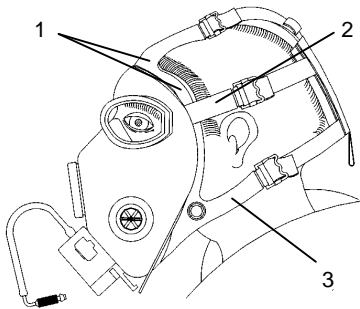
f. Block openings at bottom of outlet valve cover (6) with your hand. Breathe out hard so that air escapes around edges of facepiece.



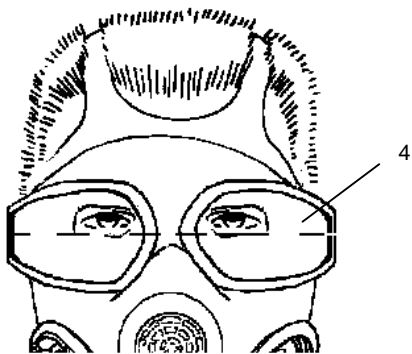
g. Locate canister and cover the inlet port (7) and breathe in. Facepiece should collapse against your face, and remain so while you hold your breath. If it does, facepiece is airtight. If facepiece does not collapse, your mask leaks, refer to para 3.2.

2.5 FIT CRITERIA.

- a. Verify the fit of your mask according to the following criteria:
- b. Edge of facepiece (1) comes well up on your forehead, but not more than one half inch into hairline, and within 1 inch of your ears.
- c. Temple straps (2) and cheek straps (3) do not cut into your ears.



- d. Have a buddy check that your pupils are above center of the eyelens (4).
- e. Ensure the nosecup sets on the top part of your nose.
- f. Check facepiece for leaks, refer to para 3.2.



2.6 PUTTING YOUR MASK ON IN COLD WEATHER.

WARNING

In cold weather do not clear mask by exhaling a large volume of air. Moist air will frost eyelenses and impair vision.

NOTE

When wearing a mask in cold weather, you will probably feel increased resistance to your breathing.

- a. Perform the procedures for putting on your mask (para 2.4), keeping in mind the following points in cold weather:
- b. Exhale slowly and lightly. If you feel excessive resistance when exhaling, the outlet valve may be sticking.

c. If outlet valve disk sticks to outlet valve seat, massage outlet valve disk through the outlet valve cover until outlet valve disk opens and closes freely.

2.7 USING THE DRINKING SYSTEM.

2.7.1 CONNECTING THE DRINKING SYSTEM.

WARNING

Do not connect the drink tube to your canteen until all mating surfaces have been checked and are free of contamination.

Care should be taken not to break the mask seal while pressing on the outlet valve cover or using the drinking system.

2.7.1 CONNECTING THE DRINKING SYSTEM (CONT).

NOTE

To use the drink tube, your canteen must be equipped with an M1 canteen cap.

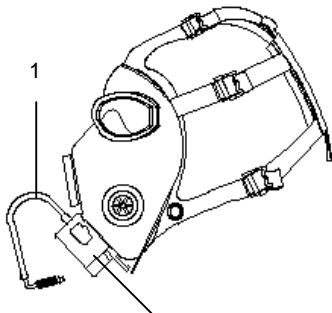
a. If contamination is suspected, decontaminate drink tube and M1 canteen cap, with M295 decontaminating kit (App C). Check with M8 detector paper (App C).

NOTE

Water may leak into mask if mouth is taken off internal drink tube while canteen is in the raised (drinking) position.

b. Hold mask in place and pull external drink tube (1) out of drink tube holder. Ensure drink tube does not touch outside of mask.

c. Push on outlet valve cover (2), and grasp internal drink tube between your teeth.

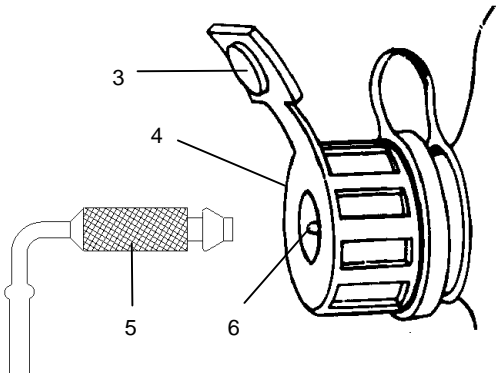


d. Flip open cover (3) on M1 canteen cap.

e. Push external drink tube coupling (5) into M1 canteen cap (4) so that pin (6) enters coupling (5).

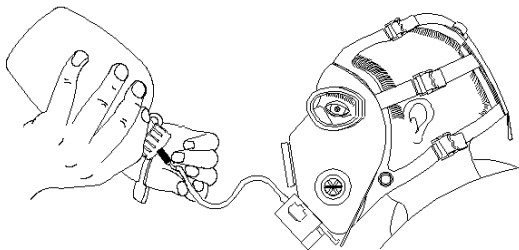
f. Blow to create positive pressure. You should feel some resistance. If resistance is not felt, your drinking system is leaking. Do not drink.

g. If system leaks (no resistance), pinch and hold drink tube and notify unit maintenance immediately.



2.7.1 CONNECTING THE DRINKING SYSTEM (CONT).

- h. If system does not leak, tilt up canteen and drink.
- i. If you cannot drink, your drink tube is clogged. See unit maintenance.



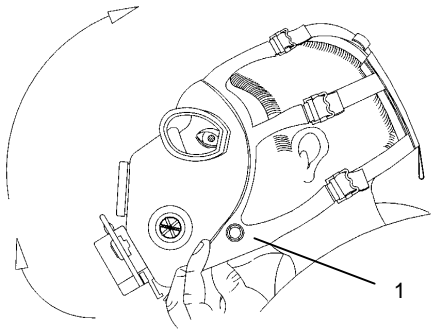
- j. After several swallows, stop sucking and lower canteen. Blow into internal drink tube to prevent canteen from collapsing. Repeat drinking procedure as required.

2.7.2 DISCONNECTING THE DRINKING SYSTEM.

- a. Turn canteen upright. While blowing into internal drink tube, firmly grasp external drink tube and pull canteen down and away to disconnect coupling. You should feel some resistance.
- b. Remove internal drink tube from mouth.
- c. Replace external drink tube in the drink tube holder. Close cover on M1 canteen cap.

2.8 REMOVING YOUR MASK.

- a. Disconnect microphone (if issued) from helmet receptacle, then remove helmet.
- b. Loosen cheek straps ONLY.
- c. Place thumbs under both cheek tabs (1). Lift bottom of mask out and up over your head.



2.9 STOWING YOUR MASK AND ADDITIONAL AUTHORIZED ITEMS.

CAUTION

To avoid scratching the primary lenses, be sure outserts are installed before placing the mask in carrier.

To avoid damage to mask, place only authorized items in your carrier.

- a. Ensure clear outserts are installed on mask (Item 13, After PMCS).
- b. Your mask must be dry and clean before stowing.
- c. The interior of the carrier must be dirt free.
- d. Stow operator's manual in carrier.

2.9 STOWING YOUR MASK AND ADDITIONAL AUTHORIZED ITEMS (CONT).

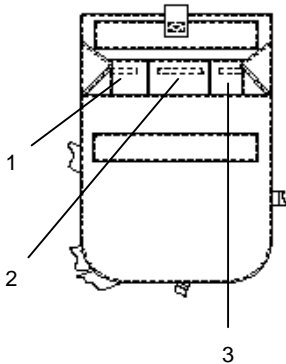
e. If the following items are issued, stow as follows:

(1) M291 Decontaminating Kit and Waterproof Bag: Stow in left pocket (1) of carrier.

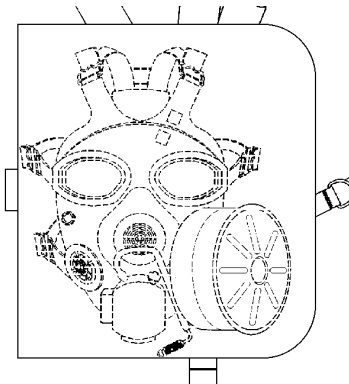
(2) M8 Detector Paper and TM 3-4240-348-10: Stow in middle pocket (2) of carrier.

(3) Additional Outserts and M295 Decontaminating Kit: Stow in right pocket (3) of carrier.

f. Pull head harness over front of mask.



g. With canister toward the bottom of the carrier, place mask in carrier with eyelenses facing up and away from body.



h. Close carrier.

2.9 STOWING YOUR MASK AND ADDITIONAL AUTHORIZED ITEMS (CONT).

i. Whenever possible, store your mask in closed carrier in a cool, dry, dark place. It is preferable to hang carrier during storage. Hang carrier by hook on short strap.

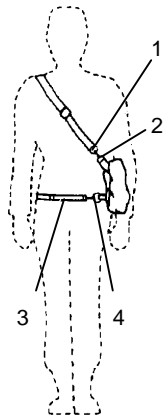
j. For storage of 30 days or more, install faceform in mask.

2.10 WEARING YOUR MASK CARRIER.

a. The shoulder carry method is as follows:

(1) Attach shoulder strap D-ring (1) to hook (2) on carrier and adjust.

(2) Hook waist strap (3) to round ring (4) and adjust.

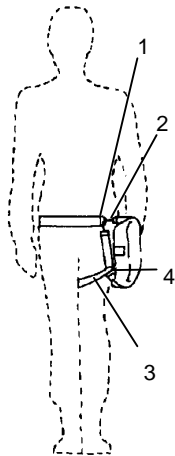


b. The leg carry method is as follows:

(1) Put shoulder strap D-ring (1) around waist and attach to hook (2) on carrier. Adjust strap.

(2) Bring waist strap (3) from back and around inside of leg.

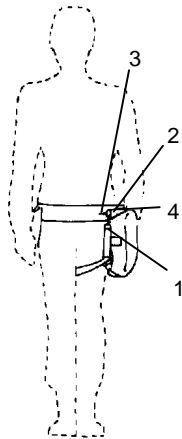
(3) Pass waist strap (3) through round ring (4), and hook to D-ring (1). Adjust strap.



2.10 WEARING YOUR MASK CARRIER (CONT).

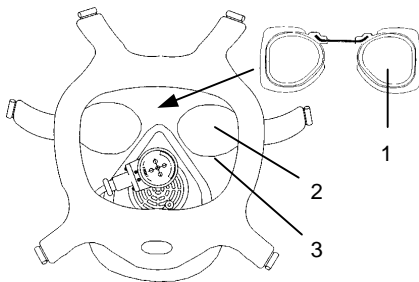
c. The pistol belt method is as follows:

- (1) Pass through round ring and hook to short strap (2).
- (2) Bring waist strap hook (1) from back and around inside of leg. Pass through round ring and hook to short strap (2).
- (3) Hook short strap hook (3) and short adjustable strap hook (4) into the holes on left-hand side of pistol belt.



2.11 INSTALLATION OF OPTICAL INSERTS.

- a. Lay mask on flat surface with front facing down.
- b. Place optical inserts (1) on eyelens openings (2) with flanges against eyelens.
- c. Stretch rubber lip (3) around one side of the insert frame.
- d. Repeat step c for the other side of insert.



2.14 HELMET AND MASK INTERFACE.

2.14.1 A trained technician will select the facepiece and nose cup size during the initial fitting of your facepiece. However, it is your responsibility to make sure your facepiece fits properly and fits while wearing your helmet system.

2.14.2 In order to assure proper fit with the helmet system, the mask and helmet must be fitted together. During your mask/helmet fitting, the mask must be fitted first, then the helmet is fitted while you wear the mask. You must ensure the mask has a good seal and is as comfortable as possible with your helmet.

SECTION IV. OPERATION UNDER UNUSUAL CONDITIONS

There are no special instructions for unusual conditions.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

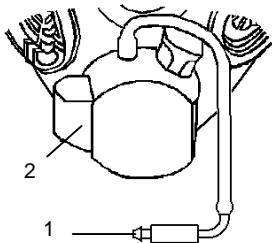
SECTION I. LUBRICATION INSTRUCTIONS

No lubrication is required for the mask.

SECTION II. TROUBLESHOOTING

3.1 CHECKING DRINKING SYSTEM FOR LEAKS.

- a. Put on mask (para 2.4).
- b. Hold mask in place and pull external drink tube (1) out of drink tube holder.
- c. Push on outlet valve cover (2) and grasp internal drink tube between your teeth.

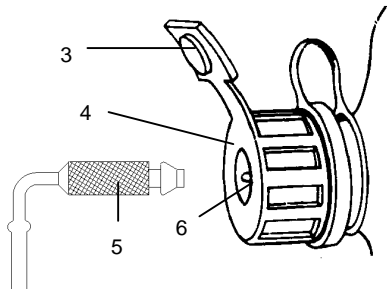


3.1 CHECKING DRINKING SYSTEM FOR LEAKS (CONT).

d. Flip open cover (3) on M1 canteen cap (4).

e. Push external drink tube coupling (5) into M1 canteen cap (4) with canteen so that pin (6) enters coupling (5).

f. Holding canteen upright, blow into internal drink tube. If resistance is not felt, drinking system is leaking; notify unit maintenance.

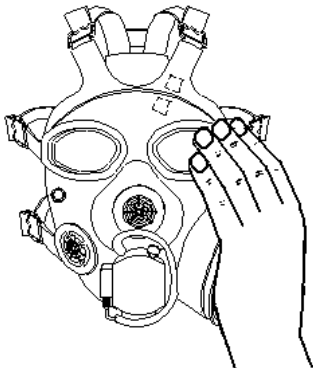


3.2 CHECKING YOUR MASK FOR LEAKS.

WARNING

You must check your mask for leaks when fitted and each time mask is put on.

- a. Press palm of your hand over canister inlet port.
- b. Breathe in lightly and hold your breath for a few seconds. If your mask does not collapse, your facepiece is leaking; notify unit maintenance.



SECTION III. MAINTENANCE PROCEDURES

3.3 GENERAL.

This section contains step-by-step procedures for maintaining your mask and additional authorized items.

3.4 CLEANING.

You will need the following items to clean your mask:

- Brush (items 1 and 2, app D)
- Cheesecloth (item 3, app D)
- Isopropyl Alcohol (item 4, app D)
- Pail (item 5, app D)
- Soap (item 6, app D)
- Water

CAUTION

Abrasive material in carrier will scratch outserts and eyelenses.

Do not soak carrier; do not use hot water, bleach, or detergent to clean it. These will reduce water resistance of carrier.

Ensure mask and all components are entirely dry before stowing or reassembly.

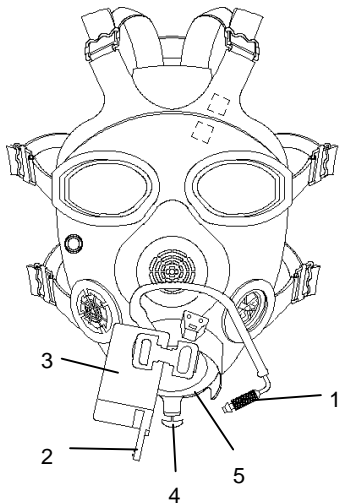
Do not put mask or components in pail of water.

When you clean your mask, use only potable water. See unit maintenance for supplies or assistance, if needed.

- a. Remove contents from carrier.
- b. Shake carrier upside down to remove dirt and foreign matter.

3.4 **CLEANING (CONT).**

- c. Soak brush (item 2, app D) in cool water.
- d. Shake brush to remove excess water.
- e. Clean carrier with brush.
- f. Remove outserts.
- g. Remove drink tube (1) from drink tube holder.
- h. Grasp tab (2) and stretch outlet valve cover (3) over barb (4) and lift outlet valve cover from outlet valve housing (5).
- i. Clean your mask, outserts, second skin and inserts using cheesecloth (item 3, app D), soap (item 6, app D), and a pail (item 5, app D). Dip the cheesecloth in soapy water and wring cheesecloth almost dry. A soft brush (item 1, app D) may also be used.



j. Rinse by wiping with a cheesecloth (item 3, app D) that has been dipped in clear water and wrung almost dry.



ISOPROPYL ALCOHOL

k. If necessary, remove greasy or oily substances from your mask and second skin with isopropyl alcohol (item 4, app D) and cheesecloth (item 3, app D).

l. Dry mask and outserts with cheesecloth (item 3, app D) or allow to air dry.

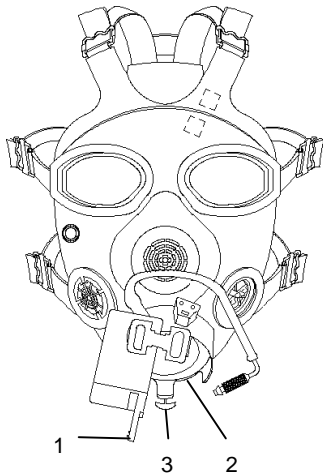
3.4 **CLEANING (CONT).**

m. Using tab (1) on bottom of outlet valve cover, pull outlet valve cover over outlet valve housing (2) and barb (3). Make sure outlet valve cover secures around lip of outlet valve housing.

n. Secure drink tube in outlet valve cover retainer.

o. Reinstall outserts and hood.

p. Stow mask in carrier (para 2.9).



3.5 DECONTAMINATING.

- a. Use the M291 Skin Decontaminating Kit according to instructions in TM 3-4230-229-10.

- b. Use the M295 Equipment Decontaminating Kit according to instructions in TM 3-4230-235-10.

- c. Refer to unit SOP; FM 3-5, NBC Decontamination; and TM 3-4240-348-20&P, M45 Land Warrior Unit Maintenance Manual, for complete decontamination procedures.

APPENDIX A

REFERENCES

A-1. SCOPE.

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

A-2. FORMS.

Equipment Inspection and Maintenance Worksheet.....	DA Form 2404
Quality Deficiency Report	SF 368
Recommended Changes to Publications and Blank Forms.....	DA Form 2028

A-3. FIELD MANUALS.

First Aid for Soldiers	FM 21-11
NBC Decontamination	FM 3-5
NBC Protection.....	FM 3-4

APPENDIX A (CONT)

A-4. TECHNICAL MANUALS.

Operator's Manual For Decontamination Kit: M291.....	TM 3-4230-229-10
Operator's Manual For Decontamination Kit, Individual Equipment: M295.....	TM 3-4230-235-10
Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use	TM 43-0062-31
Unit Maintenance Manual (Including Repair Parts and Special Tools List) For Mask, Chemical- Biological: Land Warrior, M45.....	TM 3-4240-348-20&P

A-5. MISCELLANEOUS PUBLICATIONS.

Army Medical Department Expendable/Durable Items	CTA 8-100
Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items)	CTA 50-970
Ophthalmic Services	AR 40-63
Research, Development, Test, and Evaluation of Materiel for Extreme Climatic Conditions	AR 70-38
The Army Maintenance Management System TAMMS	DA PAM 738-750

APPENDIX B

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LIST

SECTION I. INTRODUCTION

B-1. SCOPE. This appendix lists components of end item and basic issue items for the M45 Land Warrior mask to help you inventory items required for safe and efficient operation.

B-2. GENERAL. The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

B-2. GENERAL (CONT).

b. Section III. Basic Issue Items. These are the minimum essential items required to place the M45 Land Warrior Mask in operation, to operate it, and to perform emergency repair. BII must be with the M45 Land Warrior Mask during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATIONS OF COLUMNS. The following provides an explanation of columns found in the tabular listings:

- a. Column (1) - Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.
- b. Column (2) - National Stock Number. Indicates the national stock number assigned to the item and will be used for requisitioning purposes.

- c. Column (3) - Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the CAGEC (in parentheses) followed by the part number.
- d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).
- e. Column (5) - Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

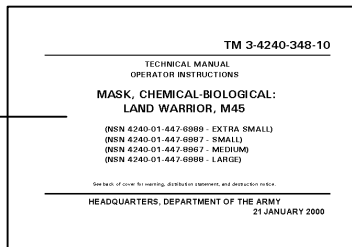
SECTION II. COMPONENTS OF END ITEM (COEI)

There are no components of end item required.

SECTION III. BASIC ISSUE ITEMS (BII) LIST

(1) Item Number	(2) National Stock Number	(3) Description, CAGEC and Part Number	(4) Usable On Code	(5) U/M	(6) Qty Rqr
1		Operator Instructions, Mask, Chemical-Biological: Land Warrior, M45 TM 3-4240-348-10		EA	1

1



APPENDIX C

ADDITIONAL AUTHORIZATION LIST (AAL)

SECTION I. INTRODUCTION

C-1. SCOPE. This appendix lists additional items you are authorized for the support of the M45 mask.

C-2. GENERAL. This list identifies items that do not have to accompany the M45 Land Warrior Mask and that do not have to be turned in with it. These items are authorized to you by CTA, MTOE, TDA, or JTA.

C-3. EXPLANATION OF LISTING. National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type of document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

SECTION II. ADDITIONAL AUTHORIZATION LIST (AAL)

(1) National Stock Number	(2) Description CAGEC & Part Number	(3) U/M	(4) Qty
8465-01-115-0026	CANTEEN, WATER, WITH M1 CANTEEN CAP (81349) MIL-C-43103	EA	1
6850-01-357-8456	DECONTAMINATION KIT, INDIVIDUAL EQUIPMENT, M295 (81361) 5-77-3201	EA	1
4230-01-101-3984	DECONTAMINATING KIT, SKIN, M291 (81361) D5-77-2366	EA	1
4240-01-443-5489	INSERTS, OPTICAL* (81361) 5-1-2933	EA	1
5965-01-443-5490	MICROPHONE CABLE (81361) 4510	EA	1

TBD	MICROPHONE CABLE, LAND WARRIOR (81361) 2500-4	EA	1
5965-01-441-8697	MICROPHONE ELEMENT (59369) 4500-CA	EA	1
5965-01-466-0496	MICROPHONE, LAND WARRIOR (81361) 5-1-3026	EA	1
5965-01-443-5488	MICROPHONE POSITIONER (81361) 5-1-3359	EA	1
6665-00-050-8529	PAPER, CHEMICAL AGENT DETECTOR, M8 (81361) D5-67-266	EA	1

* Available by prescription from a medical officer or optometrist (AR 40-63)

C-3/(C-4 blank)

APPENDIX D

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

SECTION I. INTRODUCTION

D-1. SCOPE. This appendix lists expendable/durable supplies and materials you will need to operate and maintain the M45 Land Warrior Mask. This listing is for informational purposes 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.

D-2. EXPLANATION OF COLUMNS.

- a. Column (1)-Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use pail, utility (item 5, app D)").
- b. Column (2)-Level. This column identifies the lowest level of maintenance that requires the listed item. "C" denotes Operator/Crew uses these items.
- c. Column (3)-National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.
- d. Column (4)-Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Commercial and Government Entity Code (CAGEC) in parentheses followed by the part number.
- e. Column (5)-Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	C	7920-00-205-0565	BRUSH, DUSTING, LENS: (81348) H-B-1654	EA
2	C	7920-00-061-0037	BRUSH, SCRUB: NYLON BRISTLE (81348) H-B-1490-6-PI	EA
3	C	8305-00-222-2423	CLOTH, CHEESECLOTH: (81348) CCC-C-440	YD
4	C	6505-00-655-8355	ISOPROPYL RUBBING ALCOHOL: plastic bottle (56287)	PT

SECTION II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

5	C	7240-01-094-4305	PAIL, UTILITY: plastic, snap-on lid, 5-gal. (58536) A-A-332	EA
6	C	8520-00-228-0598	SOAP, TOILET: nonmedicated, liquid, 1-gal., type 1, (81348) P-S-624	GL

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

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