

**TECHNICAL MANUAL  
OPERATOR INSTRUCTIONS**

**MASK, CHEMICAL-BIOLOGICAL: M45**

**(NSN 4240-01-414-4034 - X-SMALL) (EIC 123)**

**(NSN 4240-01-414-4035 - SMALL) (EIC 123)**

**(NSN 4240-01-414-4051 - MEDIUM) (EIC 123)**

**(NSN 4240-01-414-4052 - LARGE) (EIC 123)**

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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 Research, Development and Engineering Center, ATTN: SCBRD-ENL-V, Aberdeen Proving Ground, MD 21010-5423. A reply will be furnished to you.

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**HEADQUARTERS, DEPARTMENT OF THE ARMY  
20 MAY 1998**

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### **WARNING SUMMARY**

This publication describes physical and chemical processes which 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 people 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

a

### WARNING SUMMARY (CONT)

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. Prior to starting any task, the WARNINGS or CAUTIONS included in the test 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:

- o 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 (This mask does not supply oxygen).

b

### **WARNING SUMMARY (CONT)**

- o 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.
- o Do not wear glasses or contact lenses with your mask.
- o 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.

### **EXPLANATION OF SINGLE HAZARD SYMBOLS (CONT)**

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

**CLEANING COMPOUND, SOLVENT  
(CAGEC 1Z575)**

Cleaning compound is an irritant to eyes, skin, digestive system and respiratory tract. Eye protection should be used where splashing or misting may occur. Avoid repeated or prolonged contact. Use only in well ventilated areas.



### **FIRST AID**

For first aid refer to FM 21-11



### **HEALTH/ENVIRONMENTAL HAZARD**

Filter canisters use ASC Whetlerite Carbon which 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:

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).

Canisters are completely safe to handle and use if they are not damaged in such a way that carbon leaks from them. In the unlikely event that carbon should leak, use protection such as a dust respirator to cover nose and mouth and put carbon in container such as self-sealing plastic bag; turn in to hazardous waste management office or DRMO.

Disposal of hazardous waste is restricted by the Resource Conservation and Recovery Act as amended (42 U.S.C.A. sec 6901 et seq). Violation of these laws is subject to severe criminal penalties.

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## **HOW TO USE THIS MANUAL**

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

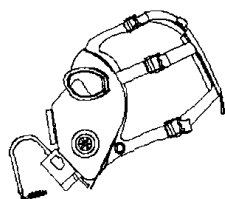
Instructions for operator maintenance procedures are contained in Chapter 3. In using these procedures, you must familiarize yourself with the entire maintenance procedure before beginning a specific maintenance task.

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**

Hood is not shown for clarity in some illustrations in this manual.

Only hose mounted canister and right hand firing versions of the mask are shown in this manual.



Facepiece  
Assembly



Second  
Skin



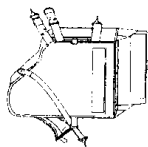
Hood



Faceform



Hose



Carrier



Canister



Canister  
Baffle



Outserts



Microphone and  
Microphone Cable



Fig 1. Mask, Chemical-Biological: 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: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.

## **SECTION I. GENERAL INFORMATION (CONT)**

### **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).**

If you have suggestions on how to improve the mask, let us know. Send us an EIR or put it on an SF 368 (Quality Deficiency Report). Mail it to the address specified in DA PAM 738-750. We'll send you a reply.

### **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

## **SECTION I. GENERAL INFORMATION (CONT)**

### **1.4.1 Corrosion Prevention and Control (CONT).**

can also include deterioration of other materials such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may 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. The form should be submitted to the address specified in DA PAM 738-750. Use of key words such as "corrosion", "rust", "cracking" or "deterioration" will assure that the information is identified as a CPC problem (include DA Form 2404, Equipment Inspection and Maintenance Worksheet).

### **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.



## **SECTION I. GENERAL INFORMATION (CONT)**

### **1.6 PREPARATION FOR STORAGE OR SHIPMENT.**

To prepare the M45 Mask for storage, refer to para 2.9 of this manual. Preparation for shipment instructions are described in TM 3-4240-341-20&P.

### **1.7 WARRANTY INFORMATION**

The M45 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 (Product Quality Deficiency Report) and sending it to the following address.

Director, Armament and Chemical Acquisition and Logistics Activity  
ATTN: AMSTA-AC-CTCP  
Rock Island, IL 61299-7630

The user will then be contacted and provided disposition instructions.

## SECTION I. GENERAL INFORMATION (CONT)

### 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.

- o Silicone rubber facepiece with an in-turned peripheral seal.
- o Close-fitting eyelenses shaped to improve peripheral vision.
- o Microphone pass through for communication interface.
- o Compatible with optical sighting/night vision devices.
- o Second skin provides protection against penetration of liquid agent.

## **SECTION II. EQUIPMENT DESCRIPTION AND DATA (CONT)**

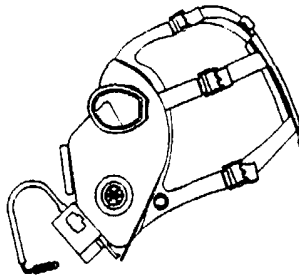
### 1.9.2 Capabilities.

- o Interchangeable nose cups (five sizes) can be installed to improve fit, comfort, and vision.
- o Front and side voicemitters are used for face-to-face and phone communication.
- o Replaceable filter canister removes particulate matter as you breathe.
- o Canister can connect directly to facepiece without using hose.
- o Drink tube allows soldier to drink while wearing the mask.
- o Able to switch canister to right side to accommodate left hand firers.

## SECTION II. EQUIPMENT DESCRIPTION AND DATA (CONT)

### 1.10 Location and Description of Major Components.

1.10.1 Facepiece consists of a silicone rubber faceblank with an in-turned peripheral seal, a head harness, eyelenses, front and side voicemitters and internal and external drink tubes.



## SECTION II. EQUIPMENT DESCRIPTION AND DATA (CONT)

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

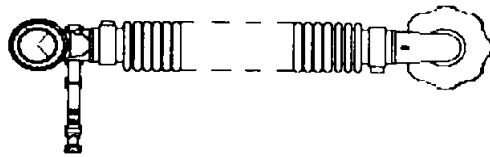


1.10.3 Faceform is a plastic mold that fits inside the facepiece during storage for more than 30 days.

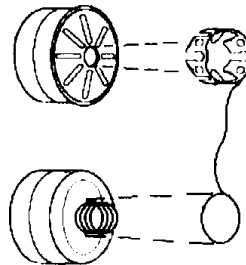


## SECTION II. EQUIPMENT DESCRIPTION AND DATA (CONT)

1.10.4 Hose Assembly has a star knob at one end that attaches to facepiece side port and a canister port at the other end. Includes a gasket and clip that attaches to the survival vest.

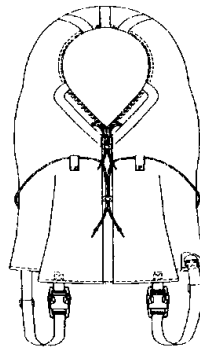


1.10.5 Canister and Baffle. Canister attaches to the hose assembly or directly to the sideport. Baffle fits into canister port opening to ensure airflow passes freely into canister.

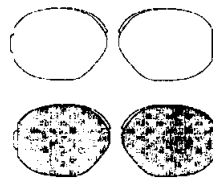


## SECTION II. EQUIPMENT DESCRIPTION AND DATA (CONT)

1.10.6 Hood is made of rubber-coated fabric and covers the head and neck areas not covered by the facepiece.



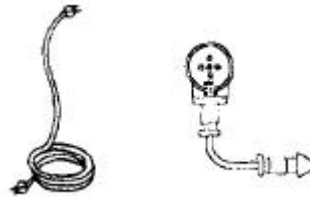
1.10.7 Outserts consists of clear and neutral gray lenses that fit over the facepiece eyelenses



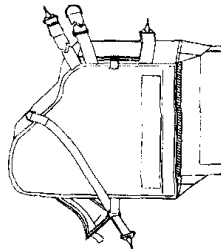


## SECTION II. EQUIPMENT DESCRIPTION AND DATA (CONT)

1.10.8 Microphone and Cable for interface to aircraft communications system. Microphone plugs into inside of facepiece. A 16-inch cable with male connectors at each end plugs into helmet and front of facepiece.



1.10.9 Carrier is a cloth bag with a hook and pile fastener on the quick-opening flap and adjustable straps for carrying. It includes pockets for storing AAL items or components of the mask. An identification slot is attached on one side.



## **SECTION II. EQUIPMENT DESCRIPTION AND DATA (CONT)**

### **1.11 EQUIPMENT DATA.**

Weight (with carrier) 4.29 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**

1.12 **PROTECTION.** The M45 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 which open and close during inhalation and exhalation.

### SECTION III. THEORY OF OPERATION (CONT)

1.12.1 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 through the hose and 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.

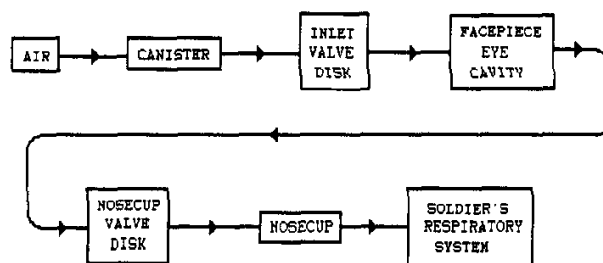


Figure 2. Inhalation

### SECTION III. THEORY OF OPERATION (CONT)

1.12.2 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

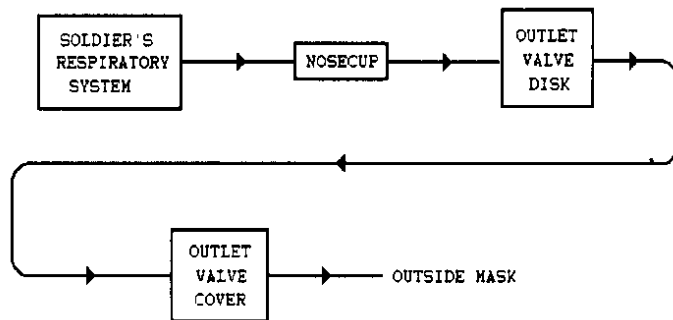


Figure 3. Exhalation

### **SECTION III. THEORY OF OPERATION (CONT)**

1.12.3 Additional Features. The M45 mask also provides the user with face-to-face, phone and aircraft 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. Aircraft communication is provided by a microphone and microphone cable, which connect at the outlet valve housing. The microphone cable may be connected to the aircraft helmet to interface with aircraft communications. 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**

There are no controls or indicators on the M45 Mask.

**SECTION II. PREVENTIVE MAINTENANCE CHECKS  
AND SERVICES (PMCS) AND MANDATORY REPLACEMENT PARTS**

2.1 INTRODUCTION TO PMCS TABLE.

2.1.1 General.

PMCS means systemic caring, inspecting, and servicing of equipment to keep it in good condition and to prevent breakdowns. As the mask operator, your mission is to:

2.1.1 General (CONT).

a. Perform PMCS each time you operate the mask. Always do your PMCS in the same order, so it becomes a habit. Once you've had some practice, you'll quickly spot anything wrong.

b. While checking the mask, always check for cleanliness and if required, clean mask according to para 3.4.

c. Do your BEFORE PMCS just before you perform your mission. Pay attention to WARNINGS, CAUTIONs, and NOTES.

d. Do your AFTER PMCS right after operating the mask. Pay attention to WARNINGS, CAUTIONs, and NOTES.

e. Use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to record faults that you discover before, during, or after operation, unless you can fix them. You DO NOT need to record faults that you fix.

2.1.2 PMCS Procedures.

- a. Your PMCS, Table 2-1, lists inspections and care required to keep your mask in good operating condition.
- b. The "ITEM NO." column of Table 2-1 contains a number for each item. Item numbers appear in the order that you must do PMCS.
- c. The "INTERVAL" column tells you when to do a certain check or service.
- d. "LOCATION/ITEM TO CHECK/SERVICE" column lists the location and name of the item(s).
- e. The "PROCEDURE" column tells you how to do required checks and services.

**NOTE**

Terms "ready/available" and "mission capable" refer to same status: Equipment is on hand and fully mission capable (See DA PAM 738-750).



2.1.2 PMCS Procedures (CONT).

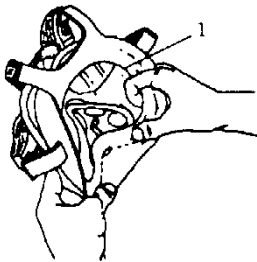
f. The "NOT FULLY MISSION CAPABLE IF." column in Table 2-1 tells you when your mask is nonmission capable and why the mask cannot be used.

g. If the mask does not perform as required, refer to Chapter 3, Section II, Troubleshooting.

h. If anything is wrong and you can't fix it, write it on your DA Form 2404. IMMEDIATELY, report it to your supervisor.

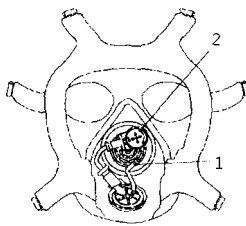
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
1	Before	Hose Assembly/ Canister	Check that canister is securely attached to the hose assembly.	Filter canister cannot be securely attached to the hose assembly.
2	Before	Mask	Run finger under inner lip(1) to make sure folded material doesn't stick together.	Inside surfaces are damaged or cannot be separated.



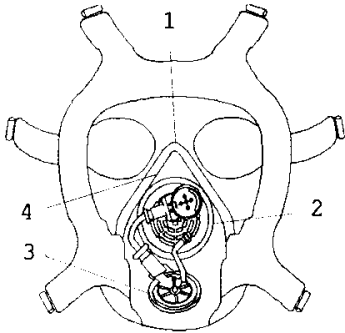
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
3	Before	Internal Drink Tube	Check that internal drink tube (1) is present and securely attached.	Internal drink tube is missing or loose.
4	Before	Microphone Assembly	Check that microphone assembly (2) is present and the front is oriented toward your mouth.	Microphone assembly is missing.



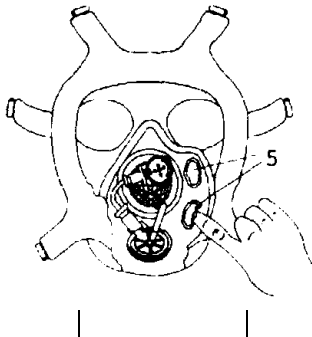
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
5	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 make sure lip does not stick to inside of nosecup.</p> <p>c. Check that nosecup (1) 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>



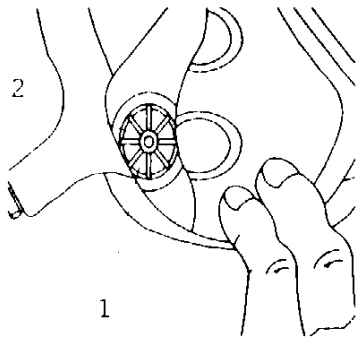
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
5 con't	Before	Nosecup Assembly	<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>

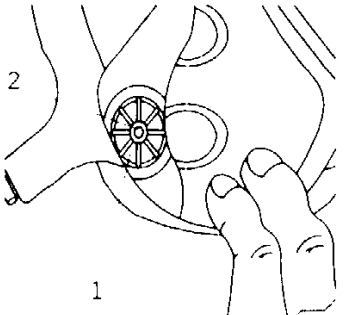


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

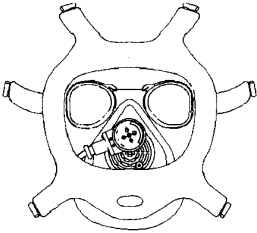
ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
6	Before	Inlet Valve Assembly	<p>a. Fold back left side of nosecup to fully expose inlet valve assembly. Check that inlet valve disk (1) is present and positioned in the slot on the cage and post assembly (2). Check cage for cracks.</p> <p>b. Check inlet valve disk (1) for tears and curls. Make sure inlet valve 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 port gasket.</p> <p>Inlet valve disk has tears, curls, or does not seat against inlet valve gasket.</p>



**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

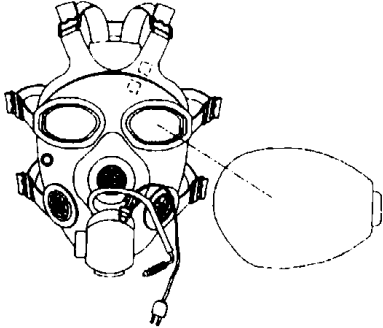
ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
6 con't	Before	Inlet Valve Assembly	c. Rotate inlet valve disk (1) and cage and post assembly (2) with finger. Make sure it lies flat and does not stick.	Inlet valve disk sticks.
				

**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
7	Before	Vision Corrective Inserts	<p>Ensure inserts are attached to facepiece (if issued).</p> 	

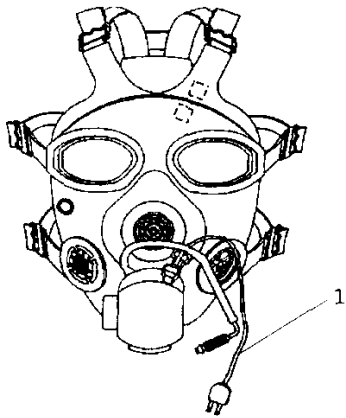


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
8	Before	Outserts	<p>Check that outserts are installed.</p> 	

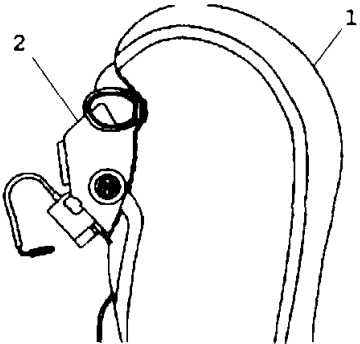
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
9	Before	Microphone Cable	Check to see that microphone cable (1) is attached securely to the receptacle on the facepiece.	Microphone cable cannot be attached securely or cable is cut or cracked.



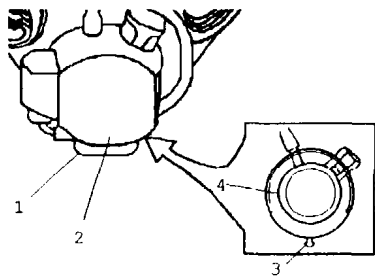
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
10	Before	Hood/ Second Skin	Check that hood (1) and second skin (2) are present and properly installed.	Hood/second skin is missing.



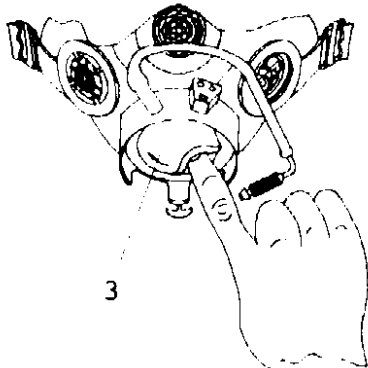
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
11	Before	Outlet Valve Disk Outlet Valve Cover	a. Grasp tab (1) and stretch bottom portion of outlet valve cover (2) over the barb (3). Check that outlet valve disk (4) is present and not curled, torn, <i>distorted</i> , or dirty.	

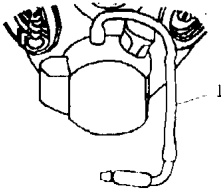


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
11	Before	con't	<p>b. With finger, rotate outlet valve disk (3) to make sure it is not sticking.</p> <p>c. Replace outlet valve cover.</p>	Outlet valve disk is sticking and cannot be rotated.

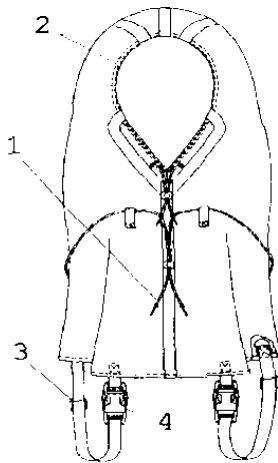


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
12	Before	External Drink Tube	<p>Check that external drink tube (1) is present and securely attached.</p> 	External drink tube is missing or loose.
13	Before	Mask	<p>Don mask in accordance with para 2.4 and check mask for leaks.</p>	Mask leaks.

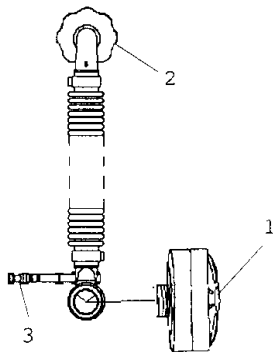
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
1	After	Hood	<p>a. Remove hood by loosening drawstrings (1) and expanding the opening (2) of the hood over the eyelenses and outsers.</p> <p>b. Inspect hood for cuts, holes, or tears.</p> <p>c. Check straps (3) and drawstring cords (1) for knots and fraying.</p> <p>d. Check that clips (4) connect straps.</p>	<p>Hood has cuts, holes, or tears.</p> <p>Drawstring cord can't be adjusted.</p> <p>Clips won't fasten.</p>



**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

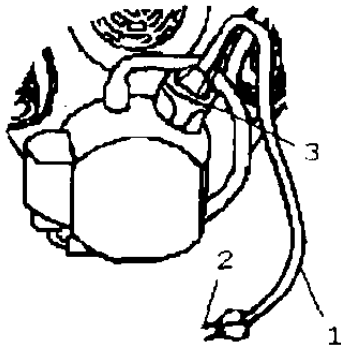
ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
2	After	Hose Assembly	<p>a. Remove baffle and check canister air intake (1).</p> <p>b. Check canister replacement criteria (see para 2.3).</p> <p>c. Ensure hose assembly swivels at star knob (2)</p> <p>d. Ensure hose retaining clip (3) secures hose.</p> <p>e. Check hose for cuts, cracks, or holes.</p>	<p>Intake clogged.</p> <p>Hose will not swivel.</p> <p>Clip does not secure hose.</p> <p>Hose has cuts, cracks or holes</p>






**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
3	After	Micro-Phone Cable	<p>Check microphone cable (1) for cuts, cracks and bent pins(2).</p> <p>b. Check that microphone cable (1) 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 attach securely to the receptacle.</p>

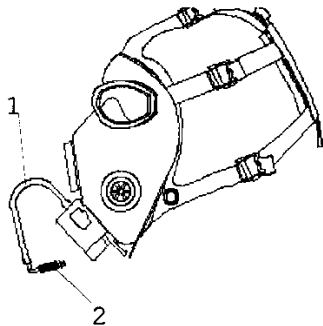


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
4	After	Second Skin	Inspect second skin for cracks, tears, and splits.  	Second skin is cracked, torn or split.

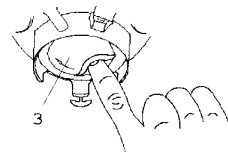
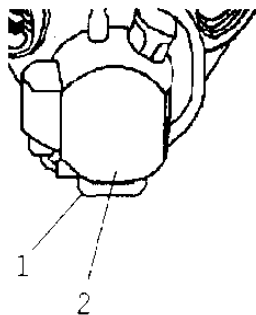
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
5	After	External Drink Tube	<p>a. Check external drink tube (1) for cuts, cracks or holes.</p> <p>b. Check external drink tube (1) for tight connection to the outlet valve housing and quick disconnect coupling (2).</p>	<p>External drink tube is missing or has cuts, cracks or holes.</p> <p>External drinks tube connection or quick disconnect coupling is loose.</p>



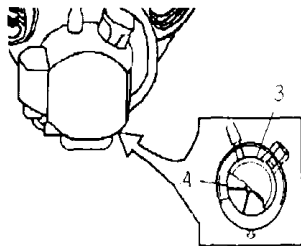
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
6	After	Outlet Valve Disk and Outlet Valve Cover	<p>a. Grasp tab (1) and lift bottom portion of outlet valve cover (2) over barb.</p> <p>b. Check that outlet valve disk (3) is seated and is not curled, torn dirty, punctured or distorted. Rotate outlet valve disk to ensure it is not sticking.</p>	Outlet valve disk is curled, sticking, punctured, dirty, distorted, torn or will not seat



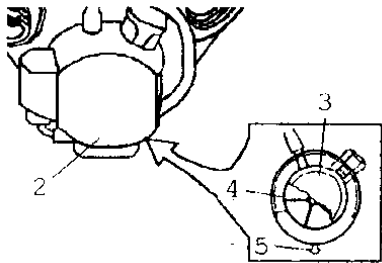
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
6 con't	After	Outlet Valve Disk and Outlet Valve Cover	<p><b><u>WARNING</u></b></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 disk (3) and seat (4) with cheesecloth (item 3, app D).</p>	Outlet valve disk or seat cannot be cleaned.

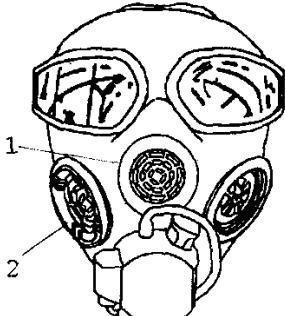


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
6 con't	After	Outlet Valve Disk and Outlet Valve Cover	<p>d. Check outlet valve seat (4) for dirt, nicks, or cracks. Smooth outlet valve disk (3) so it lies flat on seat.</p> <p>e. Check that barb (5) 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>

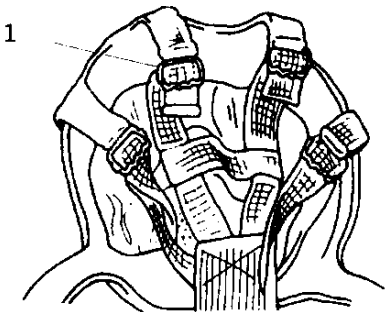


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
7	After	Voice-mitters	<p>Check front (1) and side (2) voicemitters for cleanliness, cracks, punctures or obstructions.</p> 	Voicemitters are damaged.

**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

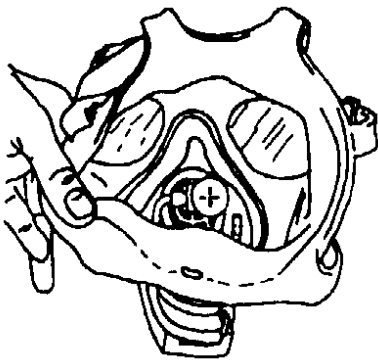
ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
8	After	Head Harness	<p>a. Check buckles (1) for bends, cracks, or corrosion. Pull on head harness straps to ensure buckles hold straps.</p> <p>b. Put on facepiece (para 2.4) and check head harness for loss of elasticity.</p> <p>c. Check for cleanliness. 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 your face.</p> <p>Head harness is cut, torn, frayed has missing parts or deterioration</p>





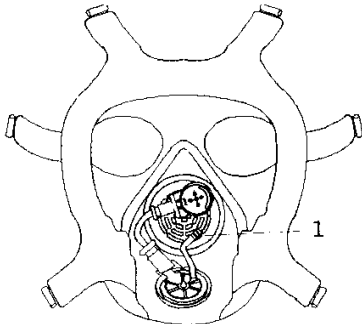
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
9	After	Mask	Inspect facepiece for cleanliness, holes, tears and splits. Look closely at the inside of the facepiece where it touches your skin.	Mask has holes, tears, splits, or soft spots that allow air to enter.



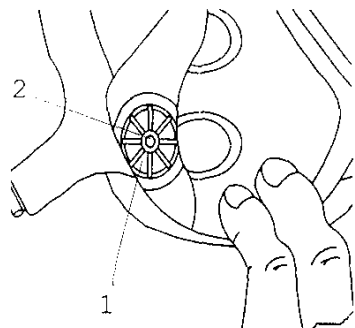
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
10	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 (1) is oriented so can drink with the mask on.</p>	Internal drink tube has cuts, cracks, or holes.



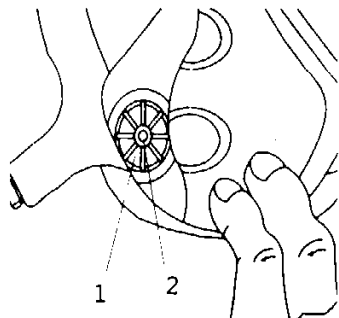
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
11	After	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 properly positioned on the cage and post assembly (2).</p> <p>b. Check inlet valve disk (1) for tears, curls or cleanliness. Make sure inlet valve disk lies flat.</p>	<p>Inlet valve disk is missing or not positioned on the cage and post assembly.</p> <p>Inlet valve disk has tears, curls, or does not seat against inlet valve gasket.</p>



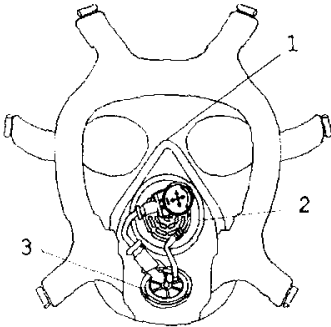
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
11 con't	After	Inlet Valve Assembly	<p>c. With hand, squeeze hose assembly or blow on inlet valve disk (1) to make sure it moves.</p> <p>d. Check inlet valve cage (2) for distortion.</p>	<p>Inlet valve disk sticks.</p> <p>Inlet valve cage is damaged or won't rotate easily.</p>



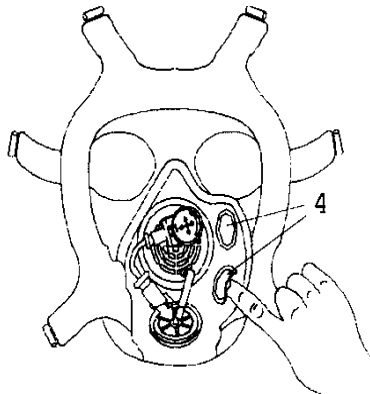
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
12 con't	After	Nosecup	a. Check that nosecup (1) is not pulled away from back of outlet valve housing (2) and front voicemitter (3).	Nosecup is pulled away from back of outlet valve housing or front voicemitter.



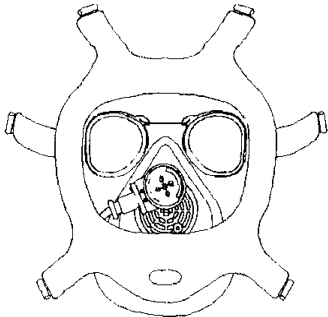
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
12 con't	After	Nosecup	<p>b. Check that nosecup and nosecup valve seats are free of dirt. Check nosecup for cracks, cuts, tears or holes. Look at the inside of nosecup inner lip where it touches your skin.</p> <p>c. Rotate nosecup valve disks (4) to ensure they are not stuck. Check that valve disks are not dirty, curled, or torn.</p>	<p>Nosecup is dirty, cracked, cut, or has holes.</p> <p>Nosecup valve seats are dirty.</p> <p>Nosecup valve disks are torn, missing, dirty, or stuck to nosecup</p>



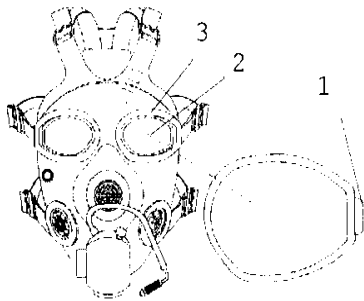
**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
13	After	Vision Corrective Inserts	Inspect vision corrective inserts for broken lens, lens not mounted in frame, or lens disconnected from facepiece.	Broken or missing lens or frames. Inserts disconnected from facepiece.



**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

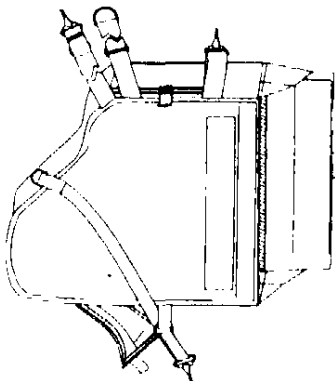
ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
14	After	Eye lenses & Eyerings	<p>a. Remove outserts by grasping tab (1) and pulling. Check outserts for cracks, scratches, or discoloration that affect vision.</p> <p>b. Check eyelenses (2) for cracks scratches dirt or stains that affect vision.</p> <p>c. Check eyerings (3) for cracks.</p>	<p>Outserts are broken, distorted or discolored.</p> <p>Eyelenses are scratched, cracked, or stained enough to affect vision.</p> <p>Eyerings are cracked.</p>



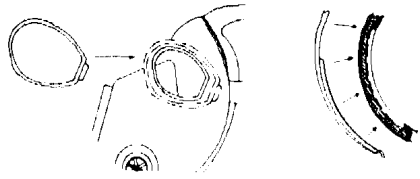


**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
15	After	Carrier	<p>a. Empty carrier and check for cleanliness, 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>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>



**Table 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR MASK, CHEMICAL-BIOLOGICAL: M45 (con't)**

ITEM NO.	INTERVAL	LOCATION	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
		ITEM TO CHECK/SERVICE		
16	After	Mask	<p>a. Reinstall hood (para 3.3). Snap outserts onto eyerings.</p>  <p>b. Stow your mask (para 2.9).</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.

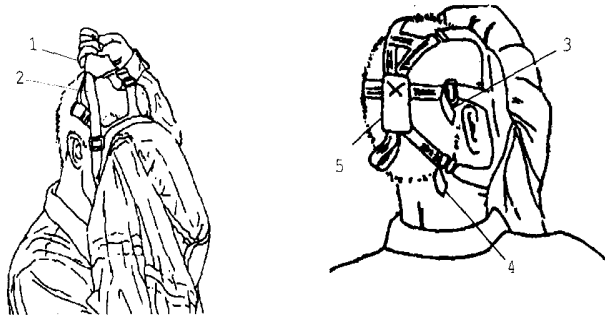
Do not overtighten the headharness. Overtightening may cause the mask to leak and will make it more uncomfortable to wear.

Excessive head movement may cause face seal to leak.

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

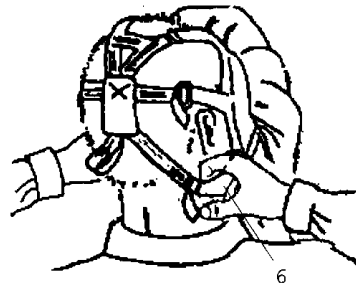
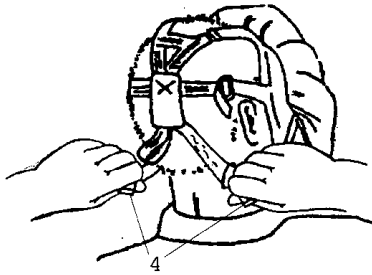
2.4 **DONNING YOUR MASK (CONT).**

- 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 (2) over your head. Be sure your ears are between the temple straps (3) and cheek straps (4) and headpad (5) is centered at the back of your head.



2.4 **DONNING YOUR MASK (CONT).**

e. Tighten both cheek straps (4) at the same time. Pull both cheek tabs (6) out approximately 2 inches to properly seat mask on face.



2.4 **DONNING YOUR MASK (CONT).**

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



g. Locate canister and cover the inlet port 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.

2.4 **DONNING YOUR MASK (CONT).**

**CAUTION**

Be very careful when pulling on hood. The hood could snag on the buckles of the head harness and tear.

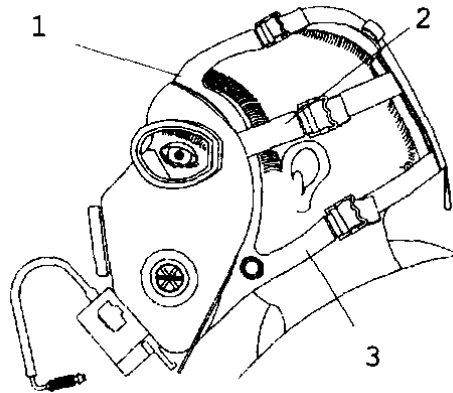
- h. Using both hands, pull hood (7) over head so that hood covers the head, neck, and shoulders.
- i. Lift chin and tighten drawstring on hood.
- j. Fasten and adjust underarm straps (8).
- k. Make sure all straps lay flat against your head.
- l. Place baffle into canister inlet.
- m. Clip canister to uniform (para 2.13).





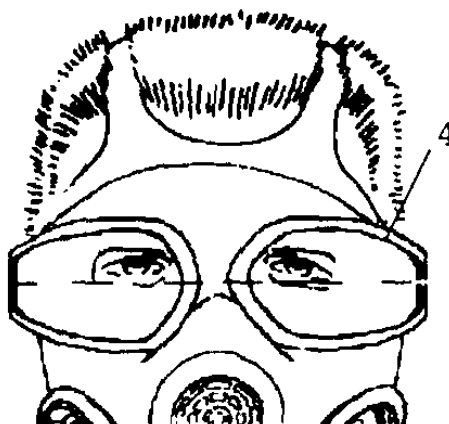
2.5 **FIT CRITERIA.**

- 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.



2.5 **FIT CRITERIA (CONT).**

- d. Have a buddy check that your pupils are above center of the eyelens (4).
- e. Ensure the nose cup 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 2.5), 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.

2.6 **PUTTING YOUR MASK ON IN COLD WEATHER (CONT).**

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).**

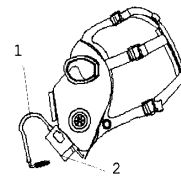
**NOTE**

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 M291 decontaminating kit (App C). Check with MS or M9 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.

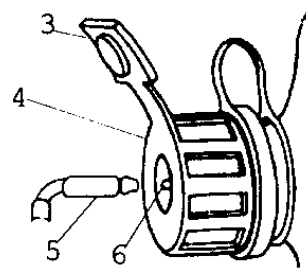
2.7.1 **CONNECTING THE DRINKING SYSTEM (CONT).**

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).

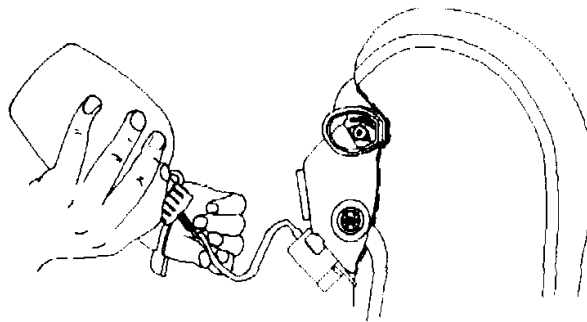
f. Blow to create positive pressure. You should feel some resistance. If resistance is not felt, your drinking system is leaking. Do not drink.



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

2.7.1 **CONNECTING THE DRINKING SYSTEM (CONT).**

- h. If system does not leak, tilt up canteen and drink.
- i. After several swallows, stop sucking and lower canteen. Blow into internal drink tube to prevent canteen from collapsing. Repeat drinking procedure as required.



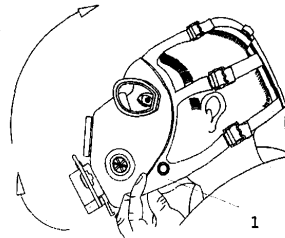
2.7.2 **DISCONNECTING THE DRINKING SYSTEM.**

- a. Turn canteen upright.
- b. 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.
- c. Remove internal drink tube from mouth.
- d. Replace external drink tube in the drink tube holder.
- e. Close cover on M1 canteen cap.



2.8 **REMOVING YOUR MASK.**

- a. Disconnect microphone from helmet receptacle, then remove helmet.
- b. Loosen hood drawstrings from around neck and unfasten underarm straps.
- c. Raise the hood above your head and pull over front of mask.
- d. Loosen cheek straps ONLY.
- e. Place thumbs under both cheek tabs  
(1). Lift bottom of mask out and up over your head.
- f. Unclip canister from uniform.



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 16, 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:

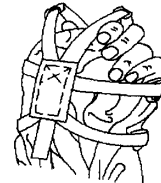
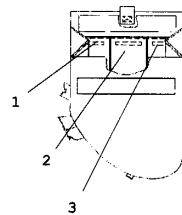
(1) Decontaminating kit: Stow in left pocket (1) of carrier.

(2) Detector paper and TM 3-4240-341-10: Stow in middle pocket (2) of carrier.

(3) Additional Outserts: Stow in right (3) pocket.

f. Reverse hood over the front of mask and smooth out.

g. Pull head harness over front of mask and hood.



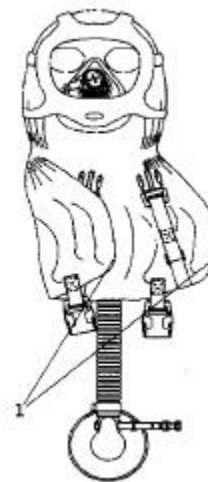
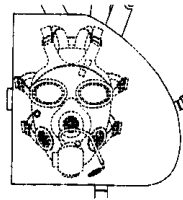
2.9 **STOWING YOUR MASK AND ADDITIONAL AUTHORIZED ITEMS (CONT).**

h. Lay mask facedown on flat surface with hood spread out and centered on hose assembly. Place underarm straps on top of hood with one buckle on each side of the hose assembly. Fold the corners (1) of the hood over the center of the hose assembly to create a "V" with the hood. Fold facepiece backward one time toward canister.

i. Stow the canister in the bottom rear of the carrier. Feed hose assembly along the back of the carrier.

j. Place mask in carrier with eyelenses facing up and away from body.

k. Close carrier.



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

l. 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.

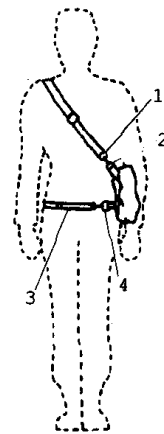
m. For storage of 30 days or more, install faceform in mask.

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.



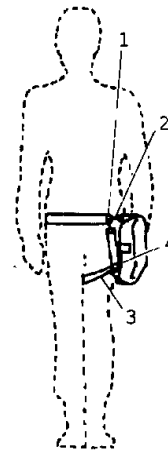
2.10 **WEARING YOUR MASK CARRIER (CONT).**

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.



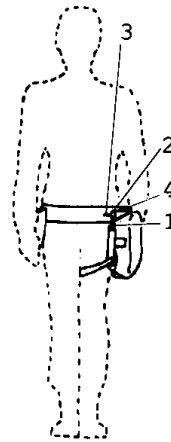
2.10 **WEARING YOUR MASK CARRIER (CONT).**

c. The pistol belt method is as follows:

(1) Pass through round ring and hook to short strap (2).

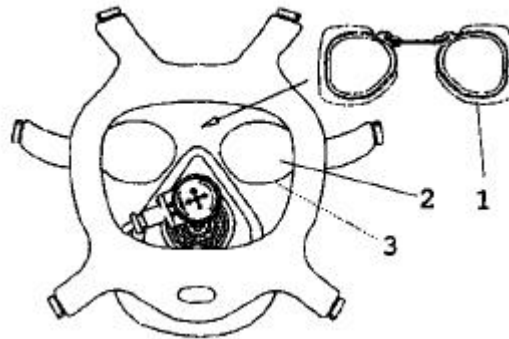
(2) Bring waist strap hook (1) from back and around inside of leg. Pass through round ring and hook to short strap (2).

(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.



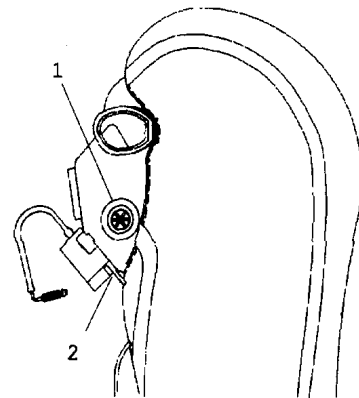


2.12 **INSTALLATION OF HOOD.**

a. Remove outserts. Lay hood flat with facepiece opening up and both draw strings loose.

b. Slip mask through bottom hood opening. Center top seam of hood on facepiece. Hook edge of facepiece opening around both eyelens.

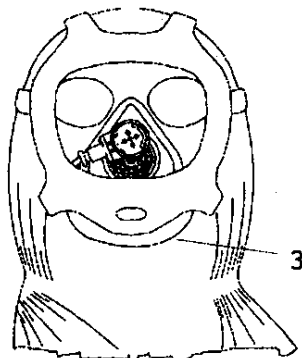
c. Work the rest of the hood onto the facepiece. Keep edge of hood below side ports (1) and under the lip on the outlet valve cover (2).



2.12 **INSTALLATION OF HOOD (CONT).**

d. Tighten ball lock on draw string until hood is securely attached to facepiece. Secure excess string.

e. Remove facepiece and reverse hood over front of facepiece. Check that hood is fastened under lip of second skin (3).

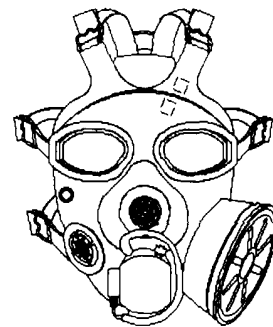


f. Stow mask in carrier (para 2.9).

2.13 **WEAR AND LOCATION OF THE CANISTER.**

2.13.1 Face Mounted. The C2 canister can be mounted directly to the facepiece. After removing the hose assembly from the facepiece, the canister is inserted into the side port and handtightened by turning clockwise.

2.13.2 Left-handed firers. During the initial fitting, the maintenance technician will change the canister position on the facepiece to allow for left-handed firing.



**WARNING**

Do not place canister where air intake is blocked.

2.13.3 Hose Mounted. Attach clip to clothing or survival vest in a place that will not block airflow into canister. The canister location should not interfere with mission performance.

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 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.

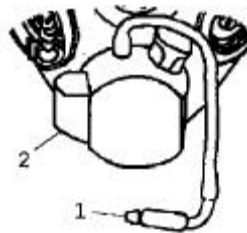
**CHAPTER 3**  
**MAINTENANCE INSTRUCTIONS**  
**SECTION I. LUBRICATION INSTRUCTIONS**

No lubrication is required for the mask.

**SECTION II. TROUBLESHOOTING**

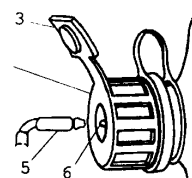
**3.1 CHECKING DRINKING SYSTEM FOR LEAKS.**

- 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. Remove baffle if present or pinch hose shut.



3.2 **CHECKING YOUR MASK FOR LEAKS (CONT).**

- b. Press palm of your hand over canister inlet port.
- c. 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:

- o Cleaning compound (item 4, app D)
- o Brush ( item 1 and 2, app D)
- o Cheesecloth (item 3, app D)
- o Pail (item 5, app D)
- o Soap (item 6, app D)
- o Water

3.4 **CLEANING (CONT).**

**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.

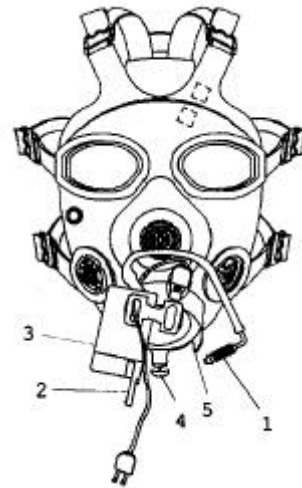
When you clean your mask, use only potable water. See unit maintenance for supplies or assistance, if needed.

- 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 hood and outserts.
- g. Remove drink tube (1) out of 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, hood, outserts, second skin and inserts using cheesecloth (item 3, app D), soap (item 6, app D),



3.4 **CLEANING (CONT).**

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.



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

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

### 3.4 **CLEANING (CONT).**

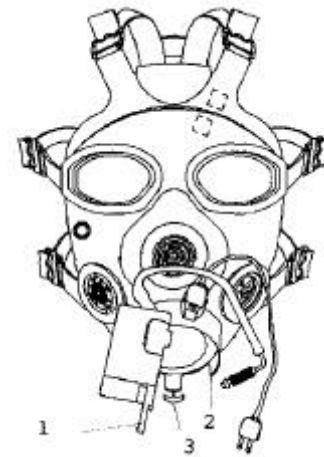
m. Clean outside surface of hose, using cheesecloth (item 3, app D), soap (item 6, app D), and a pail (item 5, app D). Clean, rinse and dry following the procedures in steps h, i, and j.

n. 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.

o. Secure drink tube in outlet valve, cover retainer.

p. Reinstall outserts and hood.

r. 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. Refer to unit SOP and FM 3-5, NBC Decontamination, 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.**

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

A-4. **TECHNICAL MANUALS.**

Operator's Manual Decontaminating Kit, Skin: M291 .....TM 3-4230-229-10  
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: M45 ..... TM 3-4240-341-20&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 AND BASIC ISSUE ITEMS LIST

#### SECTION I. INTRODUCTION

B-1. **SCOPE**. This appendix lists components of end item and basic issue items for the M45 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 mask in operation, to operate it, and to perform emergency repair. BII must be with the M45 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.



**B-3. EXPLANATIONS OF COLUMNS (CONT).**

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).

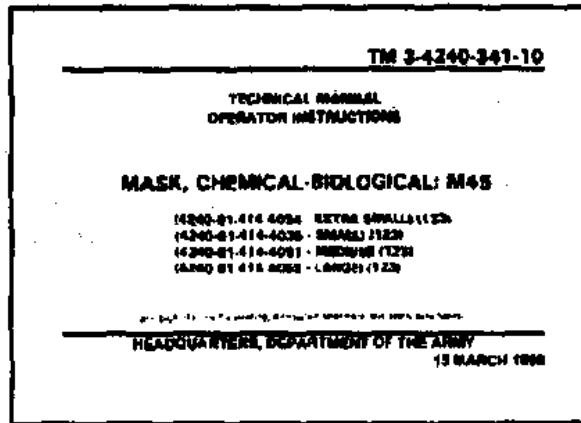
e. Column (5) - Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

**SECTION II. COMPONENTS OF END ITEM**

There are no components of end item required.

**SECTION III. BASIC ISSUE ITEMS LIST**

(1)	(2)	(3)	(4)	(5)
Illus Number	National Stock Number	Description CAGEC and Part Number	Usable on Code	Qty Rqr
1	-	Operator Instructions, Mask, chemical- Biological :M45 TM 3-4240- 341-10	EA	1



## APPENDIX C

### ADDITIONAL AUTHORIZATION LIST

#### 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 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**

(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
4230-01-101-3984	DECONTAMINATION KIT, SKIN, M291 (81361) D5-77-2366	EA	1
4240-01-443-5489	INSERTS, OPTICAL* (81361) 5-1-2933	PR	1
4244-01-441-5498	OUTSERTS, LASER BALLISTIC (81361) D5-1- 2841-30	PR	1
6665-04-050-8529	PAPER, CHEMICAL AGENT DETECTOR, M8 (81361) D5-76-266	BK	1
6665-01-226-5989	PAPER, CHEMICAL AGENT DETECTOR, M9 (81361)	RL	
4240-01-455-7982	THERMOPLASTIC LINER, SIZE EXTRA-EXTRA SMALL (81361) 5-1-2873-10	EA	

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

**SECTION II. ADDITIONAL AUTHORIZATION LIST**

(1) National Stock Number	(2) Description CAGEC & Part Number	(3) U/M	(4) QTY
4240-01-456-4510	THERMOPLASTIC LINER, SIZE EXTRA SMALL (81361) 5-1-2873-20	EA	1
4240-01-456-4509	THERMOPLASTIC LINER, SIZE SMALL (81361) 5-1-2873-30	EA	1
4240-01-455-4512	THERMOPLASTIC LINER, SIZE MEDIUM (81361) 5-1-2873-40	EA	1
4240-01-415-4511	THERMOPLASTIC LINER, SIZE LARGE (81361) 5-1-2873-50	EA	1
4240-01-415-4516	THERMOPLASTIC LINER, SIZE EXTRA LARGE (81361) 5-1-2873-60	EA	1

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## **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 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)").

**D-2. EXPLANATION OF COLUMNS (CONT).**

- 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	6505-00-655-8366	CLEANING COMPOUND, SOLVENT: box (12 ea - 24 oz bottles) (1Z575) CRYSTAL SIMPLE GREEN	EA
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

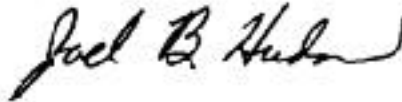
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BY ORDER OF THE SECRETARY OF THE ARMY:

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General, United States Army  
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SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

PUBLICATION DATE

PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE  
NO.

PARA-  
GRAPH

FIGURE  
NO.

TABLE  
NO.

IN THIS SPACE, TELL WHAT IS WRONG  
AND WHAT SHOULD BE DONE ABOUT IT.

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

PIN: 076655-000