TM 3-522-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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MASK, PROTECTIVE, FIELD, M9 AND MASK, PROTECTIVE, FIELD, M9A1

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* This manual supersedes so much of TM 3–205, 27 April 1955, including C 2, 28 June 1957, as pertains to the M9 gas mask and the M9A1 field protective mask.

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

This manual contains information on the characteristics, use, functioning, fitting, inspection, maintenance, shipment, and storage of M9 and M9A1 field protective masks. Information on accessories used with the masks is also included in this maual. A list of repair parts is contained in TM 3–522–15P.

2. Appendixes

Appendix I contains a list of references. Appendix II contains the maintenance allocation chart.

Section II. USE, FUNCTIONING, AND DIFFERENCE IN MODELS

3. Use

The M9 and the M9A1 field protective masks are combat masks which protect the face, eyes, and respiratory tract of the wearer from field concentrations of CBR agents in the form of gases or aerosols (small liquid or solid particles). The masks do not afford protection against ammonia vapors or carbon monoxide. The masks cannot be used in confined spaces where the oxygen content of the air is too low to sustain life (less than 16%).

4. Major Components

The major components of the M9 and M9A1 field protective masks are the facepiece, the canister, and the carrier. The canister is attached to the facepiece at the cheek position. The carrier holds the facepiece with the attached canister and accessories.

5. Functioning of Mask

(fig. 1)

When the wearer of an M9 or an M9A1 field protective mask inhales, air is drawn through the canister into the facepiece. The canister acts as an air purifier. It contains a gas (chemical)



Figure 1. Airflow through mask.

filter composed of adsorbent charcoal which adsorbs and/or neutralizes toxic gases, and a particulate (aerosol) filter which removes toxic and irritating substances which occur as solid and liquid particulates in the form of aerosols. An inlet valve located in the canister mounting allows purified air to enter the facepiece but prevents exhaled air from flowing out through the canister. An outlet valve at mouth position allows exhaled air to exhaust from the facepiece but prevents contaminated air from entering.

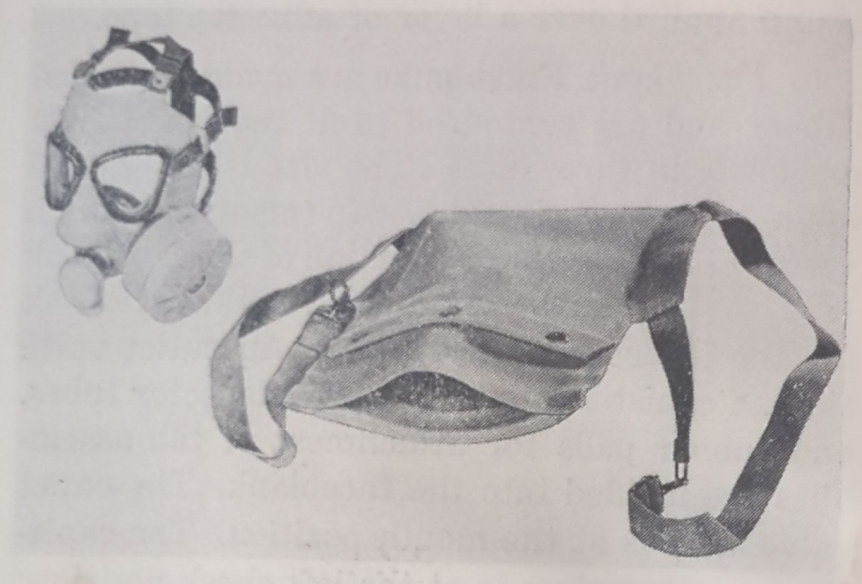


Figure 2. M9 field protective mask assembly.

6. Difference in Models

The only difference between the M9 field protective mask (fig. 2) and the M9A1 field protective mask (fig. 3) is in the carrier. The C15R1 carrier (par. 11), which is made of waterproofed duck coated with rubber on the inside, is a component of the M9 mask assembly; the M11 carrier (par. 10), which is made of a water-repellent duck, is a component of the M9A1 mask assembly.

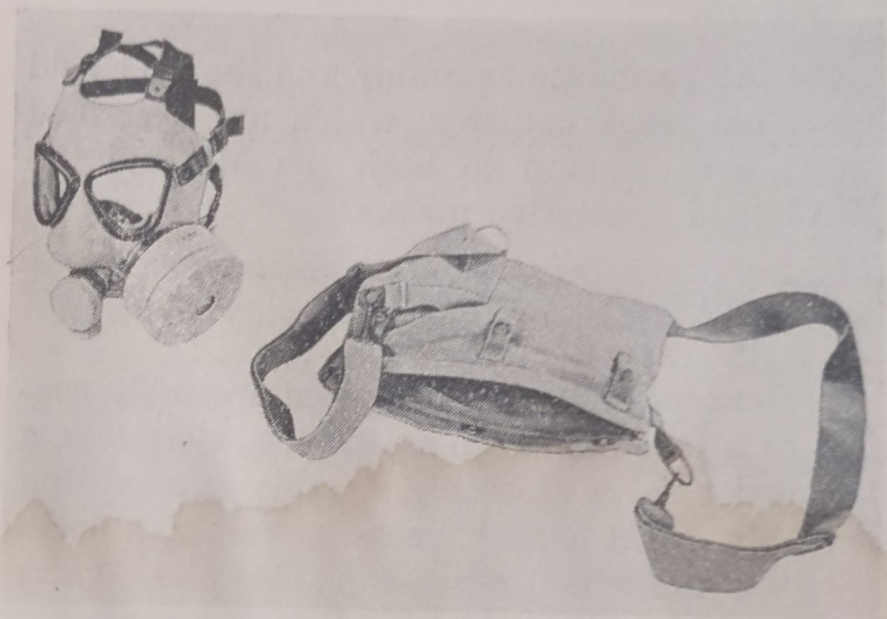


Figure 3. M9A1 field protective mask assembly.

CHAPTER 2
DESCRIPTION OF MASKS AND ACCESSORIES

Section I. MASKS

7. General

The M9 facepiece assembly and the M11 field protective mask canister, which are described below, are common to both the M9 and the M9A1 field protective masks.

8. M9 Facepiece Assembly

(fig. 4)

a. General. The M9 facepiece assembly consists of a faceblank, tab assemblies, eyepieces, a C15 outlet valve assembly, a canister mounting assembly, a C8 head harness assembly, a neckstrap assembly, and a nosecup. The outlet valve assembly and the canister mounting assembly are each secured to the faceblank with a wire clamp applied over a layer of adhesive tape.

b. Faceblank. Faceblanks are made of molded rubber and are contoured to fit the face. They are made in three sizes. The size is designated by a letter: S (small), M (medium), or L (large) on the forehead portion of the faceblank (fig. 5). Openings are provided in the faceblank for the insertion of eyepieces. An outlet valve stem, a canister mounting stem, deflector tubes, and rubber pads for attachment of tab assemblies are molded into the faceblank. The outlet valve stem is at the mouth position. The canister mounting stem is at the left-cheek position;

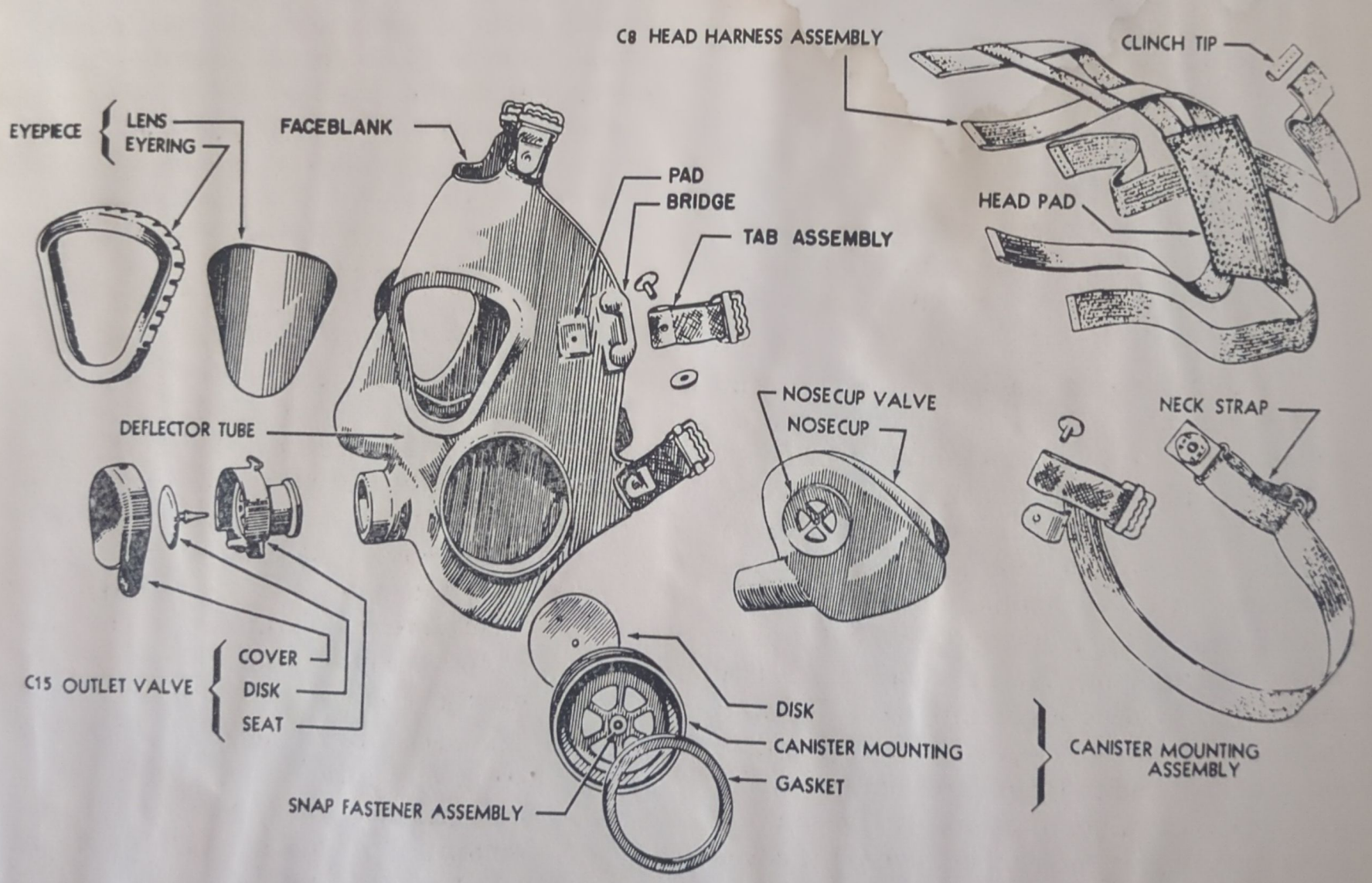


Figure 4. M9 facepiece assembly.

however, for personnel who must fire rifles with the left hand, the canister mounting stem is at the right-cheek position. Deflector tubes, which direct the flow of incoming air over the lenses to prevent fogging, extend along the cheeks to the openings for the eyepieces. The attachments for the tab assemblies consist of 6 square rubber pads and 2 rubber bridges. Two pads are located on projections of the faceblank at cheek positions, 2 pads and 2 bridges at temple positions, and 2 pads on projections of the faceblank at forehead positions.

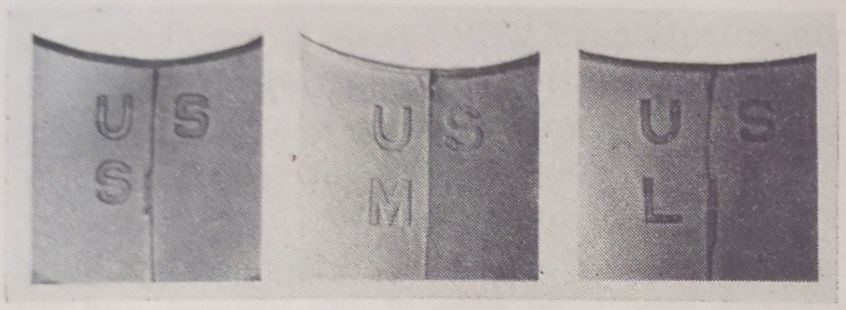


Figure 5. Size markings of faceblanks.

c. Tab Assemblies. Six cotton webbing tab assemblies, with buckles attached, are used to fasten the head harness to the faceblank. Assemblies are riveted to the pads of the faceblank. A neck strap is attached to the tab assembly at the left-cheek position. The stud tab assembly at the right-cheek position engages a socket on the fastener tab assembly of the neck-strap assembly.

d. Eyepieces. The eyepieces consist of lenses of safety glass (laminated glass) and metal eyerings. The eyerings are crimped to the rubber surrounding the lenses.

e. C15 Outlet Valve Assembly. The C15 outlet valve assembly is composed of a die-cast aluminum seat, a rubber disk, and a molded rubber cover. The seat has a flanged hollow stem which fits into the outlet valve nozzle of the faceblank. In the center of the face of the seat is a hub, supported by six radial spokes, in which the stem of the rubber disk fits. When the stem is pulled through, the disk lies against a raised circular lip, providing a gastight seal. The seat of the valve has a semicircular metal canopy to protect the disk and to insure free action. A slot at the bottom and a lug at the top of the seat aid in proper seating of the rubber cover; the cover protects the valve disk. The air immediately around the exterior of the valve disk is always exhaled air; hence it is free of contamination. This factor eliminates the back leakage of even minute quantities of contaminated air when the valve disk is seating during inhalation.

Note. All C15 outlet valves function in the same manner but they may differ slightly in outward appearance. (Cover may or may not have a tab on it.) Because of rigid leakproofing standards, the entire C15 outlet valve must be replaced if the disk is damaged.

f. Canister Mounting Assembly. The canister mounting assembly provides a means for attaching the M11 canister to the facepiece and serves as the inlet valve for the mask. The canister mounting assembly fits into the canister mounting stem on the cheek of the faceblank and holds the canister. The assembly is composed of a canister mounting, a gasket, a rubber inlet valve disk, and a snap fastener assembly. The canister mounting has six radial spokes and is slightly convex. The inlet valve disk fits into the concave portion at the back and is held in place by the snap fastener assembly.

g. C8 Head Harness Assembly and Neck-Strap Assembly. The C8 head harness assembly holds the facepiece firmly in position on the wearer. During periods of strenuous exertion, the neck strap overcomes the tendency of the canister to swing or to pull the mask away from the face.

(1) The C8 head harness assembly consists of a rectangular head pad and six adjustable straps of 7/8-inch elastic webbing, with clinch tips on the ends to prevent raveling. The straps are attached to the faceblank as follows: one each to the buckles at the left and right temple positions, one each to buckles at forehead positions, and one each to buckles at cheek positions. The junction of the straps is covered inside and outside by pieces of cotton webbing, 2 inches wide by 3 3/8 inches long, to form the head pad. The straps extending from forehead positions to the head pad are connected by a 3-inch piece of elastic webbing.

(2) The neck-strap assembly consists of a strap of elastic webbing, a buckle, a fastener tab assembly, and a tab assembly. The buckle provides a means of adjusting the neck strap. The fastener tab assembly, which is made up of

cotton webbing, a loop, a socket, and a clinch plate, is attached to one end of the neck strap. It is used to fasten the neck strap to a stud tab assembly on the facepiece at the right-cheek position. The tab assembly, which consists of cotton webbing and a buckle, is sewed to the other end of the neck strap. The tab assembly is riveted to the pad of the faceblank at the left-cheek position.

h. Nosecup. The nosecup prevents fogging of the lenses. It is made of molded rubber and fits over the nose and mouth of the wearer. A nosecup valve assembly on each side of the nosecup allows purified air to enter the nosecup as the wearer of the mask inhales but prevents exhaled breath from escaping into the facepiece cavity and coming in contact with the lenses. Each of the nosecup valves is composed of a metal seat and a rubber disk, which fits over a stud in the center of the seat. The nosecup is held in position inside the facepiece by vulcanizing or cementing to the faceblank at chin and lower-cheek positions.

9. M11 Field Protective Mask Canister (fig. 6)

The M11 field protective mask canister consists of a gas (chemical) filter and a particulate (aerosol) filter housed in a metal body. The body of the canister is a squat cylinder of sheet aluminum and is painted gray. At one end of the body is an inlet opening; at the other end is a threaded nozzle for attaching the canister to the facepiece. The particulate filter is made of fluted or folded asbestos-bearing paper, which removes toxic liquid and solid particles from the influent air; the gas filter consists of ASC activated charcoal. The charcoal is held in place by the body of the canister between two fines filters, which consist of felted cotton cloth between disks of plastic netting. Perforated metal disks at the top and the bottom of the canister protect the filling. Upon inhalation, air enters the canister through the air-inlet end (influent opening) and passes through the particulate filter, a fines filter, the gas filter, a second fines filter into the nozzle and through the inlet valve in the canister mounting to the inside of the facepiece. (See fig. 1 for airflow diagram.)

a. Limitations of Canister. The M11 canister purifies contaminated air but does not manufacture or produce oxygen. When the air is low in oxygen content (less than 16%), the canister cannot supply air suitable for breathing. The canister will not afford protection against ammonia vapors or carbon monoxide. (TM 3–205 describes special-purpose masks which may be used for protection against toxic fumes and gases encountered in the manufacture or handling of chemicals and in fire fighting.)

b. Life of Canister. The M11 canister is designed to provide complete protection against concentrations of CBR agents as are likely to be encountered in the field. The breakdown or exhaustion of a canister is a gradual process. The useful life of any canister varies with the type and amount of toxic agent or agents in the air, the duration of exposure to the contaminated air, the breathing rate of the wearer, and the temperature and humidity. A change in any of the above-mentioned conditions may affect the useful life of a canister. The canister should be replaced if severely damaged or if breathing resistance is greatly increased.

10. M11 Field Protective Mask Carrier (fig. 7)

a. General The M11 carrier for the M9A1 field protective mask is made of water-repellent olive drab cotton duck It is a flat bag measuring 9½ by 12 by 4½ inches. It has a flat closure

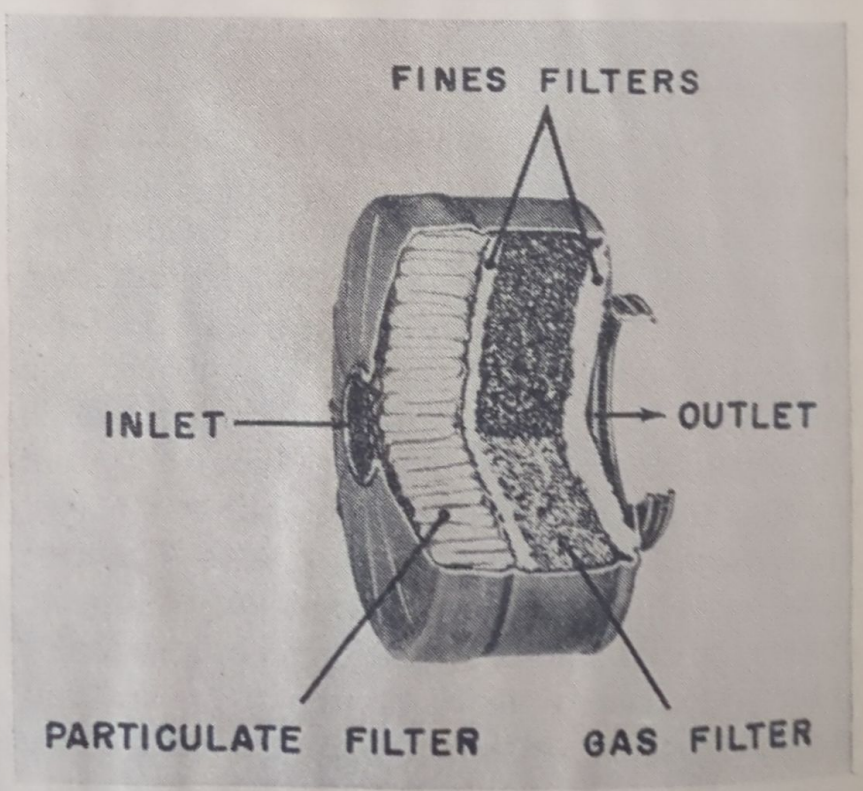


Figure 6. M11 field protective mask canister.

secured by three snap fasteners. Three pockets are provided inside the carrier: two on the side and one on the bottom. A chemical warfare agents protection and treatment set (par. 14) and an antidim set (par. 13) are held in the side pockets. When a waterproofing bag is issued, it is carried in the bottom pocket. The carrier has two carrying straps of 1½-inch webbing: one at the top of the carrier, the other just below the middle of the carrier, parallel to the top of the carrier.

b. Strap Assemblies. Each strap assembly consists of two straps. The longer of the two has a buckle and a hook snap; the shorter is equipped with a dee ring to which the hook snap is fastened. Another dee ring is attached at the point where the lower strap is stitched to the carrier. This dee ring is used when the carrier is placed in the leg-carry position (FM 21–40).

11. C15R1 Field Protective Mask Carrier

(fig. 8)

a. General. The C15R1 carrier is made of a single piece of waterproofed olive drab cotton duck. The surface which forms the inside of the carrier is rubber coated. Reinforcing sheets are cemented to the inside of the carrier. The back of the carrier widens at the top and bottom to form wings. A pocket for miscellaneous protective equipment is sewed to the reinforcing sheet inside the carrier at the back. A loop of webbing is cemented in a lower corner on the inside of the carrier to hold an antidim set. Near the opening, the back is doubled to form a strip which is fitted with three clinch plates and sockets. In the front, near and parallel to the opening, is a fold control. Three stud fasteners are attached to the front, about 8¼ inches from the opening. The carrier is closed by rolling down the top on the fold control until the sockets on the strip across the back engage the stud fasteners on the front. The carrier has two carrying straps of 1½-inch webbing, one at the top and the other at the bottom.

b. Strap Assemblies. Each strap assembly consists of two straps. The longer of the two has a buckle and a hook snap; the shorter is equipped with a dee ring to which the hook snap is fastened. Another dee ring is attached at the point where the bottom strap is sewed to the wing of the carrier. This dee ring is used when the carrier is placed in the leg-carry position (FM 21–40).

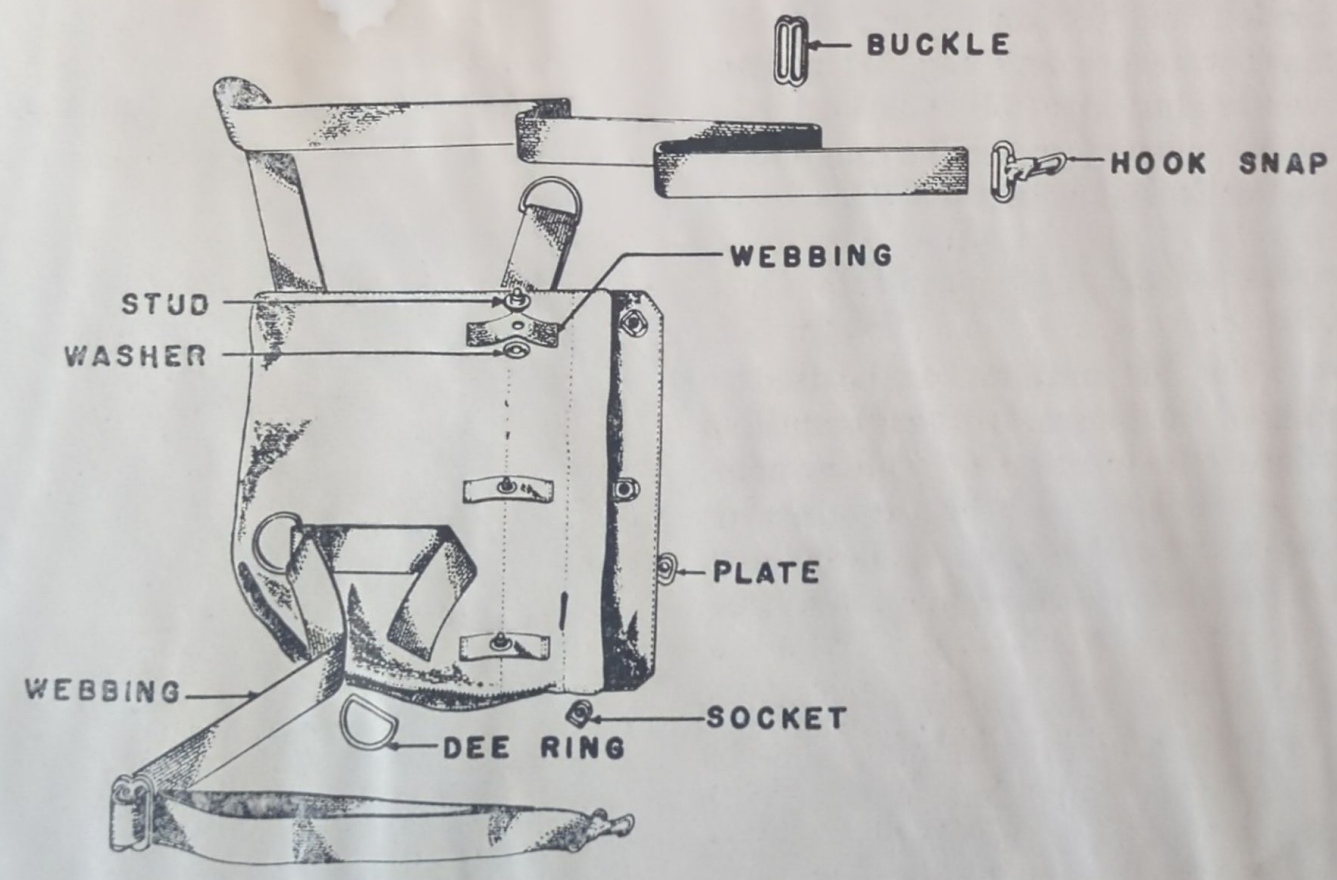


Figure 7. M11 field protective mask carrier.

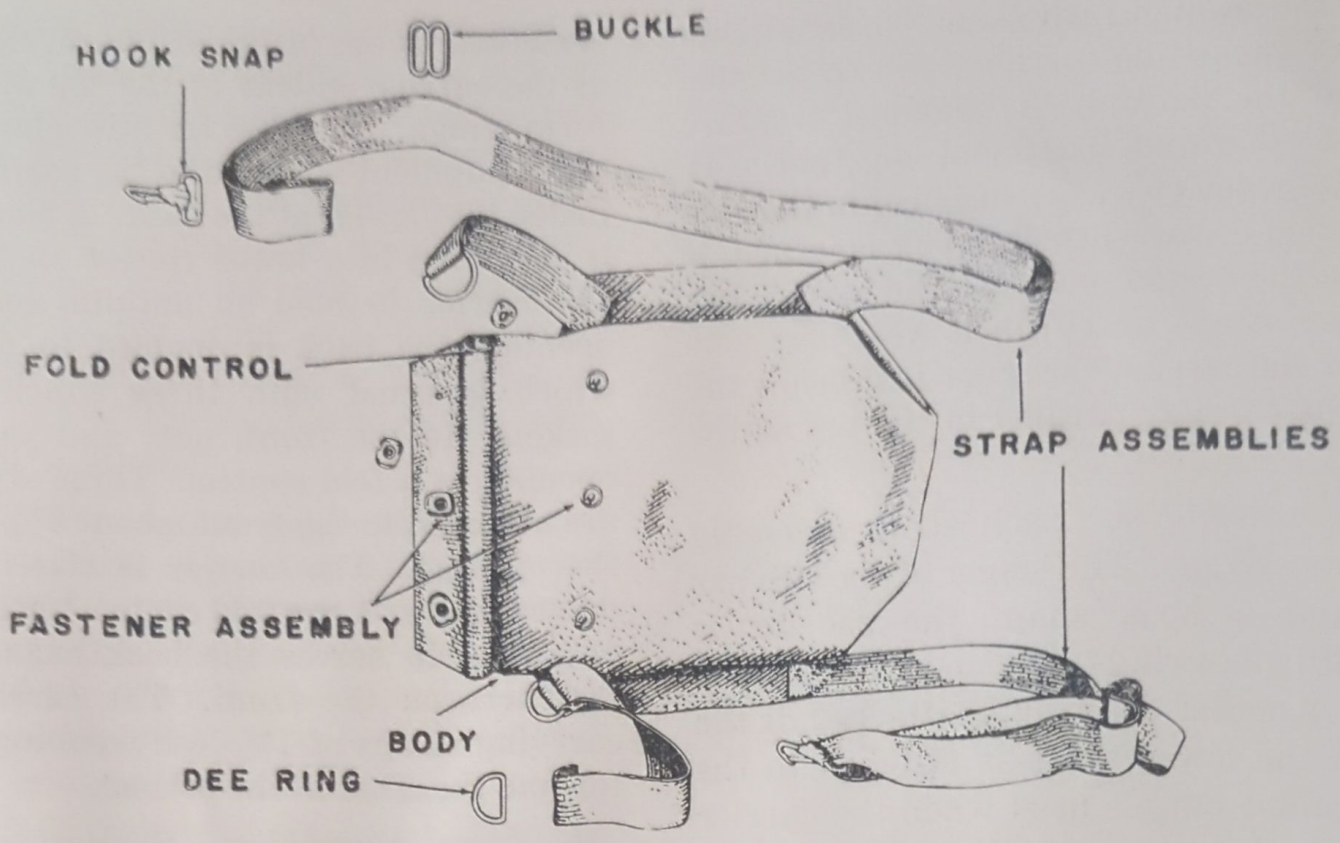


Figure 8. C15R1 field protective mask carrier.

Section II. ACCESSORIES

12. General

Accessories described here are authorized for use with the M9 or the M9A1 field protective mask. This section includes information on the M1 antidim set, the M5A1 chemical warfare agents protection and treatment set, the M1 protective mask waterproofing bag, M1 protective mask winterizing kit (TB 3–205–2), the M4 toxicological agents protective gas mask hood, and gas mask spectacles.

13. M1 Antidim Set

(fig. 9)

a. General. The M1 antidim set is used to reduce fogging of the lenses. Although antidim does not reduce condensation of water vapor, it causes the condensed vapor to form an even film on the lenses, thereby reducing the distortion which occurs when the vapor collects as drops.

b. Description. The M1 antidim set consists of a small cylindrical can containing a 6- by 10-inch piece of cotton flannel impregnated with a substance which reduces the surface tension of water.

c. Use.

(1) *General.* Use the antidim cloth on the lenses each time the mask is cleaned and after each wearing of the mask to reduce the fogging caused by water vapor in the exhaled breath. Antidim may also be used on spectacles worn inside the mask.

(2) *Directions for use.*

(*a*) Wet fingertips and moisten inner surface of lenses.



Figure 9. M1 antidim set.

(*b*) Rub vigorously with antidim cloth until surface is clean and dry.

(*c*) If antidim cloth becomes wet, allow it to dry without squeezing.

14. M5A1 Chemical Warfare Agents Protection and Treatment Set

(fig. 10)

a. General. The M5A1 chemical warfare agents protection and treatment set consists of 3 tubes of M5 vesicant agent protective ointment, 1 tube of BAL eye ointment, 3 pieces of absorbent blotting cloth, and 1 atropine tartrate injection, all of which are contained in a waterproof metal container. Seventy sets are packed in a wood box, which weighs 50 pounds and occupies 1.4 cubic feet.

b. Description.

(1) *Container.* The container for the M5A1 chemical warfare agents protection and treatment set is made of metal and has a hinged lid with a metal clip which holds the lid closed tightly.

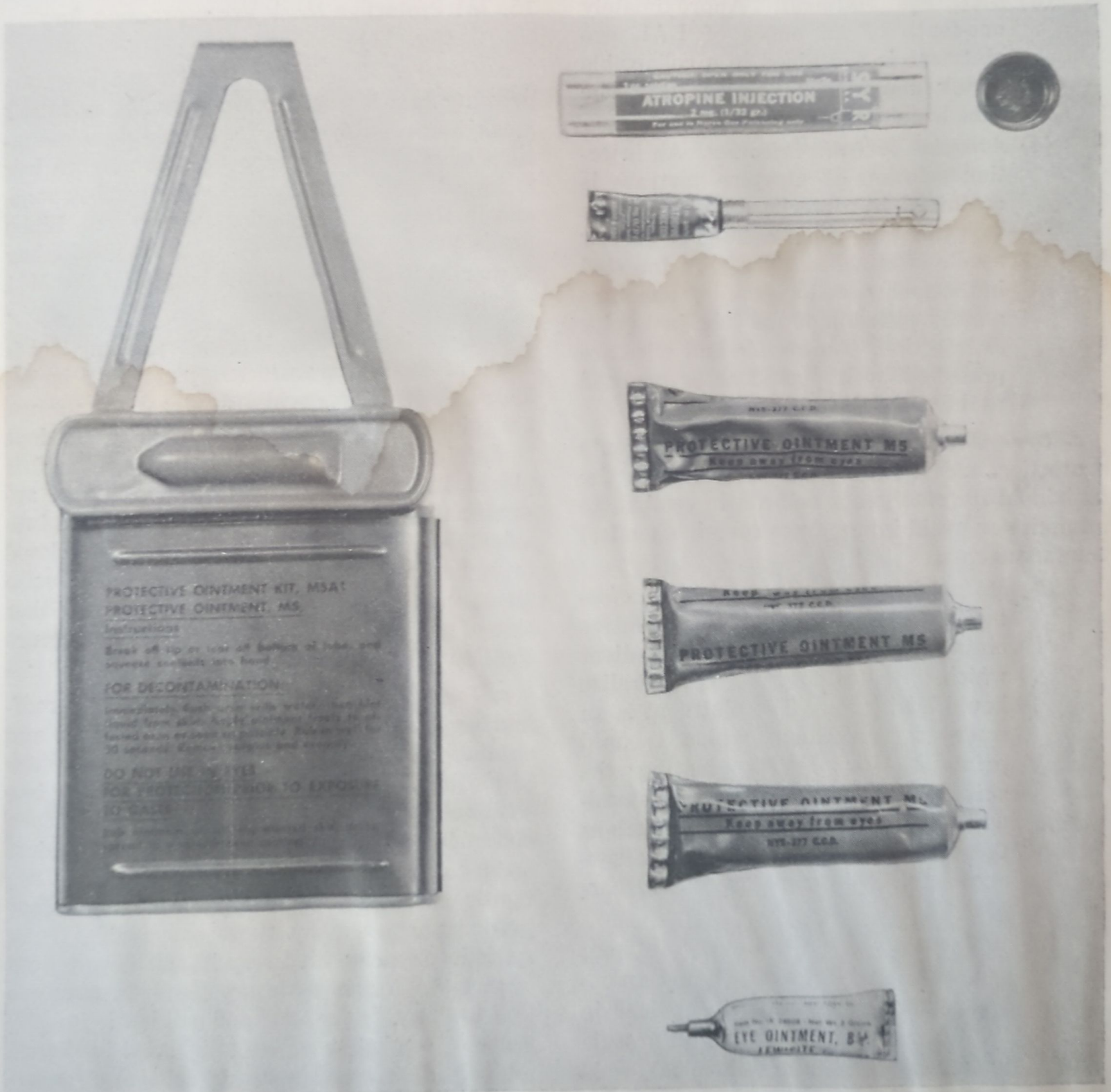


Figure 10. M5A1 chemical warfare agents protection and treatment set.

The container is approximately 4 inches long, 3½ inches wide, and 1 inch thick. Directions for use of the set are lithographed on the side of the container.

(2) *M5 vesicant agent protective ointment.* Approximately two-thirds of an ounce of M5 vesicant agent protective ointment is contained in an olive drab collapsible metal tube with a breakoff tip. Each tube is wrapped in a piece of absorbent blotting cloth.

(3) *BAL eye ointment.* Approximately one-tenth of an ounce of BAL eye ointment is contained in a collapsible metal tube with a breakoff tip. The tube is painted yellow.

(4) *Atropine tartrate injection.* An injection solution of atropine tartrate is contained in a sterile collapsible tube (syrette) to which a 20-gage hollow needle is attached. The wire inserted in the hollow needle is used to puncture a seal at the top of the tube just prior to injection. The needle and wire are protected by a plastic cover screwed to the top of the tube.

c. Use. The M5A1 chemical warfare agents protection and treatment set is issued to the individual for emergency self-aid in combat, to minimize or avoid injury from certain chemical warfare agents.

(1) *M5 vesicant agents protective ointment.* M5 vesicant agents protective ointment contains an active ingredient which liberates chlorine to neutralize liquid blister gas. The ointment is an emergency expedient which is used primarily for decontaminating the skin, but it can be used for decontamination of individual equipment such as the mask (par. 31). Special allowances of the ointment may be authorized.

(2) *BAL eye ointment.* BAL eye ointment counteracts the effects of liquid arsenical agents. The active ingredient in the ointment combines with the arsenic in arsenic-containing chemical warfare agents to yield a water-soluble complex nontoxic compound, which can be removed from the surface of the eye with water.

(3) *Atropine tartrate injection solution.* The atropine tartrate injection solution is used for self-aid against G-agents.

d. Instructions for Use. Instructions for use of the set are printed on the container. More detailed instructions for use are given in FM 21–40, FM 21–41, and TM 8–285.

15. M1 Protective Mask Waterproofing Bag (fig. 11)

a. General. The M1 protective mask waterproofing bag is used to waterproof the M9A1 mask immediately prior to amphibious operations or other known exposure to water. A bag is issued with each mask in the combat zone, and in the zone of interior as required. When not in use for waterproofing the mask, the bag is carried in a pocket in the bottom of the M11 carrier.

b. Description. The M1 waterproofing bag is made of flexible translucent plastic, 19 inches long and 13 inches wide. Instructions for use are printed on the bag. A small plastic envelope containing three ordinary rubber bands is placed inside the bag. The bag folds to approximately 4½ by 2½ inches for insertion into a flexible translucent pouch. The pouch is closed by a flap which is rolled down over a metal strip; ends of the metal strip protrude on either side of the pouch and are bent inward to secure the flap after it has been rolled down.

c. Instructions for Use. Remove waterproofing bag from carrying pouch. Unfold bag and obtain one rubber band from small envelope inside bag. Place mask in waterproofing bag with nose toward open end of bag. Gather open end of bag close to mask and press bag against body to remove air; twist open end of bag tightly and fold over; loop rubber band around twisted part as many times as possible. Place mask in carrier with twisted part toward front of carrier. To open waterproofing bag, grasp end that has been folded over and pull hard. Possible reuse in combat must be anticipated to the extent of folding and returning the used bag to the carrier for emergency needs.

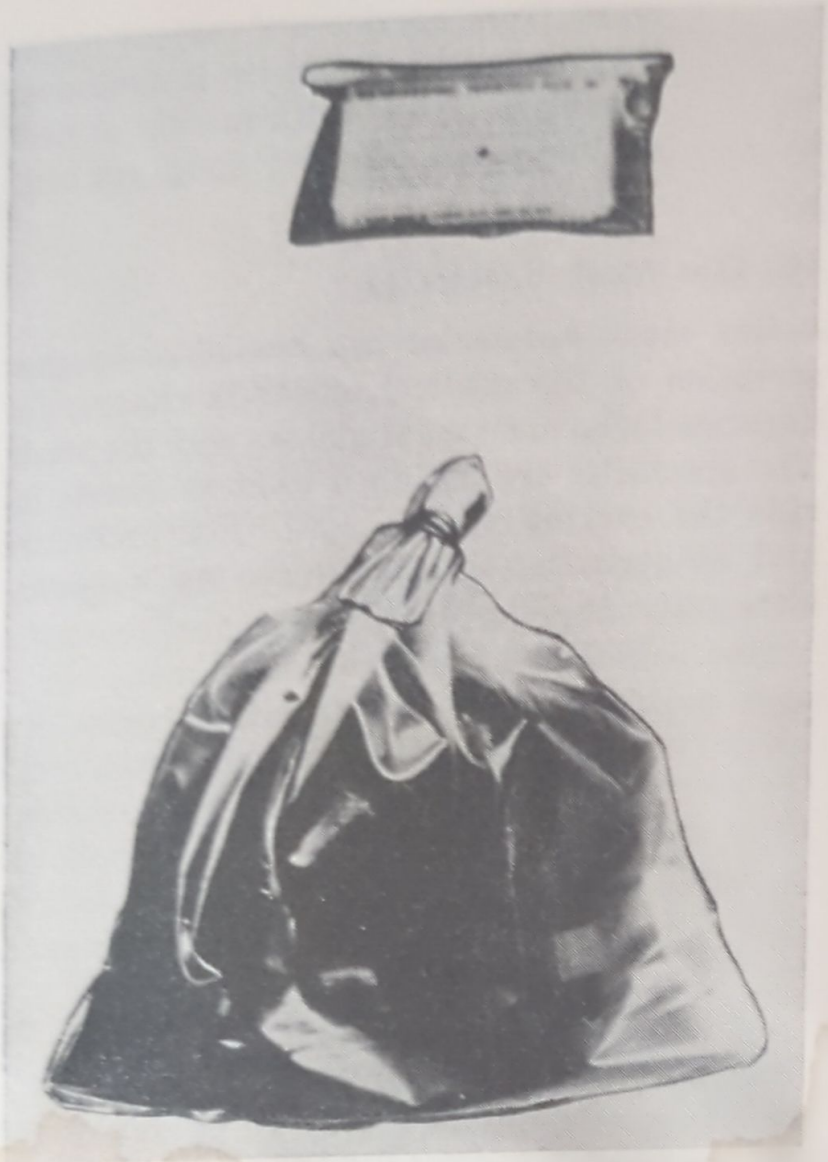


Figure 11. M1 protective mask waterproofing bag.

Warning: Avoid storage of mask in the bag for more than 24 hours. The bag should not contact foodstuffs because of its toxic effects.

16. M1 Protective Mask Winterizing Kit

a. General. The M1 protective mask winterizing kit (TB 3–205–2) makes the M9 or the M9A1 field protective mask wearable in extreme cold at temperatures down to —40° F.

b. Description. The kit consists of a hood, insulating lenses, antisnowglare lenses, a cheek pad, and nosecup valve disks. The kit is self-contained; a pocket, which is part of the hood, serves as the carrier. The kit forms a packet which measures approximately 6 by 4½ by 2 inches.

c. Use. The kit is used with the M9 or the M9A1 field protective mask when temperatures of —25° F. or less are expected for a week or more. Components of the kit prevent frosting of the inner surface of the lenses of the mask and protect the wearer against frostbite of the face and snow blindness.

17. M4 Toxicological Agents Protective Gas Mask Hood

(figs. 12 and 13)

a. General. Additional protection against toxic vapors is provided by the M4 hood, which is worn over the mask and covers the head and neck (fig. 12). The hood *does not* give complete protection against spray or drops of liquid agents.

b. Description. The M4 hood is made of butyl-rubber-coated fabric. It has openings for eyepieces and a canister. Drawstrings are provided for fastening the hood around the eyepieces, the canister, and the neck.

c. Instructions for Use.

(1) *Attaching hood to mask.* Insert mask inside hood so that eyepieces coincide with eye openings in hood. Pull drawstrings so that eye openings fit snugly around eyepieces; tie drawstrings securely. Insert canister into canister opening of hood, pull drawstring, and tie. The hood should remain attached to the mask. When the mask is stowed in carrier, the hood is rolled up on the facepiece of the mask as shown in figure 13.

(2) *Donning mask with hood attached.* To don mask with hood attached, remove

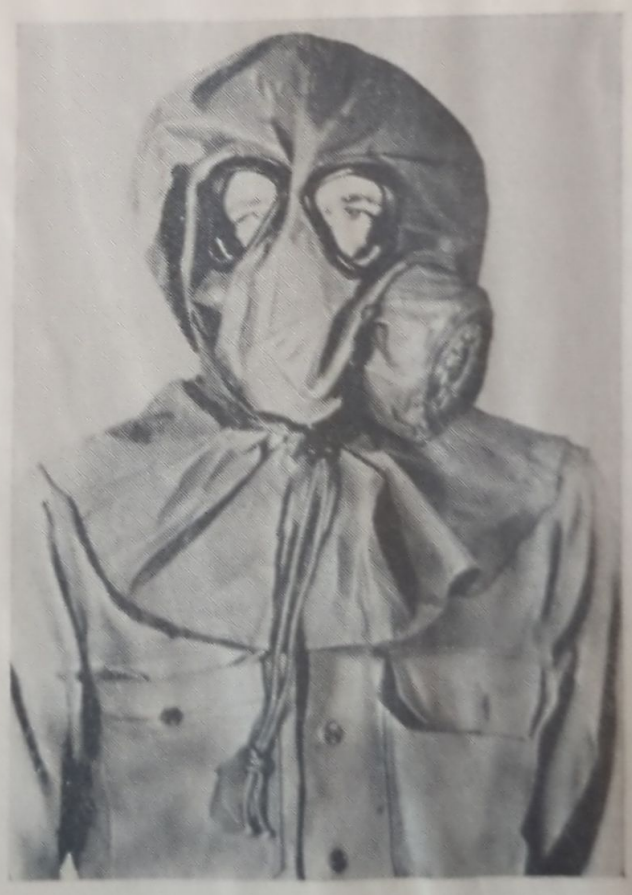


Figure 12. M4 hood worn with mask.

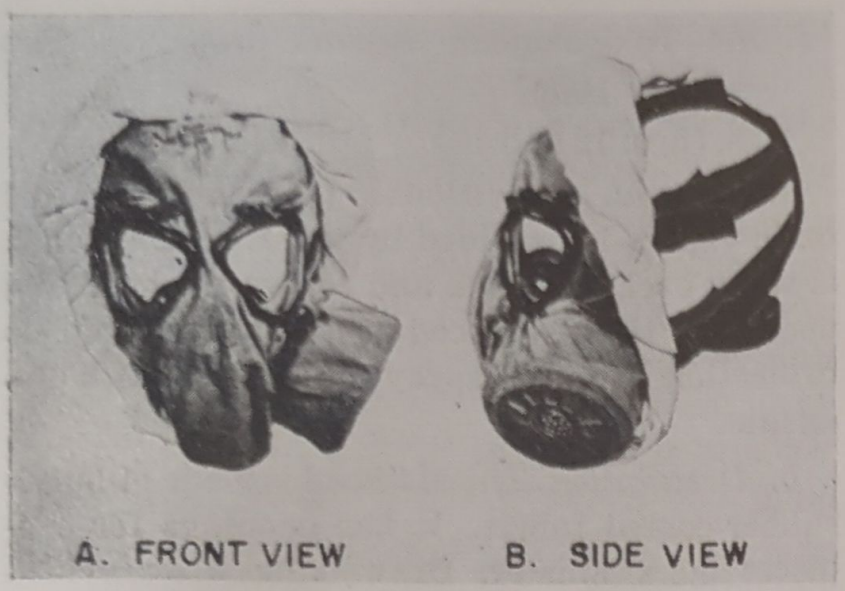


Figure 13. M4 hood rolled on mask.

mask from carrier and adjust mask; then unroll hood and let it drop over shoulders. Adjust drawstring at neck so that hood provides snug yet comfortable fit.

18. Gas Mask Spectacles

Gas mask spectacles are available, by prescription of the medical officer in charge, for personnel who must wear glasses with the mask. The spectacles are designed to fit as inserts inside the eyering of the mask. For procedure and authorization to obtain gas mask spectacles, refer to SR 40–340–5.

CHAPTER 3
FITTING, CARE, AND INSPECTION OF MASKS

Section I. FITTING MASKS

19. General

Proper fitting of field protective masks is a command responsibility which can be delegated to noncommissioned officers; a qualified officer will supervise the fitting. Proper fitting prevents restriction of circulation, which causes headaches and physical discomfort; reduces restriction of vision or other interference with combat functions; and reduces possibility of casualty.

20. Basic Principles of Fitting

The mask must fit the contour of the face. The centers of the pupils of the eyes should be near the center of the lenses. When several sizes of masks are available, one which gives the most comfortable gastight fit should be selected. Masks are made of flexible material so that in most cases a good fit can be obtained by slight adjustment of head harness straps. Since major adjustments may create a strain on the facepiece and cause discomfort or leaks, selection of another size mask is required. Masks which are too small have a tendency to sit forward on the wearer's face, usually causing the temple straps to cut the ears. If a mask is too small, the pupils of the eyes will be below the center of the lenses. If a mask is too large, the edges of the facepiece will interfere with the ears and throat of the wearer, and the pupils of the eyes will be above the center of the lenses.

21. Detailed Fitting Procedure

a. Preliminary Procedure. Have individual place mask on his face with his chin resting snugly in chin pocket. Grasp eyerings and pull mask away from his face slightly; mask should settle back in a symmetrical and comfortable position. Determine the position of pupil of the eye with respect to the lens. If pupil is less than one-half of an inch from top of lens, mask is too small; if pupil is less than 1 inch from bottom of lens, mask is too large. If correct position cannot be attained, exchange mask for one that can be positioned correctly.

b. Adjustment to Individual.

(1) *Head harness.* Even tension of the head harness straps is essential to prevent leakage, pressure at temples, and general discomfort.

(*a*) As man being fitted holds mask firmly against his chin, center head harness pad fairly well down on back of his head and hold it there with one hand. With other hand, tighten each forehead strap just enough to remove any slack. (The strap is best adjusted by a rapid pull or jerk rather than by a steady pull on the harness strap.)

(*b*) Tighten each cheek strap until straps are evenly and moderately tightened.

(*c*) Remove hand from head pad and adjust temple straps to moderate tightness. These straps should clear the tops of the ears.

(*d*) If the straps cannot be easily adjusted, the tabs are incorrectly mounted, and the mask should be turned in for repair at the first opportunity. When it is necessary to use the mask prior to repair, the straps may be adjusted before the mask is put on.

(2) *Neck strap.* Adjust neck strap as follows:

(*a*) After mask is on, grasp neck strap and place it around the back of the neck, smoothing it to avoid twisting.

(*b*) Fasten the fastener tab assembly at end of strap to the stud on the stud tab assembly at cheek position of facepiece.

(*c*) Draw up elastic web strap by means of adjustment buckle so that it fits snug, giving stability to mask.

22. Checking Fit

Check fit of the mask as follows:

a. Examine position of lenses with respect to eyes. Pupils of eyes should be near the center of the lenses (par. 21*a*).

b. Check mask to see that it does not fit so tight that pressure is exerted on flesh around the eyes, causing them to be partially closed.

c. Check to see that mask does not press painfully on nose or cut into flesh at throat of wearer.

d. Check edge of mask for overlap at ears or for overlap at chin to the extent that it cuts into throat. Proper fit is attained when the mask comes well up on the forehead and the edge of the facepiece is within 1 inch of the ears.

e. If slight gaps or channels are present, carefully adjust head harness (par. 21*b*).

f. If an adequate fit cannot be obtained, try a larger or a smaller size mask.

23. Leakage

a. General. A protective mask facepiece is considered satisfactory for use only if it gives a leaktight fit on the wearer. Since a facepiece which does not give a leaktight fit is extremely dangerous, it is important that all individuals have their facepieces checked for leaks at the time they are fitted. Before testing a facepiece for leaks, make certain that the canister is properly screwed into the canister mounting piece. Also, make certain that the individuals being fitted are cleanly shaved, since a heavy stiff beard growth will make it difficult to adjust the facepiece for a leaktight fit.

(1) *Tests.* With palm of hand over inlet of canister, have wearer inhale *normally* and hold his breath for 10 seconds. When facepiece tends to collapse, it is an indication of an effective air seal. (If the wearer inhales too strongly, he may close a hole that would admit contaminated air when breathing is normal.) If the facepiece does not collapse, it is an indication of a faulty facepiece or incorrect adjustment of the facepiece to the face.

(2) *Correction.* The detection of the leak is imperative. If it is not possible to locate the leaking component and to correct the leakage as detailed in *b* through *d* below, the mask must be replaced.

b. Leakage Around Edges. Airflow around the edges into the facepiece is eliminated by following the procedure given in (1) through (5) below. Visual inspection will usually disclose a bulge at the edge of the facepiece at the point of leakage. The individual wearing the mask may be able to point out the source by the feel of incoming air. Leakage at the edge of the facepiece can be detected in some cases by observing breaks in the red mark left on the face by the edges of the facepiece after prolonged wearing. Leakage around edges of the facepiece is caused by improper adjustment of the head harness or by a facepiece of improper size.

(1) To overcome leakage at cheek, lift head harness pad higher on head and tighten forehead straps.

(2) To overcome leakage at temple, tighten both forehead and temple straps.

(3) When leaks occur at forehead, tighten temple straps.

(4) If leakage occurs at throat or under chin, readjust mask on face by grasping eyerings and lifting mask slightly higher on the face. This overcomes leakage resulting from the chin not being seated firmly in the chin pocket. Tightening the cheek straps may also assist in correcting leakage at the throat or under the chin.

(5) If leakage around the edges of the facepiece still persists, fit a mask of another size.

c. Outlet Valve Leakage. Leakage of air may be caused by an outlet valve disk which is faulty or which is held open by foreign matter, or by a disk sticking to the valve seat. Rapidly ex-

haling several times will usually clear any debris and permit proper seating of the disk. Sticking disks may be released by pressing on the rubber cover or by probing gently with a matchstick. Masks with defective valves must be replaced.

d. Defects in Faceblank. When other possible sources of leakage have been exhausted, all portions of the faceblank should be examined closely for breaks, tears, holes, or splits; such defects are likely to occur around the eyepieces. If defects are found in the faceblank, replace mask.

24. Gas Chamber Exercises

After masks have been fitted, they should be tested for leakage in a gas chamber. Gas chamber exercises are described in detail in FM 21–48.

Section II. CARE OF MASKS

25. General

With reasonable care and attention, the mask will have long life because it is designed to withstand the wear and tear of field service; however, there is always danger of mechanical damage to rubber or metal parts, or to eye lenses from rough handling. There is also danger of exposing mask to extreme heat, of water getting into the canister, of dampness causing deterioration of protective tape and wire bindings, and of mildew attacking the fabric of the carrier. When not in use, replace the facepiece in the carrier in the position shown in figure 14. Fold the head harness into the facepiece. Hold facepiece below eyepieces with left-cheek canister to the left. Insert the chin portion of the facepiece in the carrier first. When properly positioned, the eyepieces should face the opening in the carrier. Insert a mask facepiece with right-cheek canister in such a manner that the eyepieces face the back of the carrier. The facepiece is placed in the C15R1 carrier in the same position.

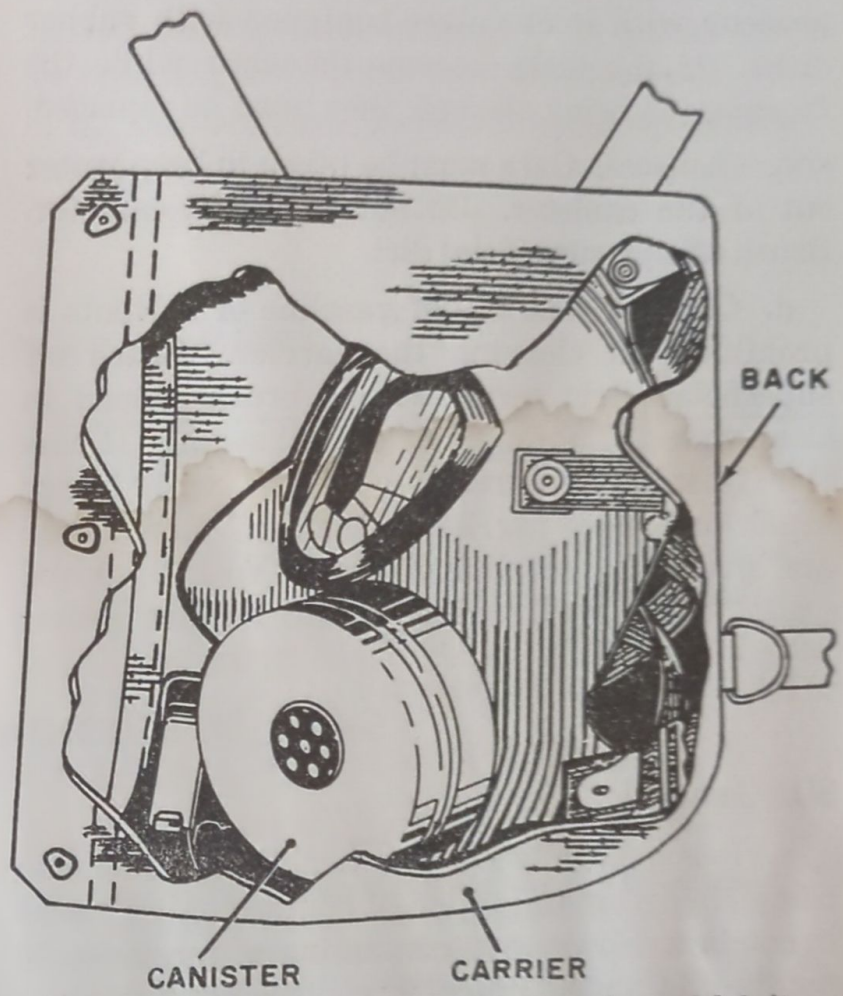


Figure 14. Proper position of M9 facepiece with left-cheek canister mounting in M11 carrier.

26. Care of Rubber Parts

Aging of rubber starts slowly and proceeds at an increasing rate; it is greatly speeded by light, heat, and contact with organic solvents. These conditions bring about rapid deterioration and should be avoided wherever masks are kept. First, the rubber begins to set; then it becomes tacky; finally, it turns dry and brittle. When rubber parts begin to set, the mask must be replaced.

27. Care of Masks in Cold Climate

Facepieces are subject to cold set (stiffening) at very low temperatures. This stiffening is not caused by aging of the rubber but is induced solely by low temperatures. In extremely cold climate whenever use of the mask is anticipated, keep the mask under outer clothing to assure flexibility of the rubber parts when the mask is needed. The M1 protective mask winterizing kit (par. 16) is used with either the M9 or the M9A1 field protective mask when temperatures of —25° F. or less are expected for a week or more.

28. Cleaning and Conditioning

a. General. Individuals will clean their own masks except in the case of mass salvage or cleaning operations. Masks must be cleaned and conditioned at least twice a year and before they are turned in or exchanged. This process is supervised by an officer or trained noncommissioned officer who inspects each mask before the

individual is relieved of the responsibility for the mask.

b. Facepiece. Remove mask from carrier. Remove canister. Hold facepiece in an inverted position and wash it with soap and water using a cloth or a brush. Rinse facepiece thoroughly after washing. Allow excess water to drain, making certain that deflector tubes are drained. Dry facepiece in the air or at room temperature. After facepiece has been cleaned and dried, attach canister to facepiece. The facepiece has a nosecup with inlet valves equipped with rubber disks. If the disks become detached while the facepiece is being cleaned, they must be replaced.

c. Canister. Care must be taken to keep water out of the canister. Do not wash the canister. Brush off any superficial dirt.

d. Carrier. The use of gasoline or solvents is prohibited in cleaning the carrier. Brush off superficial dirt; scrub with a brush dipped in clear water. Thoroughly clean all seams. If carrier is mildewed, remove mildew with a dry brush and place carrier in the sun. Remove oil and grease by scrubbing carrier with soap and water, rinse well, wring out to remove excess water, smooth and reshape the carrier, and dry thoroughly in the air or at room temperature. When outside the continental United States, rub recoloring compound (Type I, color C green—U. S. Army Spec 4–1131) evenly into the carrier with a stiff brush. Hang up the carrier and then brush it. Use of recoloring compound restores the original color and makes the carrier water-repellent, mildew-resistant, and fire-resistant. Recoloring compound should not be applied to rubber-coated material.

Warning: The recoloring compound is flammable. Also, prolonged contact of the recoloring compound with the skin may cause irritation.

29. Disposal of Infectious Masks

There is no standard disinfectant for masks. Masks which cannot be put into usable condition by washing, as described in paragraph 28, must be destroyed. Masks determined to be infected with mycobacterium tuberculosis or spore-forming organisms should be destroyed by burning. Under no circumstances should an attempt be made to salvage such masks by sterilizing them by boiling or autoclaving.

Section III. DECONTAMINATION OF MASKS

30. General

a. It is generally not practicable to accomplish complete decontamination of contaminated masks in combat. However, a contaminated mask should not be discarded unless a replacement mask is available, since a contaminated mask is better than none. Furthermore, the facepiece can withstand penetration by drops or splashes of blister or nerve gases for more than 8 hours. Such masks can be made fairly safe for wear by emergency treatment with protective ointment as described in paragraph 31.

b. Decontamination of masks will be performed by a chemical maintenance company or team as a part of salvage operations if proper facilities for decontamination are available; if not, the masks are sent to a higher echelon for decontamination. Persons who handle contaminated masks during salvage operations must wear impermeable gloves, masks, complete permeable protective (impregnated) clothing, a toxicological protective apron, and rubber boots or shoes treated with M2 vesicant leather dressing.

31. Emergency Treatment With Protective Ointment

a. When a mask contaminated with splashes or drops of blister or nerve gas is needed for immediate use, it can be given emergency field treatment with protective ointment (FM 21–41). The treatment is effective if performed within 5 minutes after the mask has been contaminated and is of definite value on masks which have been contaminated for longer periods of time.

b. If the mask is contaminated with liquid blister or nerve gases while it is being worn, the wearer should seek assistance from another masked person to pinch-blot the drops or splashes from the contaminated mask using rags, paper, leaves, or other available materials. After this has been done, protective ointment should be applied to contaminated areas on the mask and

rubbed in. All materials used for blotting the gas drops should be buried. The ointment need not be removed from the mask until after the wearer has reached an uncontaminated location where he can unmask safely.

c. If a person finds that both he and his mask are contaminated with drops or splashes of chemical warfare agents, he should immediately pinch-blot the liquid from his face and from the mask facepiece and head straps, apply protective ointment over all contaminated areas on his face and *inside* the facepiece, and *then* don his mask prior to carrying out any further personal decontamination treatment. Self-aid and personal decontamination procedures are described in detail in FM 21–41 and TM 3–220.

32. Decontamination by Chemical Maintenance Company or Higher Echelon Personnel

a. Upon receipt, all masks will be inspected and any drops of agent remaining will be blotted. The canisters will then be removed for disposal or decontamination. The facepieces should be immersed in a container of boiling water (plain or soapy) and boiled for 8 hours. When the masks are removed from the boiling water, they should be scrubbed free of protective ointment and dirt, rinsed in clean water, and dried. (Boiling will distort plastic parts of masks. If masks are to be reissued, these parts must be replaced.)

b. Carriers are decontaminated by Quartermaster field laundries in accordance with the procedures given in TM 3–220.

Section IV. INSPECTION OF MASKS

33. Field Inspection

a. General. Inspections are conducted under command authority. They are a means by which commanders at all echelons, acting within the scope of their command mission, determine the serviceability of equipment and the efficiency of maintenance. There are three types of inspections for masks—technical inspection, bulk inspection, and individual inspection.

b. Defective Masks. When masks are found to be defective, the defect must be reported. Facepieces which are defective should be identified as to manufacturer, date of manufacture, and manufacturer's formula, symbol, and number. The identification is made from the embossed medallion which is located on the faceblank cheek, the nosecup, and the outlet valve cover. Figure 15 explains how to read the markings on the medallion.

34. Technical Inspection

Technical inspection is made to determine the serviceability of masks and to determine future maintenance and exchange requirements. Technical inspection will be made at least once annually in accordance with the provisions of AR 750–8. This inspection is usually made by field maintenance personnel who have equipment to

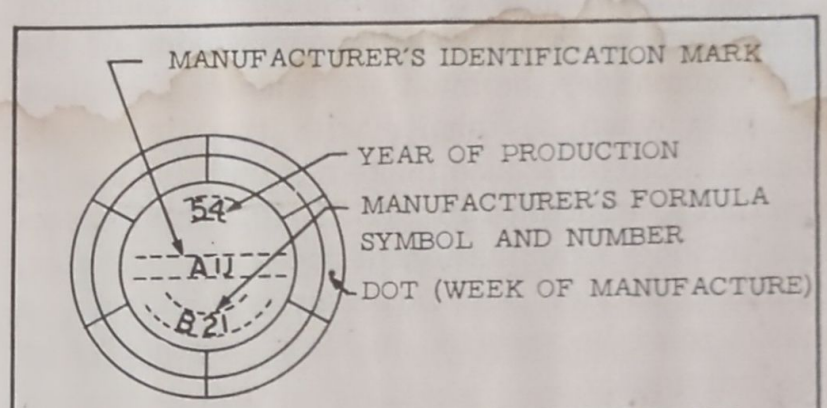


Figure 15. Explanation of markings on medallion.

determine the serviceability of canisters. Opportunity to make technical inspections when equipment is returned to maintenance shops for repair and servicing will be exploited by commanders in the interest of economy and efficiency. See SB 3–30–10 for standards for visual examination to be used in the inspection.

35. Bulk Inspection

Bulk inspection is made by chemical depot personnel, by chemical maintenance units, by regimental or battalion officers, or by noncommissioned officers as authorized in connection with salvaging or repairing of masks. Inspectors check each component of the equipment after decontamination if decontamination has been necessary, and see that the equipment is repaired or discarded as authorized (FM 3–60).

36. Individual Inspection

Each individual is responsible for the condition of his own mask. Under the supervision of the unit commander, he must see that the facepiece collapses when he inhales with the air supply shut off. He must also make a minute visual inspection as explained in FM 21–40. This inspection includes examination of facepiece assembly, canister, carrier, and accessories. Defects in masks must be reported to higher authority by the individual.

37. Inspection Checklist

A list of points to be covered in visual inspection of M9 and M9A1 field protective masks is given below. The check points are more fully described in SB 3–30–10. Check points used will depend upon the type of inspection to be performed.

a. *Complete Mask Assembly.*
   (1) Proper position in carrier.
   (2) Correctness of fit.
   (3) Leakage around periphery of mask.
   (4) Canister, screwed tightly in canister mounting.

b. *Facepiece.*
   (1) *Faceblank.*
      (*a*) Permanent set affecting fit.
      (*b*) Tackiness, hardness, or brittleness (due to aging of rubber).
      (*c*) Dry rot (fine cracks).
      (*d*) Discoloration, dirt, or mold.
      (*e*) Holes, tears, and splits (especially around eyepieces).
      (*f*) Deflector tubes blocked or constricted.
   (2) *Tab assembly.*
      (*a*) Attachments (securely fastened).
      (*b*) Corrosion of metal parts.
      (*c*) Rivet damage.
      (*d*) Fabric mildewed or discolored.
   (3) *Eyepieces.*
      (*a*) *Eyerings.*
         1. Corrosion.
         2. Damage.
      (*b*) *Lenses.*
         1. Cracks, chips, scratches, breaks, or separation.
         2. Distortion or discoloration.
   (4) *Nosecup.*
      (*a*) Proper attachment to faceblank.
      (*b*) Missing or damaged inlet valve disks.
   (5) *Head harness.*
      (*a*) Broken straps.
      (*b*) Loss of elasticity of elastic webbing.
      (*c*) Webbing frayed or mildewed.
   (6) *Outlet valve.*
      (*a*) Freedom from foreign particles.
      (*b*) Proper seating of valve disk.
   (7) *Canister mounting.*
      (*a*) Freedom from foreign particles.
      (*b*) Proper seating of valve disk.

c. *Canister.*
   (1) Freedom from foreign particles.
   (2) Holes and large dents in canister body.
   (3) Rust or corrosion.
   (4) Nonmetallic rattling or shifting of granular filling when canister is shaken.

d. *Carrier.*
   (1) Body mildewed, stained, torn, or ripped.
   (2) Torn canister straps, accessory straps, and pockets.
   (3) Hardware missing or damaged.

CHAPTER 4
MAINTENANCE AND REPAIR PROCEDURES

Section I. MAINTENANCE

38. General

Categories of maintenance for the M9 and the M9A1 field protective masks conform to standard Army practice. Repair is performed in the lowest echelon of maintenance consistent with the nature of the repair; the repair parts authorized; the tools, equipment, and time available; the capabilities of the personnel; and the tactical situation.

39. Organizational Maintenance

Organizational maintenance is that maintenance authorized for and performed by a using organization on the equipment for which it is responsible. Organizational maintenance is broken down into two echelons.

a. First Echelon Maintenance. First echelon maintenance is performed by and is the responsibility of the individual. Under the supervision of the unit commander or by someone designated by him, the individual—

(1) Cleans his mask at least twice a year or oftener, as indicated by the condition of the mask (par. 28).

(2) At scheduled intervals, inspects his mask for tears, holes, and splits; and reports such defects to proper authority.

(3) Checks mask for signs of deterioration of rubber parts (par. 26).

(4) Notifies the proper authority of any damage that calls for repair or for replacement of parts.

b. Second Echelon Maintenance. Second echelon maintenance is that maintenance performed by trained personnel of the using organization. Second echelon maintenance incorporates scheduled preventive maintenance services, minor adjustments and replacements beyond those required of the first echelon, technical advice and assistance to first echelon, and assistance in command inspections.

c. Maintenance Permissible by Using Organization. Replacement by the using organization of canisters, head harnesses, nosecup valve disks, carriers, and antidim sets is permissible. The items can be obtained from the next higher echelon of maintenance that has an authorized stock of these parts. Masks requiring repairs are sent to higher echelons of maintenance.

40. Field Maintenance (Third and Fourth Echelons)

Field maintenance is that maintenance performed by maintenance units on masks intended for return to using organizations, station stocks, or replacement pools. Field maintenance includes repairing and replacement of parts as authorized. Maintenance may be accomplished either by production-line or job-type operations (FM 3–60). Depending on policy and allowances of tools and repair parts, the following repairs are permissible:

a. Faceblank. Repairing pinhole defects (cuts, tears, or holes less than $\frac{1}{16}$ in. in length) by vulcanizing.

b. Canister Mountings. Removing and replacing canister mountings.

c. Eyepieces. Removing and replacing eyerings and lenses.

d. Head Harnesses. Replacing head harnesses.

e. Tab Assemblies. Removing and replacing tab assemblies.

f. Outlet Valves. Removing and replacing outlet valves.

g. Canisters. Removing and replacing canisters.

h. Carriers. Making minor emergency repairs.

41. Depot Maintenance (Fifth Echelon)

Depot maintenance of masks is maintenance

performed in fixed installations. Depot maintenance normally involves repair of masks which become unserviceable in depot storage, and maintenance support of field maintenance shops when the volume of mask repair exceeds the field maintenance capabilities.

Section II. REPAIR PROCEDURES

42. General

This section describes repair procedures that may be carried out in the field on M9 and M9A1 field protective masks. The procedures described will be done at field maintenance or depot maintenance level. All repair procedures except repair of pinhole defects in faceblanks call for the replacement of worn or damaged parts with new parts. Pinhole defects in faceblanks are repaired by vulcanizing. Masks are tested for serviceability after they have been repaired. Repairs and replacement of parts are governed by authorization in effect at the time.

a. Application of Tape. When applying tape, as in the case of replacement of the canister mounting or the outlet valve, apply 1¼ turns of nonsurgical adhesive tape as a base for the wire clamp.

b. Application of Wire Clamp.

(1) Place wire clamp over taping.

(2) Insert hooked tool through larger loop of clamp into smaller or bent loop.

(3) Engage bent looped end of clamp with hook of tool and tighten wire clamp by moving tool so as to draw bent loop through larger loop. When tool can be forced no farther, remove it.

(4) Insert opposite end of tool into smaller loop in side opposite that from which hooked end was withdrawn.

(5) Press loop back against wire and withdraw tool.

c. Application of Outer Layer of Tape. After the wire clamp has been secured in place, apply 1¼ turns of nonsurgical adhesive tape over the wire clamp so that the overlapping quarter of a turn provides a double layer of tape at the point where the clamp is bent.

d. Application of Lubricant. When installing an outlet valve in the outlet valve stem of the faceblank, rubber cement, water, or saliva can be used as a lubricant. If rubber cement is used, the part must be inserted while rubber cement is still wet.

43. Canister Mounting

a. Removal.

(1) Remove outer layer of adhesive tape.

(2) Remove wire clamp.

(3) Remove bottom layer of adhesive tape.

(4) Release stem of faceblank from canister mounting by prying it loose carefully with screwdriver and then remove canister mounting (fig. 16).

b. Replacement.

(1) Apply thin coat of rubber cement around inside of stem of faceblank to receive canister mounting.

(2) Insert canister mounting into stem so that edge of stem is even with outer edge of canister mounting.

(3) Apply 1¼ turns of ⅜-inch adhesive tape around overlap of stem of faceblank and stem of canister mounting.

(4) Bind faceblank stem to canister mounting with wire clamp. Place clamp over adhesive tape which is wrapped around stem so that joint is over overlap of tape. Tighten wire clamp.

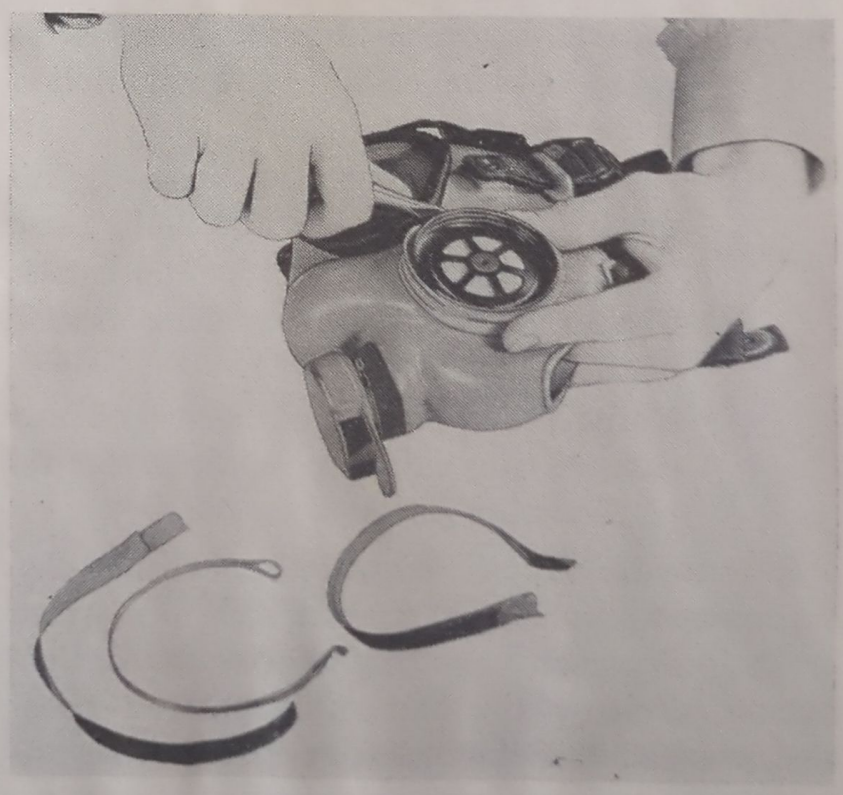


Figure 16. Releasing stem of faceblank from canister mounting.

(5) Cover wire clamp with 1¼ turns of ⅜-inch adhesive tape overlapped at joint of clamp.

(6) Test mask for leakage as prescribed in paragraph 23*a* (1).

44. Eyepieces

a. Removal.

(1) Insert eyering tool under each tab of eyering in turn and bend them back so that they are at right angles to front surface (fig. 17).

(2) Lift off eyering and remove lens from socket (fig. 18).

b. Replacement.

(1) Insert new lens in eyepiece socket, alining check points on faceblank and lens (fig. 19).

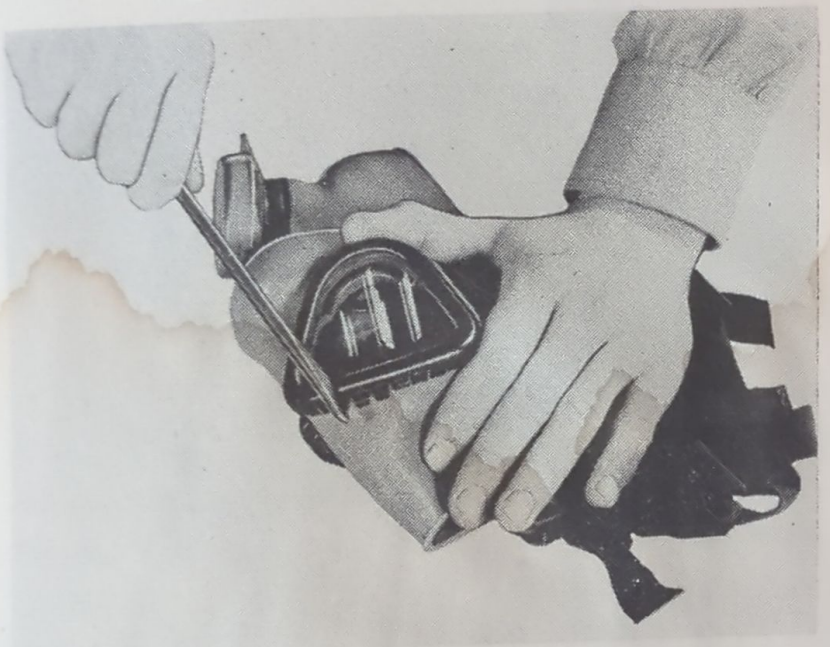


Figure 17. Bending tabs of eyering with eyering tool.

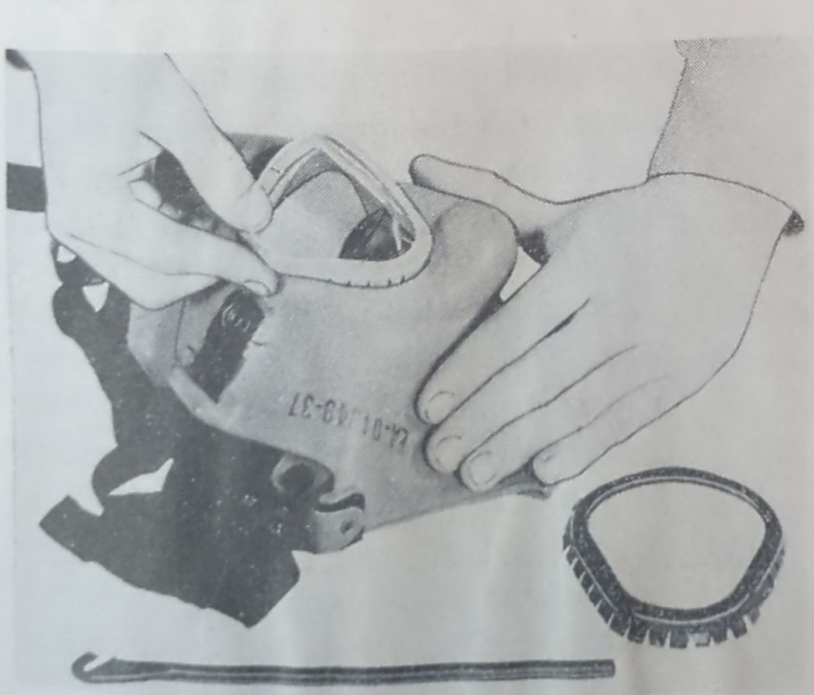


Figure 18. Removing lens from eyepiece socket.

(2) Place new eyering over lens and aline check points on eyering with check points on lens and faceblank (fig. 20).

(3) Crimp two tabs at each corner of eyering (fig. 21).

(4) Check alinement of eyering, faceblank, and lens through check points and, if correct, crimp down all tabs of eyering. Take care not to damage the faceblank or the protective coating of the eyering. Make sure that no rubber shows between the metal ring and the lens.

(5) Test the eyepieces for leakage with the M2 eyepiece leakage indicator.

45. Replacement of Head Harness

a. Remove old head harness by releasing straps from buckles of tab assemblies or by cutting straps.



Figure 19. Alining check points on faceblank and lens.



Figure 20. Alining check points on eyering with check points on lens and faceblank.

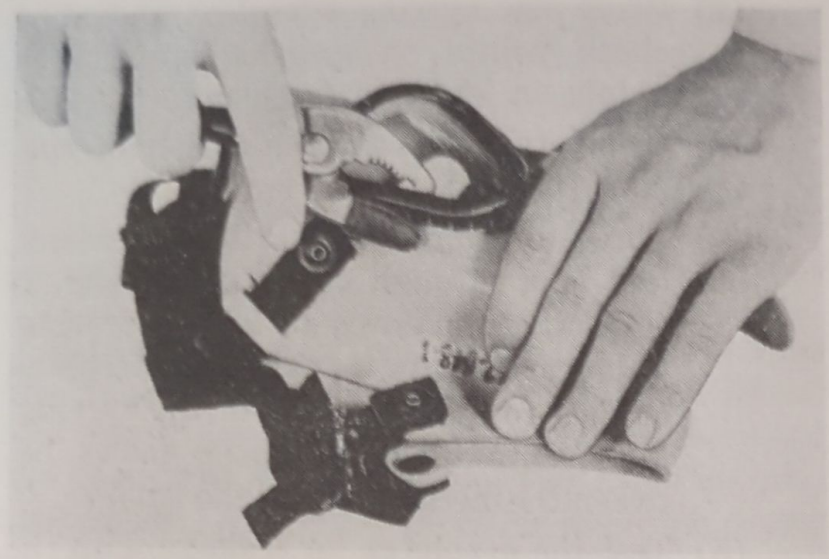


Figure 21. Crimping tabs of eyering.

b. Place head harness in facepiece so that straps and head pad are in proper position.

c. Thread ends of harness straps through buckles of tab assemblies by inserting clinch tips at an angle, since tips are wider than buckle opening (fig. 22). The strap must come from under the buckle through the slot near the tab attachment. Then pass it over the bar and through the other slot.

d. Pull straps about 1 inch through buckle.

e. Inspect all replacements by stretching head harness at head pad to see that all straps are of equal tension.

46. Tab Assemblies

a. General. Tab assemblies are secured to molded rubber faceblanks of masks to provide an anchorage for the straps of the head harness at the forehead, temple, and cheek positions.

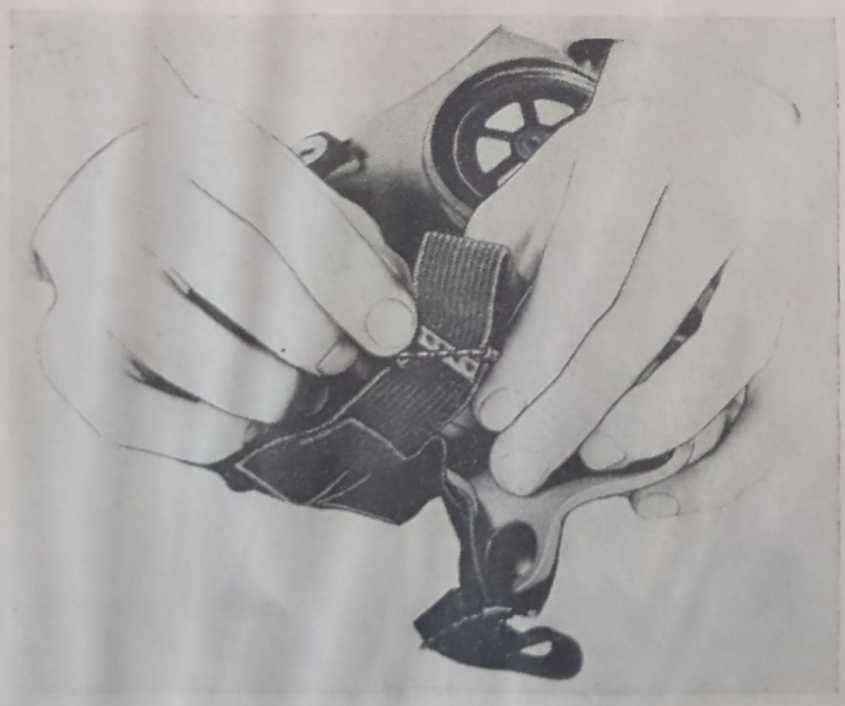


Figure 22. Threading harness strap through buckle.

b. Removal.

(1) Place inner part of facepiece down with head of button resting on a hard, flat surface.

(2) With facepiece held firmly, ream out the flanged end of snap fastener cap with a drill until cap and clinch plate (or clip) fall apart (fig. 23).

(3) Remove snap fastener cap and tab from facepiece.

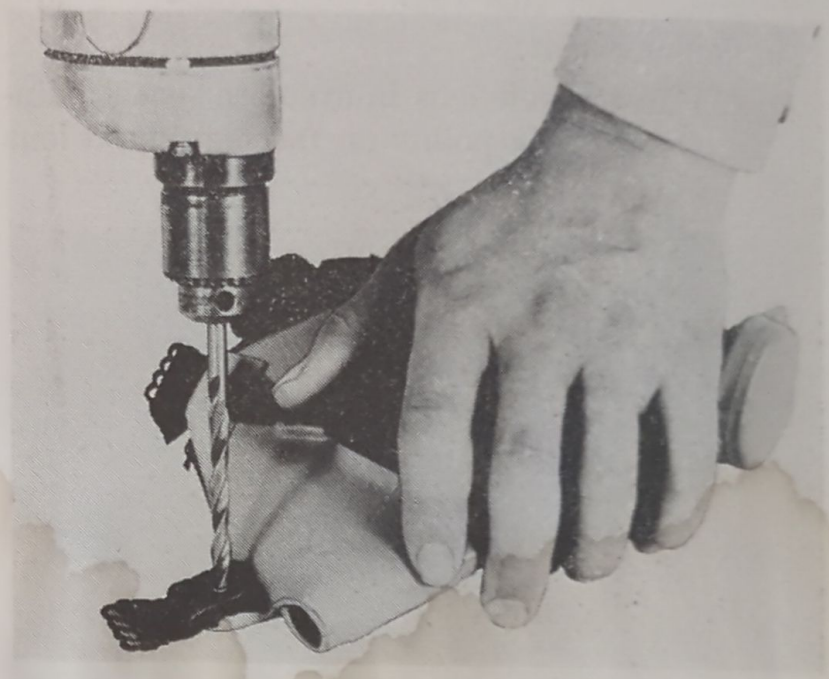


Figure 23. Reaming out flanged end of snap fastener cap.

c. Replacement.

(1) Lay new tab on piece of hardwood. Cut clean hole on center line of tab, three-eighths of an inch from end of tab, using belt cutting punch (fig. 24).

(2) Place folded edge of new tab toward faceblank. Aline hole in tab with hole in the rubber pad of faceblank. At temple position, pass tab through bridge in faceblank before alining hole in tab with hole in rubber mound of faceblank.

(3) From inside, push neck of new snap fastener cap through hole in faceblank and in tab (fig. 25).

(4) Place head of snap fastener cap in recess of button die and place new clinch plate (or clip as required) over neck of snap fastener cap hollow side up (fig. 26).



Figure 24. Cutting hole in tab with punch.

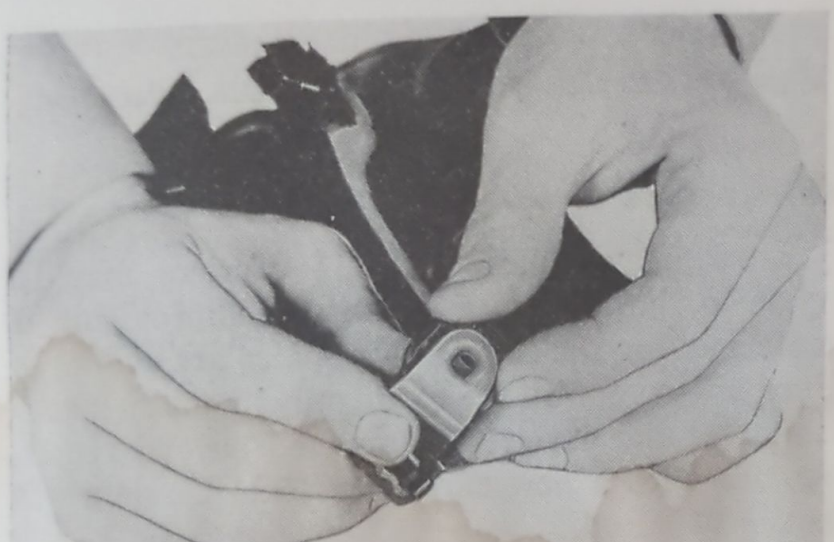


Figure 25. Pushing neck of snap fastener cap through faceblank, tab, and clip.

(5) Rivet clip securely by use of setting tool and hammer (fig. 27).

47. Outlet Valve

a. Removal.

(1) Disengage rubber cover from defective outlet valve by stretching parts underneath ports and sides over seat, and then detaching cover from lug on top of seat.

(2) Remove outer tape, wire clamp, and inner tape.

(3) Carefully loosen outlet valve from outlet valve stem with screwdriver and remove defective outlet valve.



Figure 26. Placing clip over neck of snap fastener cap.

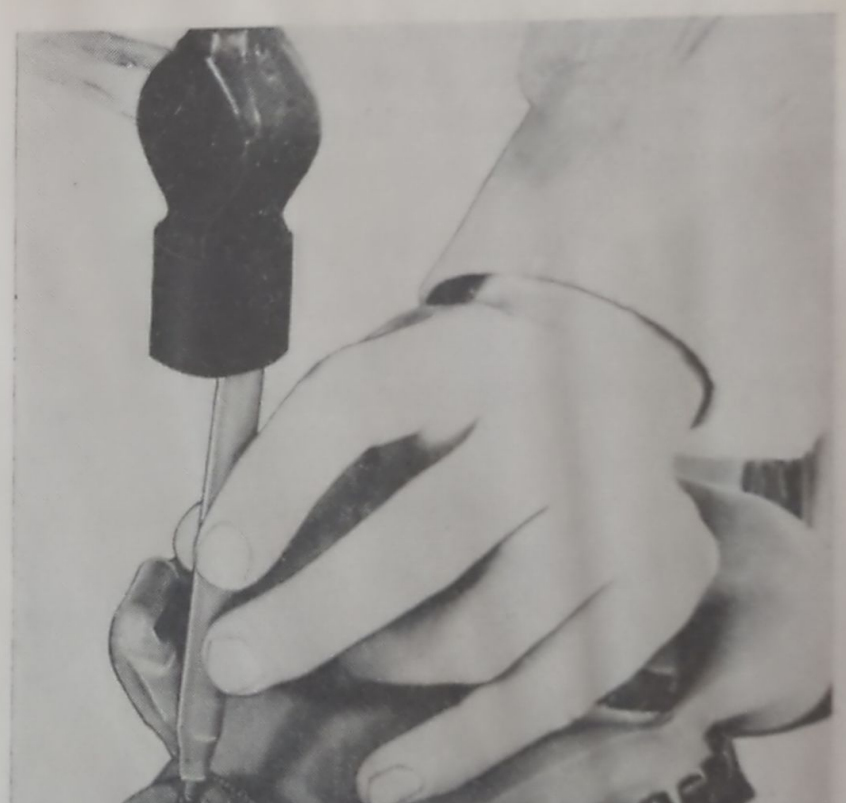


Figure 27. Riveting with setting tool and hammer.

b. Replacement.

(1) Apply thin coat of rubber cement to inside of nosecup stem.

(2) Remove rubber cover of new outlet valve and, while cement in outlet valve stem is still wet, insert and aline outlet valve.

(3) Apply tape, wire clamp, and outer layer of tape (par. 42).

(4) Test repaired facepiece with E14 outlet valve leakage indicator.

(5) Replace rubber cover over seat of outlet valve (fig. 28) by stretching small hole at upper part of cover over lug on seat, and then stretching under part and sides of cover over body of seat.

48. Canister Replacement

a. Unscrew canister and remove from canister mounting. Screw new canister into canister mounting. Be sure that it is screwed in tightly and is seated firmly.

b. Test to insure gastight seal by placing palm of hand over air inlet and inhaling. This should collapse mask on face. If required seal is not obtained, report this fact to higher authority. Replace defective mask.

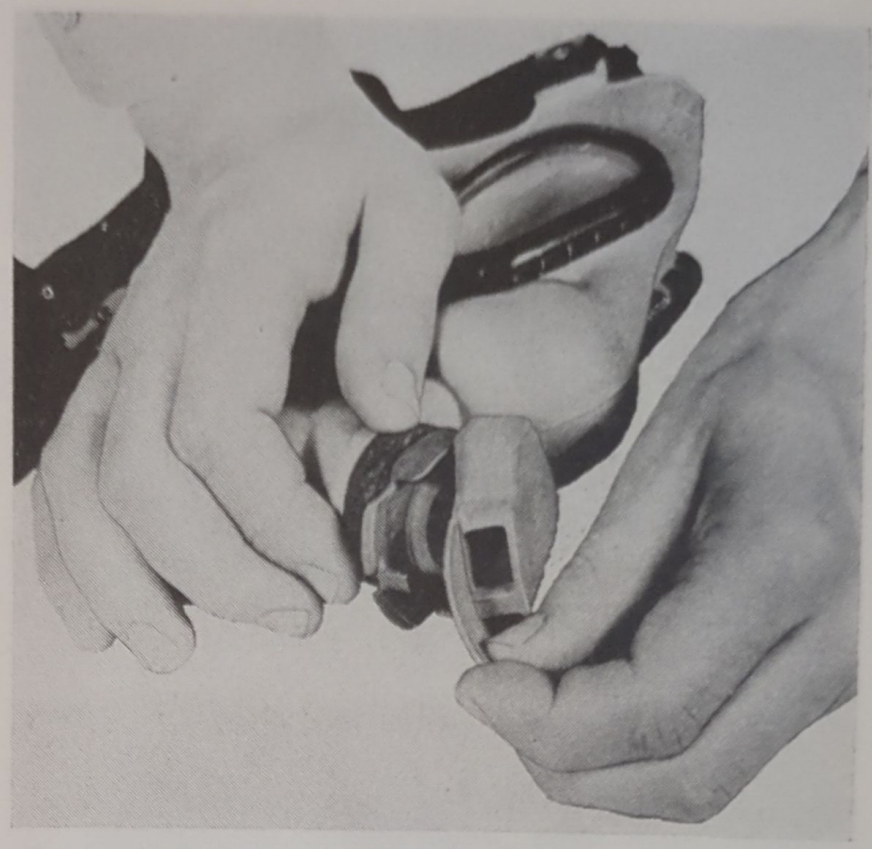


Figure 28. Replacing rubber cover of C15 outlet valve.

49. Carriers

Emergency repairs to M11 carriers may be made to the extent of sewing or improvising if materials for the necessary repairs are available. Permanent repairs are made only by maintenance units. If the carrier is damaged beyond repair, replace with a new carrier. C15R1 carriers will not be repaired.

CHAPTER 5
SHIPMENT AND STORAGE AND DESTRUCTION TO PREVENT ENEMY USE

Section I. SHIPMENT AND STORAGE

50. Shipment

M9 and M9A1 field protective masks are packaged in the same manner. Each mask is packaged as a unit in a fiberboard or metal container. Six units are packed in a wood box for shipment. The weight of a shipping unit is approximately 55 pounds, and displacement is 3.3 cubic feet.

51. Storage

a. General. Store masks in a cool, dry place.

b. Station Storage. New masks are stored in original containers. Facepieces are provided with faceforms to preserve the contour of the facepieces. If used masks are stored at stations for reissue, detach canisters from facepieces. Insert a faceform, crumpled newspaper, or properly bent cardboard in each facepiece; then insert the canister in the facepiece. Facepieces stored in carriers are then packed loosely in boxes or similar containers. If necessary to store on shelves, under no condition will masks be stored more than five high.

c. Storage by Using Unit or by Individual. When not in use, the facepiece with canister attached must be placed properly in the carrier. In garrison, masks may be held in unit storage or by the individual. Masks in unit storage will be stored in a cool, dry place, preferably hung by the dee ring of the carrier free from outside pressure. Masks in the possession of the individual will be hung up or placed on a shelf free from outside pressure.

Section II. DESTRUCTION TO PREVENT ENEMY USE

52. General

Masks issued to the individual will not be destroyed. When capture or abandonment of stocks of masks to the enemy is imminent, the responsible commander makes the decision to destroy or render the masks ineffective. Orders are then issued which cover the desired method of destruction. The same method of destruction will be employed for all masks.

53. Destruction by Mechanical Means

Use any tools which may be available, such as sledge hammers, picks, axes, or knives to destroy canisters, eyepieces, and other metal or plastic parts. Slash facepieces.

54. Destruction by Burning

Saturate masks and carriers with oil and ignite.

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APPENDIX I
REFERENCES

AR 750–8	Command Maintenance Inspections.
DA Pam 108–1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA Pam 310–1	Index of Administrative Publications.
DA Pam 310–3	Index of Training Publications.
DA Pam 310–4	Index of Technical Manuals, Technical Regulations, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
DA Pam 310–5	Index of Graphic Training Aids and Devices.
SR 40–340–5	Spectacles.
SR 320–5–1	Dictionary of United States Army Terms.
AR 320–50	Authorized Abbreviations.
FM 3–60	Chemical Maintenance Company.
FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–15	Care and Use of Individual Clothing and Equipment.
FM 21–30	Military Symbols.
FM 21–40	Defense Against CBR Attack.
FM 21–41	Soldier's Manual for Defense Against CBR Attack.
FM 21–48	CBR Training Exercises.
TM 3–205	Protective Masks and Accessories.
TM 3–220	Decontamination.
TM 3–290	Individual Protective and Detection Equipment.
TM 3–304	Protective Clothing and Accessories.
TM 3–522–15P	Repair Parts List for Mask, Protective, Field, M9 (FSN 4240–368–6087 thru FSN 4240–368–6092 Incl); Mask, Protective, Field, M9A1 (FSN 4240–368–6093 thru FSN 4240–368–6098 Incl).
TM 8–285	Treatment of Chemical Warfare Casualties.
TB CW 13	Effects of Extreme Cold on CWS Materiel.
TB 3–205–2	Winterizing Kit, Protective Mask, M1.
SB 3–30–10	Gas Mask and Gas Mask Canister; Serviceability Standard.

APPENDIX II

MAINTENANCE ALLOCATION CHART

Mask, Protective, Field, M9
and
Mask, Protective, Field, M9A1
Date of Preparation: 5 July 1957

1. Explanation of Columns

a. Column 1, Reference Numbers. Column 1 lists reference numbers which are used to identify components, assemblies, and subassemblies with the next higher assembly. Reference numbers are assigned in multiples of 100 in sequence to components or assemblies listed in column 2, beginning with reference number 100 for the first component or assembly, 200 for the second, and so on. Subassemblies of the first component or assembly are numbered in sequence from 101 to 199; subassemblies of the second assembly, 201 to 299; and so on. Parts of subassemblies are numbered in sequence by a decimal following the number of the component. For example, the third maintainable part of a subassembly numbered 102 would be numbered 102.3.

b. Column 2, Components and Related Maintenance Operations. Column 2 lists components, assemblies, subassemblies, and parts on which maintenance can be performed; and the maintenance operations which are authorized to be performed on each.

c. Columns 3, 4, 5, and 6, Maintenance Echelon. Columns 3, 4, 5, and 6 indicate by an "X" the lowest echelon authorized to perform the prescribed maintenance operation.

d. Column 7, Remarks. Column 7 is used for special instructions.

2. Use of Chart

The Maintenance Allocation Chart will be used in conjunction with this manual. Determine from the chart the echelon that is authorized to perform the required maintenance operation. Refer to the text in the appropriate part of the manual for instructions in performing the authorized maintenance operation defined below.

SERVICE	To clean, to preserve, and to replenish fuel and lubricants.
ADJUST	To regulate periodically to prevent malfunction.
INSPECT	To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.
TEST	To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.
REPLACE	To substitute serviceable assemblies, subassemblies, and parts for unserviceable component parts.
REPAIR	To restore to a serviceable condition by replacing unserviceable parts or by any other action required utilizing tools, equipment, and skills available, to include welding, grinding, riveting, straightening, adjusting, etc.
ALINE	To adjust two or more components of an electrical system so that their functions are properly synchronized.
CALIBRATE	To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.
REBUILD	To restore to a condition comparable to new by disassembling the item to determine the condition of each of its component parts and reassembling it using serviceable, rebuilt, or new assemblies, subassemblies, and parts.
SYMBOL X	The symbol X placed in the appropriate column indicates the echelon responsible for per-

forming that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

SYMBOL %% The symbol %% indicates that second echelon personnel may perform the particular maintenance operation provided the request originates from organizational level and is specifically authorized by the direct support technical service officer. In no case will performance of a "double percent" operation be directed by the direct support technical service officer, and in no case will a "double percent" operation authorize stockage of parts at organizational level.

Maintenance Allocation Chart for Mask, Protective, Field, M9 and Mask, Protective, Field M9A1

(1) Reference No.	(2) Component and related maintenance operations	Maintenance echelon (3) 1st	(4) 2d	(5) 3d and 4th	(6) 5th	(7) Remarks
100	Facepiece:					
	Service	X				
	Inspect	X				
	Test			X		
	Repair			X		
101	Harness, head:					
	Replace		X			
102	Disk, valve, nosecup:					
	Replace		X			
200	Canister:					
	Replace		X			
300	Carriers:					
	Replace		X			
	Repair (M11 carrier only)			X		
301	Set, antidim:					
	Replace		X			

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By Order of *Wilber M. Brucker*, Secretary of the Army:

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Chief of Staff.

Official:

HERBERT M. JONES,
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The Adjutant General.

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Units org under fol TOE:
3–97, Cml Lab

NG: State AG; units—same as Active Army.

USAR: None.

For explanation of abbreviations used, see AR 320–50.

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