Description of document:	**Three (3) Reports on the Development of Gas Masks for Dogs**
Requested date:	27-December-2005
Posted date:	16-October-2007
Title of Document	See following page
Date/date range of documents:	1945 - 1953
Source of document:	US Army Research, Development, and Engineering Command ATTN: AMSSB-SCC, Bldg. E-4435 5183 Blackhawk Road Aberdeen Proving Ground, MD 21010-5424 (410) 436-2289
Notes:	Still heavily redacted after more than 50 years

Technical Division Memorandum Report
Development of Dog Gas Mask Canisters E32R1, E32R11, E32R12, E41, and E41R1
Project D 6.6-1 Dog Gas Mask
Chemical Warfare Service
Technical Command
Edgewood Arsenal, Maryland
August 20, 1945

Interim Report
Development of Dog Canister E40R4 (Modified Dog Canister M12)
Project 4-80-01-002
Protective Division
Chemical Corps
Chemical and Radiological Laboratories
Army Chemical Center, Maryland
9 September 1952

Final Engineering Test No.61
Canister, Dog, E40R4
Project 4-80-01-002
Chemical Corps
Chemical and Radiological Laboratories
Army Chemical Center, Maryland
11 February 1953

T.D.M.R. No. 1099

Copy No. 1

Project: D 6.6-1

TECHNICAL DIVISION MEMORANDUM REPORT

Development of Dog Mask Canisters E32R1, E32R11, E32R12, E4J and E4JR1

by

(E)(6)

CHEMICAL WARFARE SERVICE

TECHNICAL COMMAND / EDGEWOOD ARSENAL, MD.

Control No.
5004-1099

ABSTRACT

OBJECT:

The object of project D 6.6-1, Dog Gas Mask, was "to develop a dog gas mask to give suitable protection to dogs used in warfare and in anti-sabotage activities."

The object of the work described in this report was to develop a dog gas mask canister that would have a satisfactory balance of the following characteristics: resistance, size, weight, gas protection, and smoke protection.

RESULTS:

Five dog gas mask canisters were developed during this work. They were designated E32R1, E32R11, E32R12, E41, and E41R1. The first three are worn in the snout position and the last two in pairs, one on each side of the muzzlepiece. Table 1 gives the physical data and Table 2 the smoke protection of these canisters. The protection against gas is given in Tables 3 through 7 in Appendix A of this report. Information on the standard M12 dog gas mask canister is included in some of these tables for comparison. Appendix B contains photographs showing various types of dog gas masks and construction of all the above types of canisters in addition to the German RFE 41 and U.S. M12 dog gas mask canisters.

CONCLUSIONS:

(b)(3):10 USC 130

RECOMMENDATIONS:

The project under which this work was accomplished was cancelled before canister E41R1 was standardized. In case another project is set

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ABSTRACT (continued)

(b)(3):10 USC 130

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Development of Dog Mask Canisters E32R1, E32R11, E32R12, E41 and E41R1

I. Introduction:

A. Object:

The object of project D 6.6-1, Dog Gas Mask, was "to develop a dog gas mask to give suitable protection to dogs used in warfare and in antisabotage activities."

The object of the work described in this report was to develop a dog gas mask canister that would have a satisfactory balance of the following characteristics: resistance, size, weight, gas protection, and smoke protection.

B. Authority:

General authority for this work is given by project D 6.6-1, Dog Gas Mask, and project D 8.1, Prevention and Treatment of Gas Casualties (18). Specific authority is contained in 4th Ind. CWS 454/126 (8/21/42), EA 454.3/2, War Dept., OCCWS, 9 Sept. 1942, to CO, CWS, EA, Attn: C, R & DD, on letter SPQOV 454.3 Equipment, Dog, QMG, 21 Aug. 1942, subject: Gas Protection Equipment for Dogs, to C, CWS, ASF. (18)

II. Historical:

A. U.S. Dog Masks.

1. Sack-Type Dog Mask:

A sack-type mask for dogs was developed during World War I (1), (2). The dog obtained gas protection by breathing the contaminated air through the sack-type body of the mask that was made of eight layers of cheese cloth, five of which were impregnated with simplexene (3) and three with complexene (3) solution (1), (2). There are no data available on the gas absorption of this mask but it is judged that its protection would be poor, as horse masks constructed similarly give little protection. This type of dog mask gave practically no protection against irritant smokes.

No work was done on the dog gas mask from World War I until 1926 when a second sack-type mask similar to the first one was developed and shipped to the Chemical Officer, Philippines Dept. (4).

No further work was done on the dog mask until in Aug. 1942 when the Quartermaster General informed the C, CWS, that there were strong

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indications that the use of dogs in the military service would be greatly expanded and inquired if protective equipment for dogs were available or being developed (6). Work was then authorized by 4th Ind. on letter (6). Two experimental dog gas masks were designed as follows.

2. Dog Gas Mask E2R3:

This mask employed a noncombatant canister M2. The resistance of the canister to air flow was too high for practical purposes.

3. Dog Gas Mask E4R3:

This mask was constructed so that inspired air passed through that part of the muzzlepiece which consisted of 3 plys of permeable cloth with type A charcoal packed between the plies. There are no data available as to the gas and irritant smoke protection afforded by this mask. It is believed, however, that it would give practically no protection against smoke as the mask did not contain a filter. The charcoal would probably be vulnerable to wetting by rain.

4. Dog Gas Mask E43R2:

Project D 6.6-1, Dog Gas Mask, was included in the Project Program for 1942. The E43R2 mask was the first acceptable dog gas mask developed under this project. The canisters on this mask were designed by the Mine Safety Appliances Company for use in the Navy noncombatant mask. This mask was equipped with two Navy noncombatant canisters (designated E40), one on each side of the muzzlepiece as shown in photograph 11,562 (in appendix B). These canisters were placed in the position to reduce the pendulum effect which is very pronounced when the canister is attached to the end of the muzzlepiece as in the E12R8 mask (1), photograph 11,220, Appendix B. Mask E43R2 was given engineering tests at the War Dog Reception and Training Center, San Carlos, California. Reports on these engineering tests dated 13 and 19 April 1944 (15), (16) recommended that the E43R2 type mask be adopted as standard. As a result of these recommendations both the mask and the canister were improved and given the designations of E43R3 for the muzzlepiece and E40R2 for the canister. The complete mask was standardized 4 August 1944 as the M6-12-8 Dog Gas Mask. The canister was standardized as Dog Gas Mask Canister, M12.

(b)(3):10 USC 130

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B. Foreign Gas Masks for Dogs:

1. German Dog Masks:

During World War I the Germans (9), (10) had a dog mask that was similar to the American mask at that time (sack type) (1), (2).

The first definite reference to the present German dog mask HFE 41 is contained in a translation (11) of the German manual H.DV. 395/15-Z.DV. 95/15, dated October 1942, on gas protective equipment for dogs. It contains a picture of a dog wearing the mask which is equipped with two canisters, one on each side of the muzzlepiece. The above report states: "The dog mask 41 protects the face, eyes, and respiratory tract of the dog from all war gases. The service life of the respirator container is generally quite sufficient to protect the dog for many hours - depending on the gas concentration. As a guide to changing the container, it may be said in general that it should be done by the dog's leader when he changes his own."

Report (12) contains a general description of the German dog mask 41 and the method of attaching the canisters to the muzzlepiece.

Report (13) contains a detailed description and photographs of the German dog mask 41 and of the companion canisters (designated HFE 41).

Photograph 11,563, Appendix B, shows the German dog mask 41 and the method of attaching the canister to the muzzlepiece. This photo also shows a sectionalized German dog canister HFE 41. It will be seen from a study of this photo and of photo 11,220, Appendix B, that the German HFE 41 and the U.S. M41R1 (described later in this report) are similar in many respects. The German canister contains a concentrically pleated filter similar to the filter used in their other service canisters. Each of the two canisters on the German mask contained 70 ml. of absorbent. The smoke protection of the canister was excellent and the gas absorption was considered adequate for a dog canister, with the possible exceptions of CK and AC which were low.

2. British Dog Masks:

The Porton report on the American dog mask E12R8 dated 27 April 1944 (14) states that the British dog mask canister is mounted underneath the muzzlepiece near the neck. It is also stated in this report that the resistance to air flow of the U.S. dog respirator E12R8 (this mask employed dog canister E32R11) compares favorably with that of the British.

3. Russian Dog Mask:

The only reference that could be found on the Russian dog mask was in a report on captured German intelligence summaries on foreign C.W. from Jan. - Nov. 41 (8). This report does not give any description of the Russian dog mask; it merely states that the mask is inferior to the German dog mask.

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XII. Theoretical:

A. Approved Military Characteristics:

(b)(3):10 USC 130

B. Protection against CWS Agents:

(b)(3):10 USC 130

C. Protection against Irritant Smoke:

(b)(3):10 USC 130

D. Physical Requirements of Dog Gas Mask Canister:

A dog gas mask canister should meet the following physical requirements:

1. Weight:

Should be as light as possible consistent with achieving the desired gas and smoke protection.

2. Bulk:

(b)(3):10 USC 130

3. Ability to Withstand Rough Usage:

(b)(3):10 USC 130

4. Ease of Attachment to Muzzlepiece:

(b)(3):10 USC 130

5. Projection of Canister beyond Muzzlepiece:

(b)(3):10 USC 130

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6. Exclusion of Rain or Moisture:

The canister should exclude rain, or moisture from wet [redacted].

7. Protection against Entrance of Foreign Matter into Canister:

(b)(3):10 USC 130

IV. Experimental:

A. Materials:

(b)(3):10 USC 130

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B. Equipment for Constructing and Assembling Canisters:

1. Conventional machine shop tools and equipment, including metal spinning tools.

2. Absorbent volume meter E2R2.

(b)(3):10 USC 130

C. Equipment for Testing Canisters:

(b)(3):10 USC 130

3. E2 intermittent-flow canister testing machine.

4. Continuous-flow canister testing machine.

5. E5R2 methylene blue smoke testing machine.

D. Procedure:

1. Canister Tests against Gas and Irritant Smokes:

The gas and smoke tests were made according to the appropriate sections of CWS Pamphlet No. 2 except for variations in air flow, gas concentrations, and humidities as shown in the tables.

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2. Resistance Measurement of Canisters:

(b)(3):10 USC 130

3. Volume Measurements:

(b)(3):10 USC 130

4. Rough-Handling Tests:

(b)(3):10 USC 130

E. Design of Canisters:

(b)(3):10 USC 130

1. Design of Canister E32R12:

(b)(3):10 USC 130

2. Design of Canister E12R1:

(b)(3):10 USC 130

(b)(3):10 USC 130

a. Canister Neck:

(b)(3):10 USC 130

b. Check Valve:

(b)(3):10 USC 130

c. Canister Inlet:

(b)(3):10 USC 130

3. Design of Canister E32R11:

(b)(3):10 USC 130

4. Design of Doc Gas Mask Canister E/1:

The mask equipped with this type canister is shown in photograph no. 11,220. Construction of the canister is shown in photographs 11,218 and 11,220, in Appendix B.

(b)(3):10 USC 130

a. Receptacle:

(b)(3):10 USC 130

(b)(3):10 USC 130

b. Air Purifier:

(b)(3):10 USC 130

c. Cover:

(b)(3):10 USC 130

d. Shield:

This item is the same as formerly used on the M11 combat canister and is shown in CWS drawing no. A5-3-603.

5. Design of Canister E/1R1:

(b)(3):10 USC 130

f. Assembly of Canisters:

(b)(3):10 USC 130

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(b)(3):10 USC 130

2. Assembly of Canisters E32R11, E32R12, E41, and E41R1:

(b)(3):10 USC 130

G. Results:

1. Canister Data:

The results of tests and physical data on canisters E32R1, E32R11, E32R12, E41, and E41R1 are given in tabular form in Appendix A. The tables supply data as follows:

a. Table no. 1 gives physical data on all the types of dog gas mask canisters discussed in this report.

b. Table no. 2 gives the (b)(3):10 USC 130 of various types of experimental dog gas mask canisters.

c. Table no. 3 gives the (b)(3):10 USC 130 protection of the E41R1 canister under various test conditions. A few PS and AC test results on canisters E32R12 and E41 are included for comparison.

d. Table no. 4 shows a (b)(3):10 USC 130 lives of canisters E41R1 tested singly and in parallel.

e. Table no. 5 gives the comparative (b)(3):10 USC 130 (b)(3):10 protection of dog gas mask canisters M12 and E41R1.

f. Table no. 6 gives the (b)(3):10 USC 130 of canisters E32R12 and E41R1 before and after rough handling.

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g. Table no. 7 shows the comparative performance of dog gas mask canister E41R1 and the German HFE 41 dog canisters when tested against (b)(3):10 USC 130

2. Photographs:

Appendix B contains the following photographs of dog gas mask canisters, masks, and canister filling apparatus:

a. Photograph no. 11,213 shows dog canister E41R1 assembled to muzzlepiece and sectionalized.

b. Photograph no. 11,218 shows construction and comparative size of canisters E41 and E41R1.

c. Photograph no. 11,219 shows construction of dog gas mask canisters E32R1, E32R11, and E32R12.

d. Photograph 11,220 shows dog gas mask canisters E32R11, E41, and E41R1 attached to dog gas mask muzzlepieces E12R8 and E43R3.

e. Photograph no. 11,085 shows gravity-type filling apparatus.

f. Photograph no. 11,562 shows standard dog mask canister M12 sectionalized and also attached to the standard muzzlepiece M6.

g. Photograph 11,563 shows German dog gas mask canister HFE 41 sectionalized and assembled to muzzlepiece.

3. Drawing:

An assembly drawing of dog canister E41R1 is contained in Appendix E. This drawing, EXC 79-1, gives the major dimensions of the metal parts.

V. Discussion:

A. Dog Gas Mask Canisters E32R1, E32R11, E32R12:

(b)(3):10 USC 130

(b)(3):10 USC 130

B. Dog Gas Mask Canisters E/1:

(b)(3):10 USC 130

C. Dog Gas Mask Canisters E/1R1:

(b)(3):10 USC 130

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(b)(3):10 USC 130

VI. Conclusions:

(b)(3):10 USC 130

VII. Recommendations:

(b)(3):10 USC 130

VIII. Bibliography:

1. B.M. XXXI-53, page 806.

2. C.W.M. Volume Thirty Eight, Part II, page 136.

3. C.W.M. Volume Thirty Eight, pages 130 to 135, inclusive.

4. Ltr. CWS 470.72/3990, Hq. Philippine Dept., 23 Jan. 1926, to C, CWS.

5. 1st Ind., EA 470.72/1914, A.G. 4274.25 (4-2-40) M-D, to CWS, on ltr. C, CWS, 2 April 1940, subject: Military Use of Dogs to the A.G.

[redacted]

6. Ltr. SPQOR 454.3 Equipment, Dog, QMG, 21 Aug. 1942, subject: Gas Protection Equipment for Dogs, to C, CWS, ASF.

7. 1st Ind., SPRMD 426.4 (12-4-42) CG, SOS, 9 Dec. 1942 to C, CWS, on ltr. SPCVL (12-4-42) 319.1, C, CWS, .. Dec. 1942, subject: Military Requirement and Military Characteristics for Dog Gas Mask, Item 641, CWTC Minutes, CG, ASF; see also CWTC Min. 604.

8. ETF - 550 Eg - 63, page 5C.

9. C.L. 114 3.8.1918.

10. Z-395, August 26, 1918 (Zanetti report).

11. Z-8564, August 11, 1944, pages 3, 4, and 15 (British report).

12. ETF 550, G-376, August 30, 1944, page 2.

13. 44th Chemical Lab. Co. - C.M.T.R. 45, 25 January 1945.

14. Ptn. 2528 (U. 5195) 27 April 1944.

15. ETF 634-2, 13 April 1944.

16. ETF 634-1, 19 April 1944.

17. Project Specification D 6.6-1, Dog Gas Mask.

18. T.D.M.R. 744, 4 Oct. 1944.

19. M.I.T.-M.R. No. 82, 16 June 1944, page 23.

20. Quarterly report for Jan., Feb., March 1941, project E 7a-3, Job 7.

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APPENDIX A

Table 1 - Physical Data on Dog Canisters E32R12, M12, E41, and E41R1.

Table 2 - Performance of E32R12, M12, E41, and E41R1 Dog Canisters vs. Methylene Blue Penetration.

Table 3 - Performance of E32R12, E41, and E41R1 Dog Canisters vs. Gas.

Table 4 - Comparison of Lives of Canister E41R1 Tested Singly and in Pairs.

Table 5 - Performance of M12 and E41R1 Dog Canisters vs. Gas.

Table 6 - Performance of Canisters E32R12 and E41R1 after 5 Minutes' Rough Handling.

Table 7 - Performance Comparison of the U.S. E41R1 and the German HFE 41 Dog Canisters.

(b)(3):10 USC 130

Table 1

Physical Data on Dog Canisters E32B12, M12, M41 and M41A1

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Table 2

Performance of E32R12, M12, E4.1, and E4.1R1 Dog Canisters

(b)(3):10 USC 130

Canister	(b)(3):10 USC 130
E32R12	
M12	
E4.1	
E4.1R1	

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Table 3

Performance of E32R12, E41, and E41R1 Dog Canisters vs. Gas

(b)(3):10 USC 130

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Table 4

Comparison of Lives of Canister E4R1 Tested Singly and in Pairs

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Table 5

Performance of M12 and E4R1 Dog Canisters vs. Gas

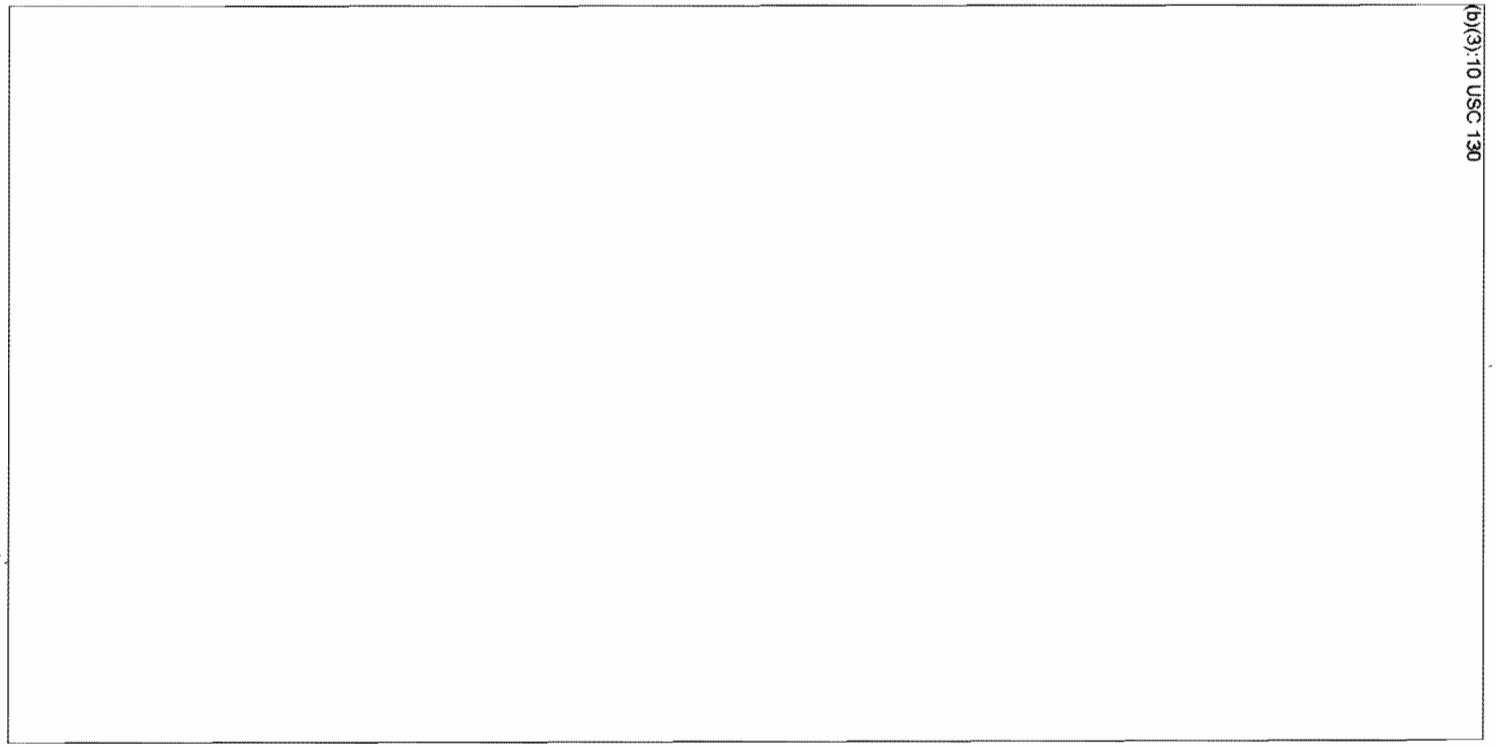

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Table 6

Performance of Canisters E12R12 and E4IR1 after 6 Minutes' Rough Handling

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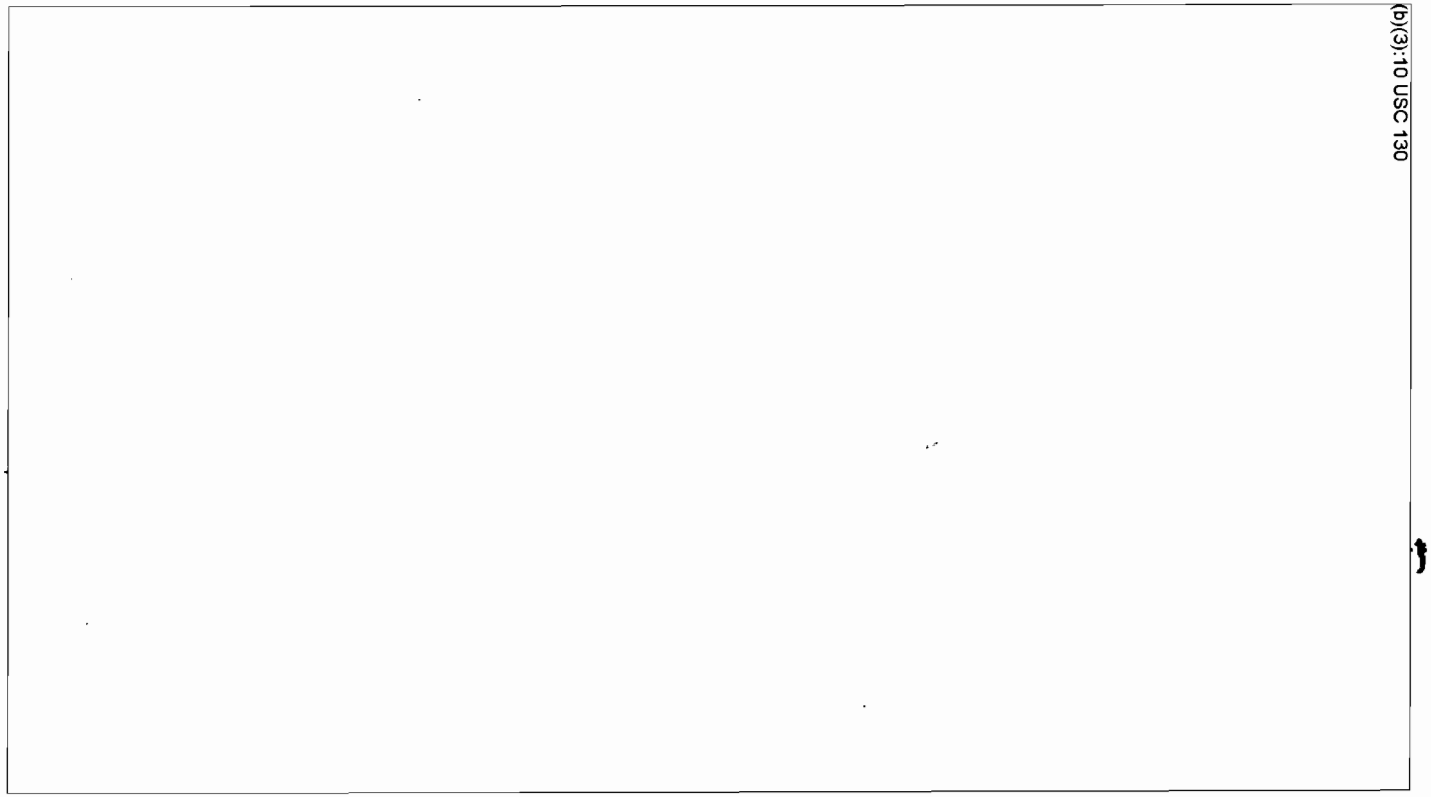
Table 7

Performance Comparison of the U.S. E41R1 and the German HFE 41 Dog Canisters

(Performance vs. Gas)



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APPENDIX B

Photograph 11,213 - Dog Gas Mask Canister E41R1.

Photograph 11,218 - Dog Canisters E41 and E41R1.

Photograph 11,219 - Dog Canisters E32R1, E32R11, and E32R12.

Photograph 11,220 - Dog Gas Mask Canisters E32R11, E41, and E41R1 attached to Dog Gas Mask Muzzlepieces E12R8 and E43R3.

Photograph 11,085 - Gravity-Type Filling Apparatus for Chemical Containers for Combat Canister M11.

Photograph 11,562 - Dog Gas Mask Canister M12 - Navy Noncombatant Canister.

Photograph 11,563 - German Dog Gas Mask Canister HFE 41.

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Photograph 11.213

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Dog Gas Mask Canister M4IR1

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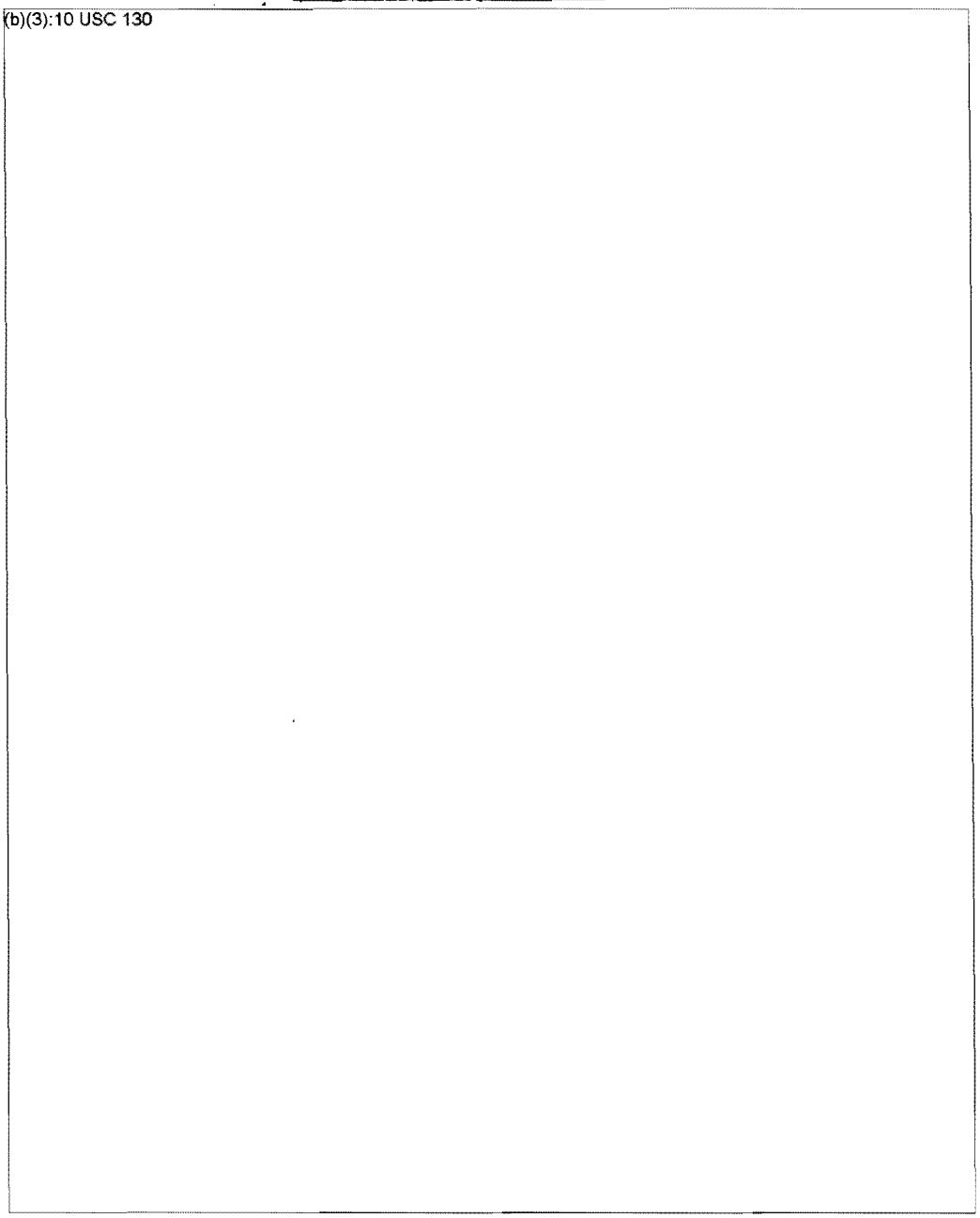

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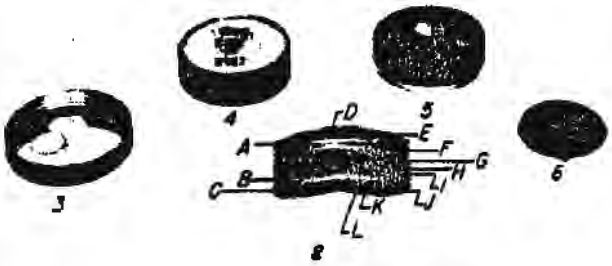

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Dog Gas Mask Canister E41R1

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Photograph 11,218

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Dog Canisters E41 and E41R1

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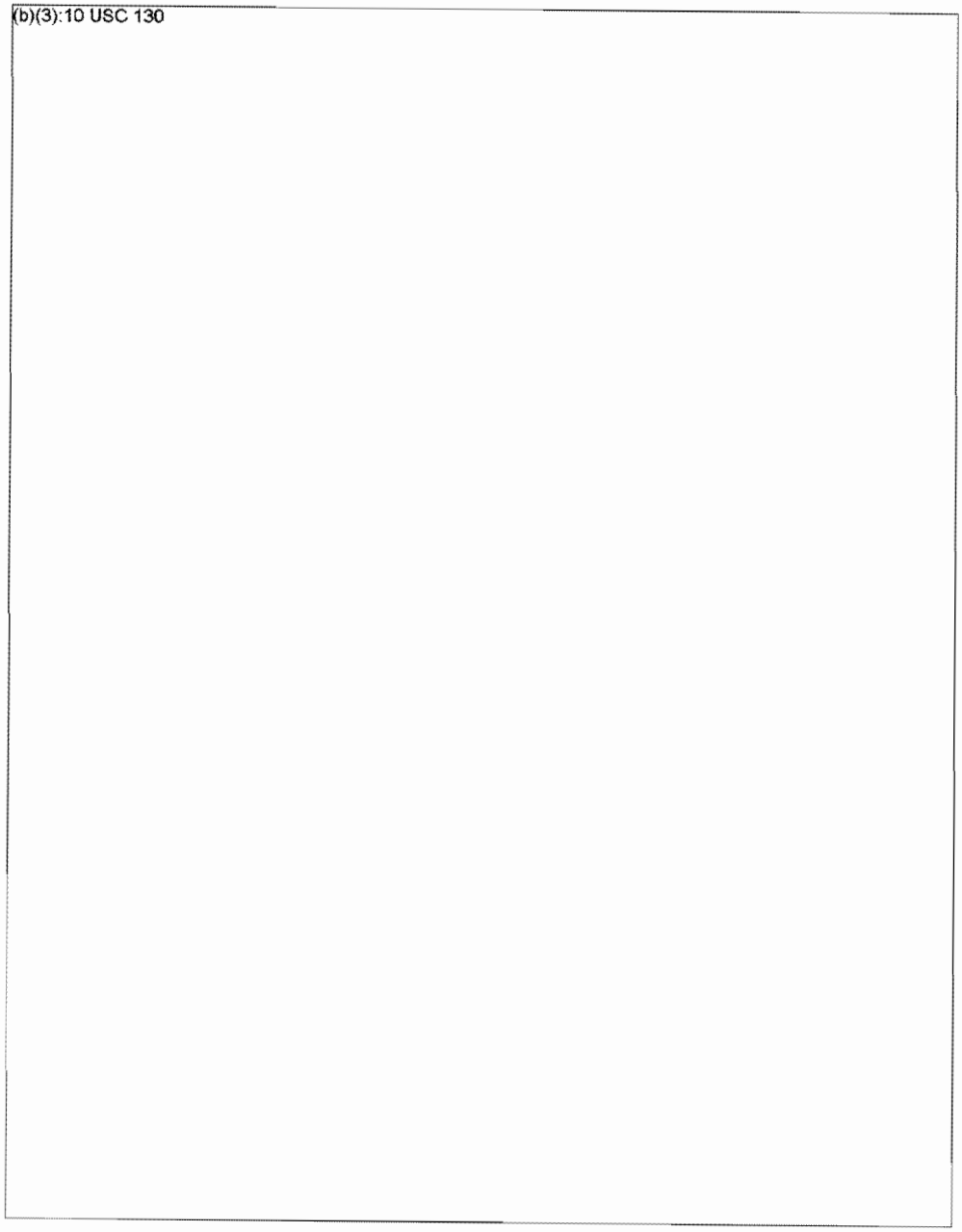

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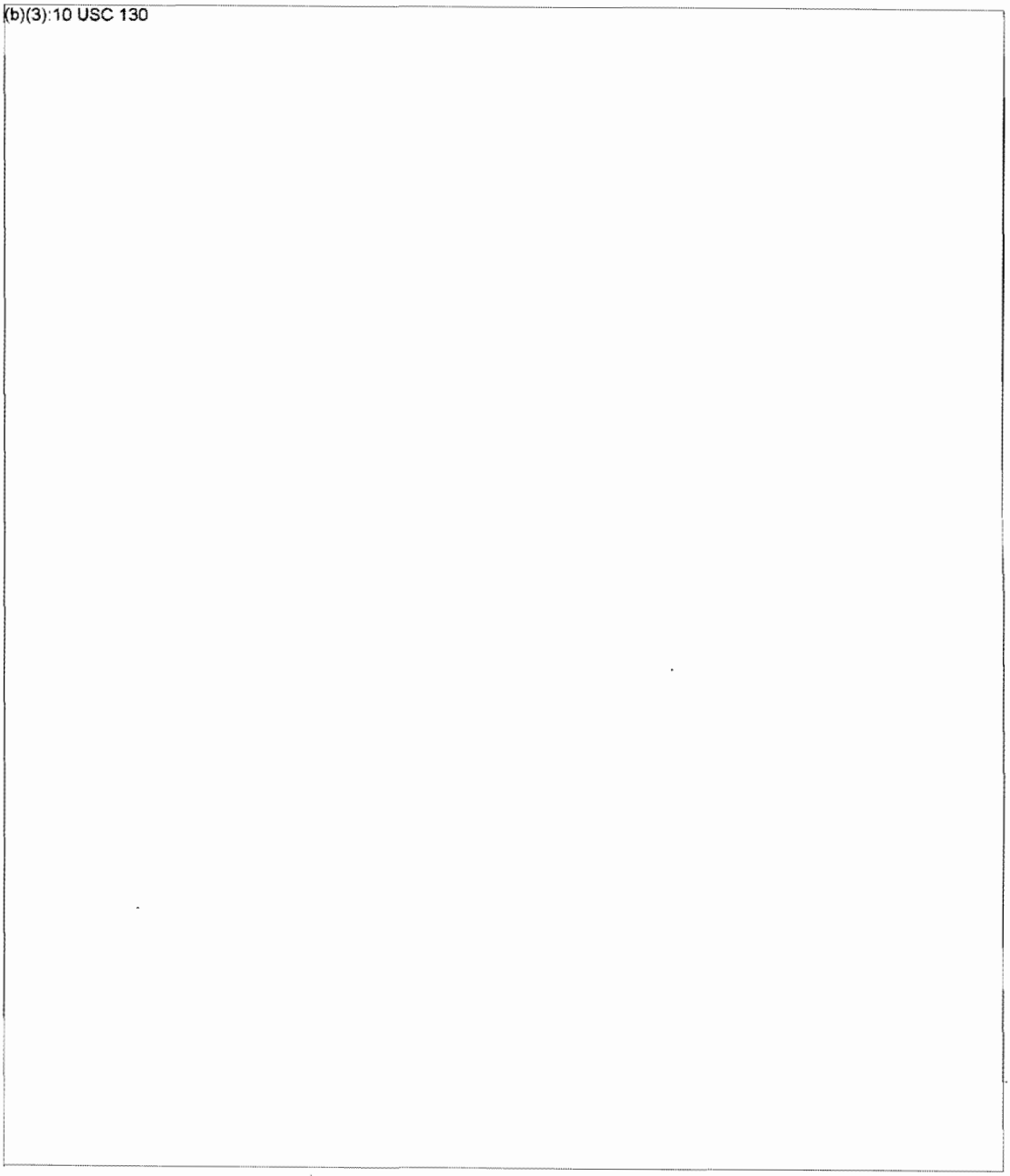

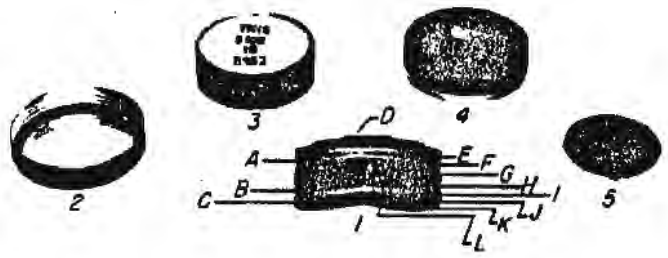

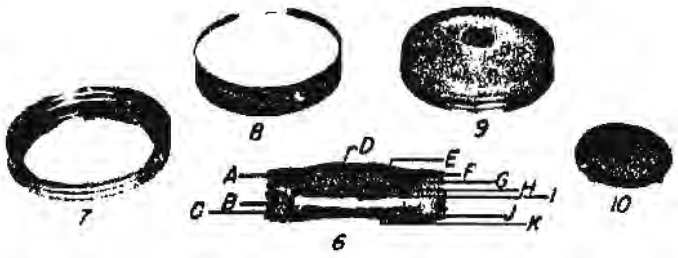

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Dog Canisters K/1 (bottom) and K/1R1 (top)

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Photograph 11.219

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Dog Canisters E32R1, E32R11, and E32R12

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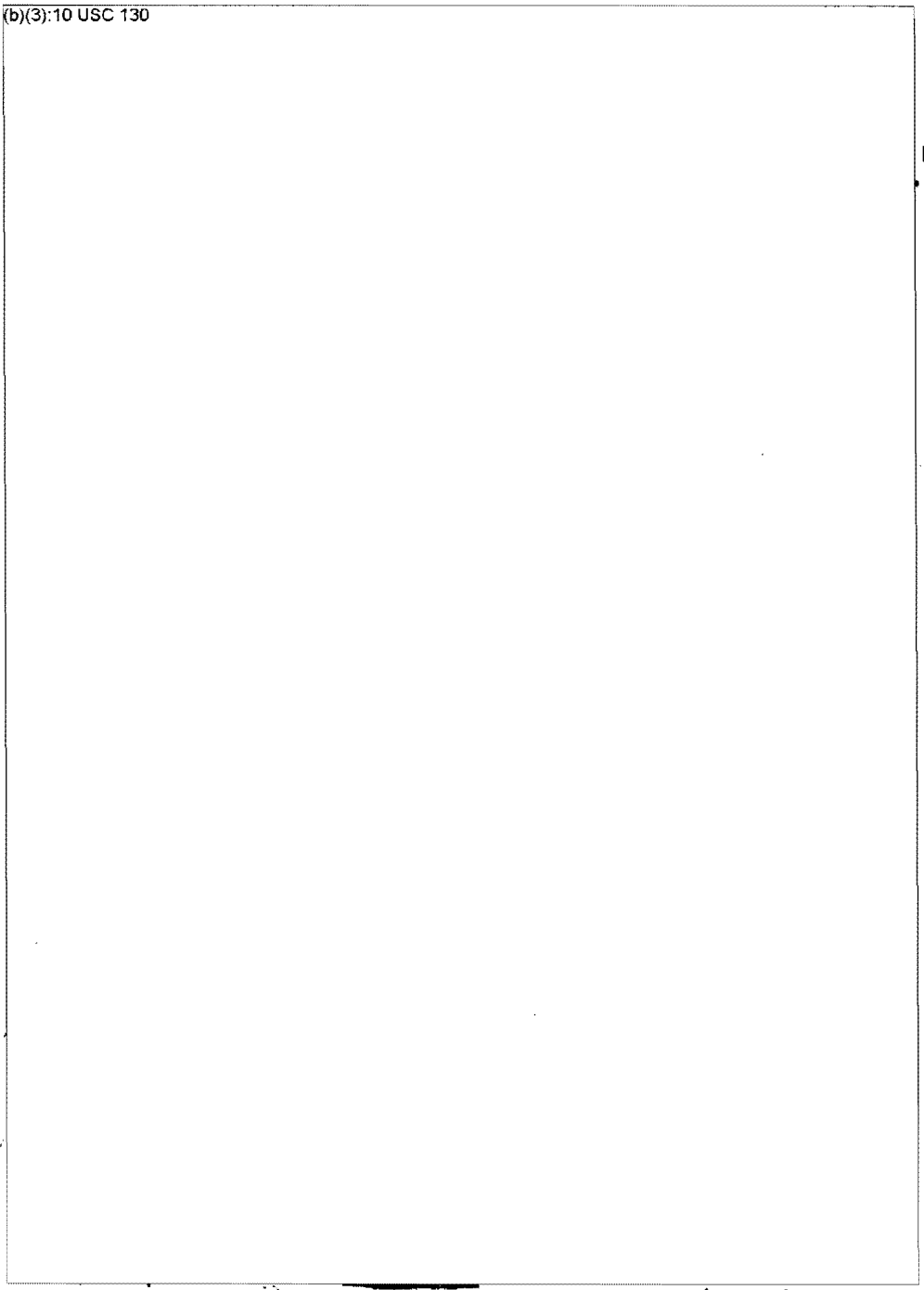

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Photograph 11,219

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PROJECT: D 6.6-1 - Dog Gas Mask.

DATES: Developed by the Protective Division 4 December 1942 to 22 May 1944. Photographed at Edgewood Arsenal, Md. 14 April 1945.

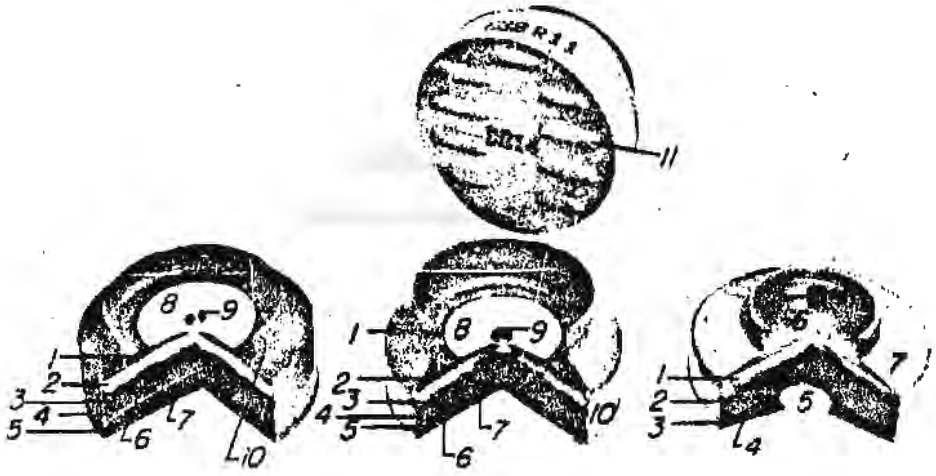

FIG. A FIG. B FIG. C

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Dog Canisters E32R1, E32R11, and E32R12

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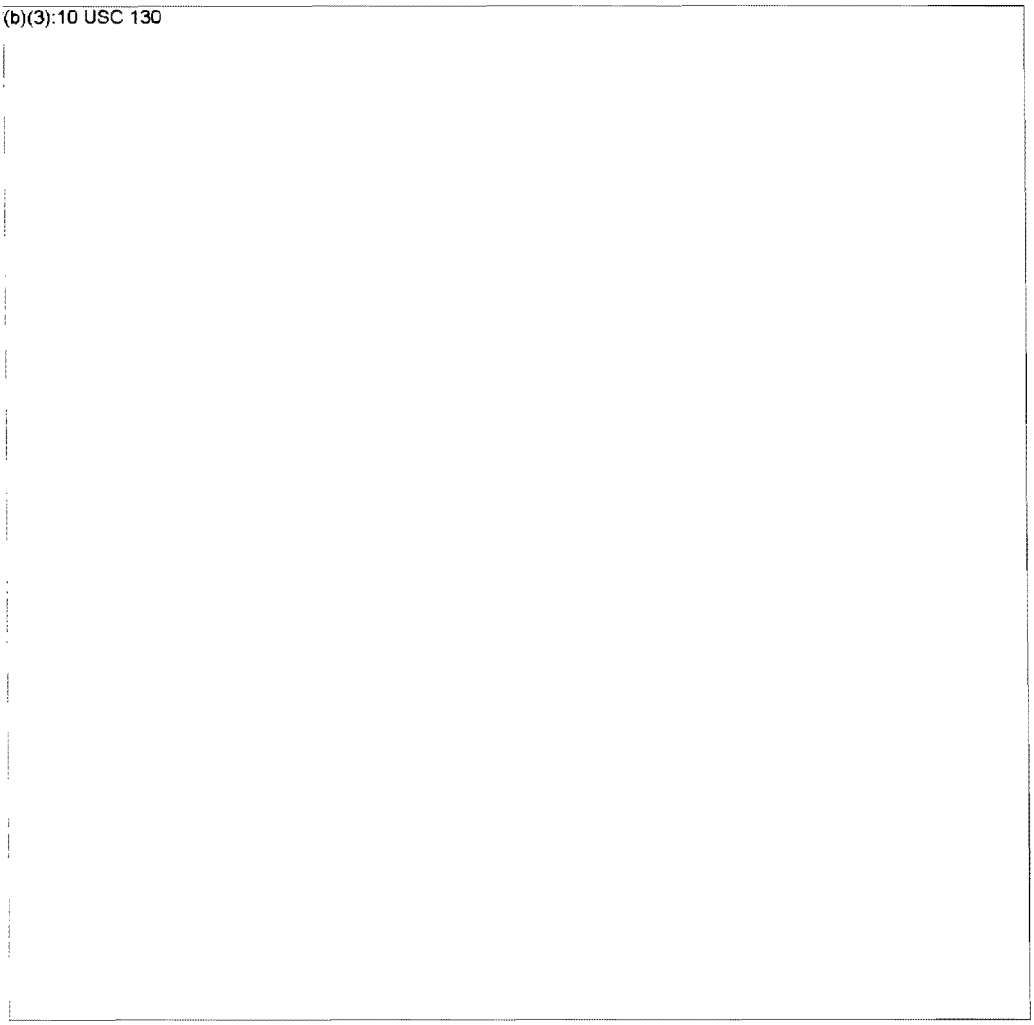
Dog Gas Mask Canisters E32R11, E41, and E41R1 attached to Dog Gas Mask Muzzlepieces E12R8 and E43R3

(b)(3):10 USC 130



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Dog Gas Mask Canisters E32R11, E4l, and E41R1 attached to Dog Gas Mask Muzzlepieces E12R6 and E43R3

[redacted]

[redacted]

TITLE SHEET

Photograph 11,085

[redacted]

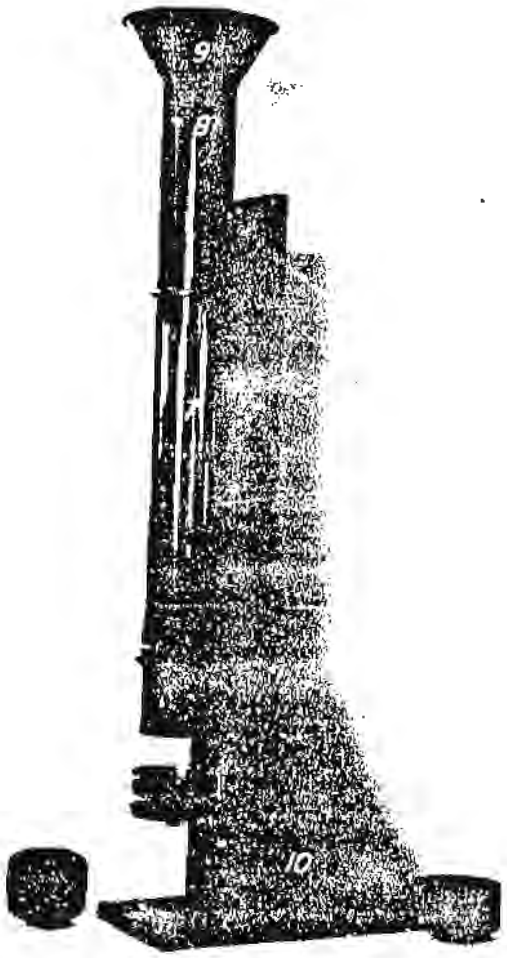
[redacted]

Gravity-Type Filling Apparatus for Chemical Containers for Combat Canister M11

(b)(3):10 USC 130

[redacted]

[redacted]



[redacted] 11085

Gravity-Type Filling Apparatus for Chemical Containers for Combat Canister M11

[redacted]

[redacted]

TITLE SHEET

Photograph 11.562

[redacted]

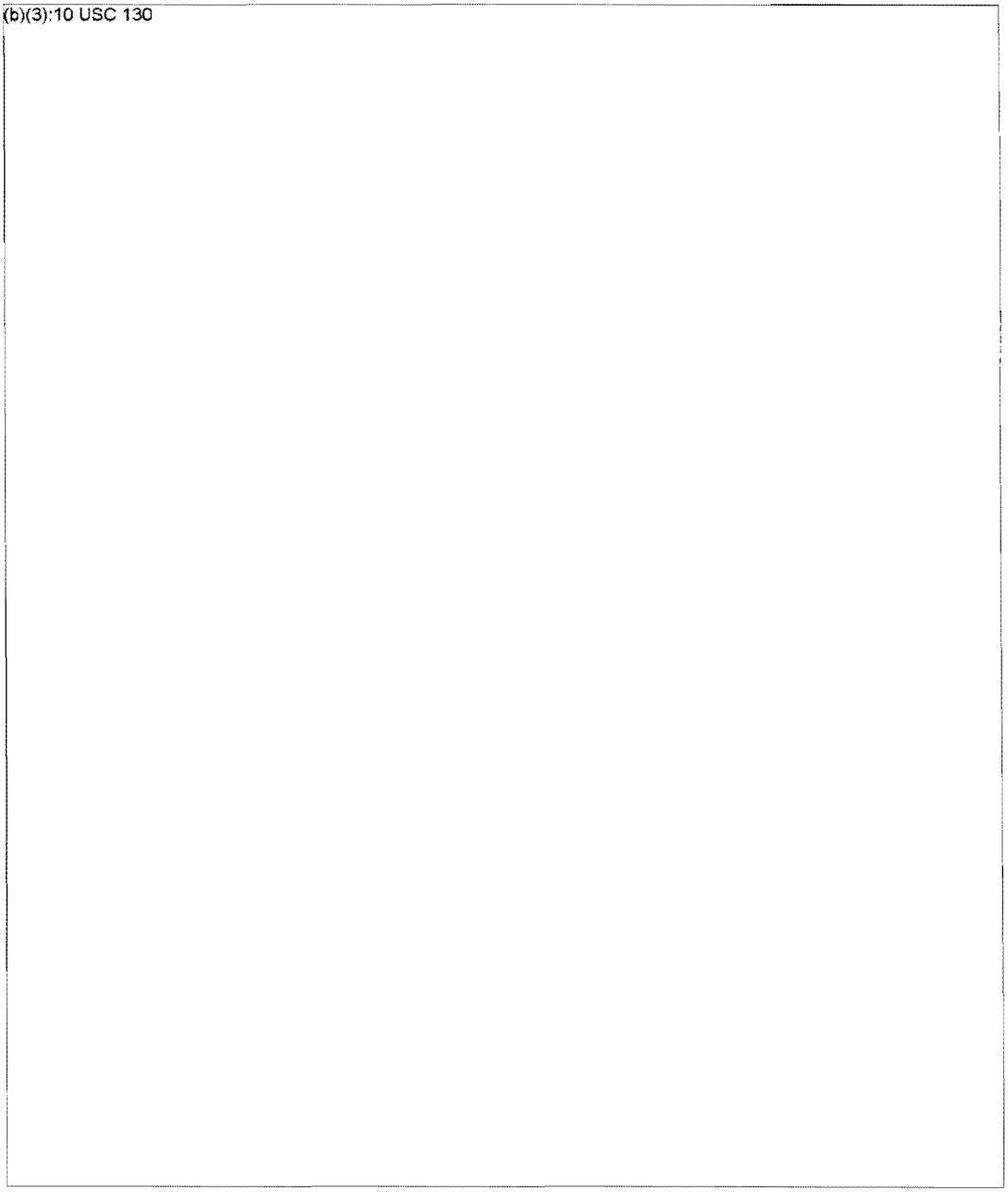
[redacted]

[redacted]

Dog Gas Mask Canister M12

Navy Noncombatant Canister

(b)(3):10 USC 130



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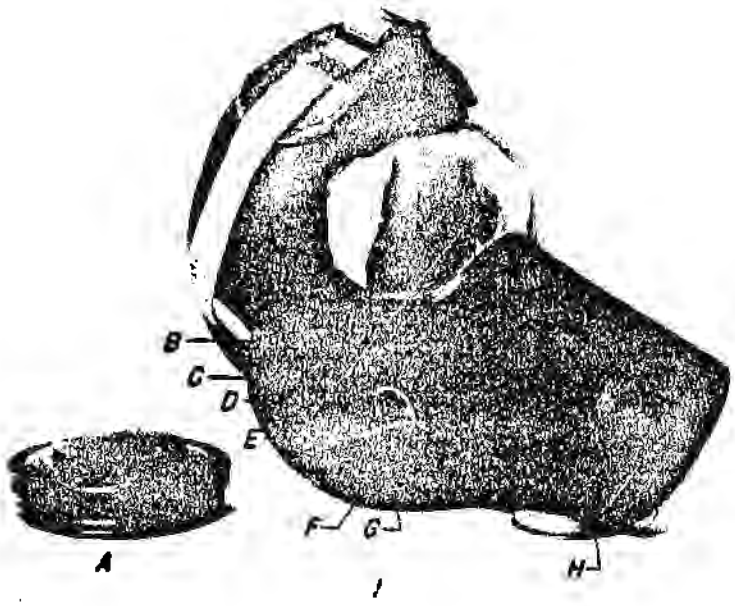
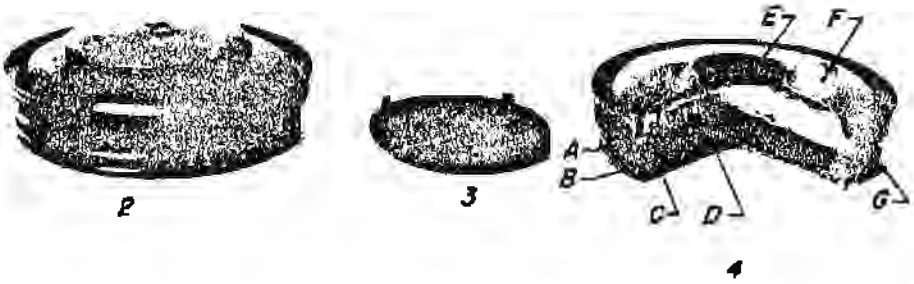




11562

Dog Gas Mask Canister M12
Navy Noncombatant Canister

[redacted]

TITLE SHEET

Photograph 11.563

[redacted]

German Dog Gas Mask Canister HFE 41

OBJECT: To show sectionalized German dog mask canister HFE 41 and method of attachment to muzzlepiece.

DESCRIPTION: 1. Method of attaching canister to muzzlepiece.

a. Screw-ring cover which holds the air purifier (b) in place against rubber gasket (d).

b. Air purifier shown effluent end up.

c. Rubber check valve disc. This disc prevents exhaled air from passing back through the air purifier.

d. Rubber gasket. This gasket is used to secure an air-tight fit between the air purifier (b) and the grommet (e).

e. Grommet for securing receptacle (g) to muzzlepiece.

f. Saliva guard. This part is to prevent saliva from entering the air purifier and damaging the filling.

g. Receptacle for air purifier (b).

2. Air purifier shown with influent end up.

3. Sectionalized canister (air purifier assembled in receptacle).

a. Check valve. (See 1, c, above).

b. Section of rubber muzzlepiece that was cut away in order to remove the receptacle assembly from muzzlepiece.

c. Grommet. The receptacle body and muzzlepiece are crimped together by this grommet.

d. Receptacle body.

e. Screw-ring.

f. Air purifier body.

g. Perforated influent-end of air purifier.

h. Wire used to hold the assembly together after sectionalizing. This is not part of canister.

i. Concentrically pleated filter.

k. Perforated plate for holding the charcoal filling in place at influent side.

m. Extruded charcoal.

n. Wire screen for holding the charcoal filling in place at effluent side. A cotton pad for filtering charcoal fines from inspired air is placed between this screen and the charcoal. The pad is not clearly visible in photo.

o. Rubber gasket (barely discernible). This gasket is cemented to grommet (c) and is used to secure an air-tight fit between the air purifier and grommet.

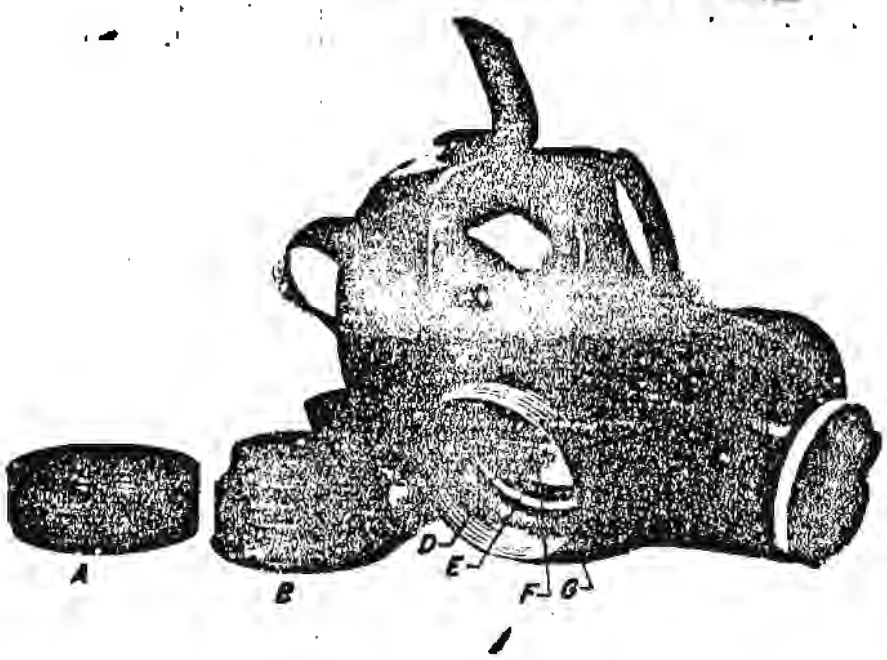
p. Saliva guard. (See 1, f, above).

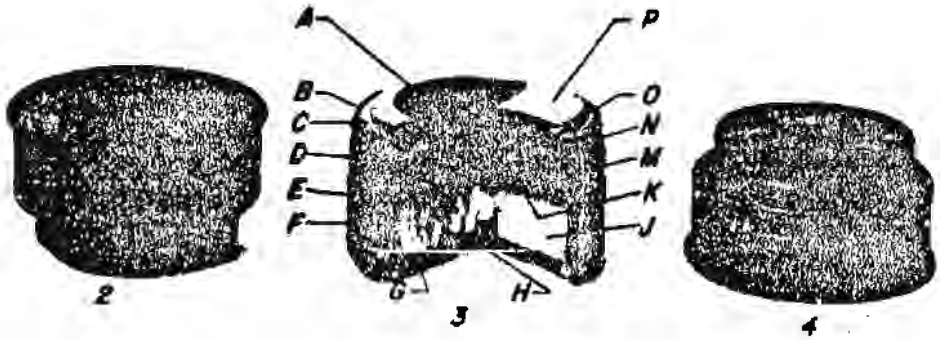
4. Air purifier with effluent end up. Embossment at periphery of effluent end is for concentrating pressure against the sealing gasket mounted in the grommet body (3, c).

PROJECT: D 6.6-1, Dog Gas Mask.

DATES: Fourteen German dog masks 41, complete with canisters HFE 41, were received at Technical Command, E.A., Md., 22 Jan. 1945. The

canisters were manufactured during 1943. The air purifiers had the following markings: bwz 43, 43/6, HFE 41. The letters bwz indicate manufacture was by the Aller Company. They were received and examined by Protective Division 1 March 1945. Photographed at Edgewood Arsenal, Md. 28 April 1945.





German Dog Gas Mask Canister RFE /1

11563

canisters were manufactured during 1943. The air purifiers had the following markings: bwz 43, 43/6, HFE 41. The letters bwz indicate manufacture was by the Aller Company. They were received and examined by Protective Division 1 March 1945. Photographed at Edgewood Arsenal, Md. 28 April 1945.

APPENDIX C

Copy of letter from C, Medical Dept. Res. Lab., 21 January 1943, to C, Protective Development Division, Att[redacted] on subject of the dog gas mask.

APPENDIX C

Copy of letter from C, Medical Dept. Res. Lab., 21 January 1943, to C, Protective Development Division, Att[redacted] on subject of the dog gas mask.

DLM & RHU/kh

MEDICAL DEPARTMENT RESEARCH LABORATORY
Edgewood Arsenal, Md.

January 21, 1943

(b)(3):10 USC 130

[redacted]

APPENDIX D

Drawing HEC 79-1 - Canister, Dog, R4IR1, Assembly.

T.D.M.R. No. 1099

"Development of Dog Mask Canisters E32R1, E32R11, E32R12, E41, and E41R1"

Project: D 6.6-1

Experimental work:

Started: 22 May 1944
Completed: 14 April 1945

Notebook Nos.: 1173, 1295

Typed: 27 July 1945

hds

Submitted by:

(b)(6)

[redacted]

(T.D.M.R. No. 1099)

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CRLIR 187
Project 4-20-01-002
Job 527

INTERIM REPORT

DEVELOPMENT OF DOG CANISTER E4OR4 (MODIFIED DOG CANISTER E12)

by

(P)(6)

PROTECTIVE DIVISION
CHEMICAL CORPS
CHEMICAL AND RADIOLOGICAL LABORATORIES
Army Chemical Center
Maryland

September 1952

Copy 1

[redacted]

[redacted]

PROTECTIVE DIVISION
CHEMICAL CORPS
CHEMICAL AND RADIOLOGICAL LABORATORIES
Army Chemical Center
Maryland

INTERIM REPORT

This is an unedited report. It is issued to transmit urgently n needed data to authorized personnel as rapidly as possible. Its conclusions are tentative and are subject to revision.

CRLIR 187
Project 4-80-01-002
Job 527

DEVELOPMENT OF DOG CANISTER E4OR4 (MODIFIED DOG CANISTER M12)

[redacted]

ABSTRACT

Object.

The object of the work covered by this report was to modify Dog Canister M12 through minor structural changes to permit this canister to withstand rough handling and to establish rough-handling requirements for Specification No. 97-52-148, Canister, Dog, M12.

Results.

(b)(3):10 USC 130

The physical data for charcoals used and the results of tests on the modified and unmodified dog canisters are given in Tables I and II. Table I gives the physical characteristics and Table II gives a performance comparison of all canisters tested.

Conclusions.

(b)(3):10 USC 130

Recommendations.

(b)(3):10 USC 130

(b)(3):10 USC 130

4. A rough-handling requirement for the modified Dog Canister M12, based on the information herein assembled, be incorporated into U.S. Army Specification 97-52-146, Canister, Dog, M12.

5. Work be continued to further modify Dog Canister M12 or to develop a new dog canister which will permit a simple airtight attachment of the canister to the receptacle mounted on the muzzle-piece.

UNCLASSIFIED

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UNCLASSIFIED

DEVELOPMENT OF DOG CANISTER E4CR2 (MODIFIED DOG CANISTER M12)

I. INTRODUCTION.

A. Object.

The object of the work covered by this report was to modify Dog Canister M12, through minor structural changes, to permit this canister to withstand rough handling and to establish rough-handling requirements for Specification No. 97-52-146, Canister, Dog, M12.

B. Authority.

Project 4-SC-01-002, Special Problems, Protective Division, Job 527, Development of Canister for the Dog Gas Mask.

II. HISTORICAL.

The E4SR2 Dog Gas Mask(1), incorporating canisters designed by the Mine Safety Appliance Company for use in the Navy nonsombat mask, was developed under Project D6.C-1, Dog Gas Mask, under the 1943 Project Program. The Dog Mask E4SR2 was subjected to engineering tests at the War Dog Reception and Training Center, San Carlos, California. Reports on these engineering tests dated 13 and 19 April 1944(2 & 3) recommended certain modifications and that the E4SR2-type Mask be adopted as standard. As a result of those recommendations, both the mask and the canister were improved and given the designations of E4SR3 and E4CR2, respectively. The complete mask was standardized 4 August 1944 as the M6-12-C Dog Gas Mask, the canister being designated as Dog Gas Mask Canister M12.

It should be emphasized that the above work was done under extreme wartime pressure and was governed greatly by the fact that the canister was already developed for Navy nonsombat use. Limitations of Dog Canister M12 were recognized, however, and reported as early as 1945(1), but no further work was undertaken at that time.

(b)(3):10 USC 130

Consequently, this present work was undertaken.

III. EXPERIMENTAL.

A. Modification of Canister.

(b)(3):10 USC 130

Equipment employed for this work included conventional machine shop tools, a gravity-type filling machine, S2R3 Volume Meter,

(b)(3):10 USC 130

B. Evaluation Procedure.

(b)(3):10 USC 130

(b)(3):10 USC 130

C. Results.

The physical data for charcoals used and the results of tests on the modified and unmodified 3c canisters are given in Tables I and II. Table I gives the physical characteristics of the charcoals used, while Table II gives a performance comparison of all canisters tested.

(b)(3):10 USC 130

IV. DISCUSSION.

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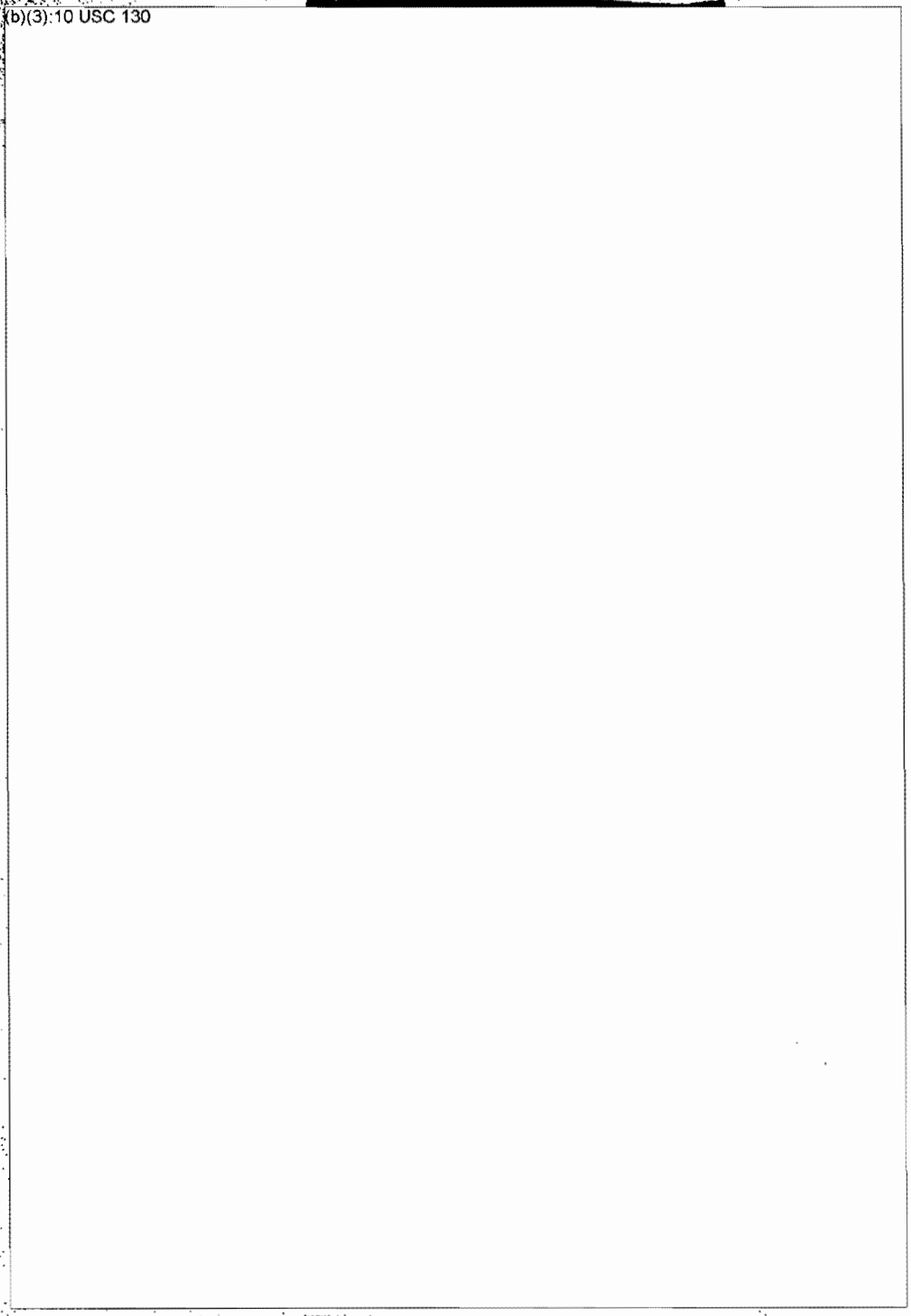
(b)(3):10 USC 130



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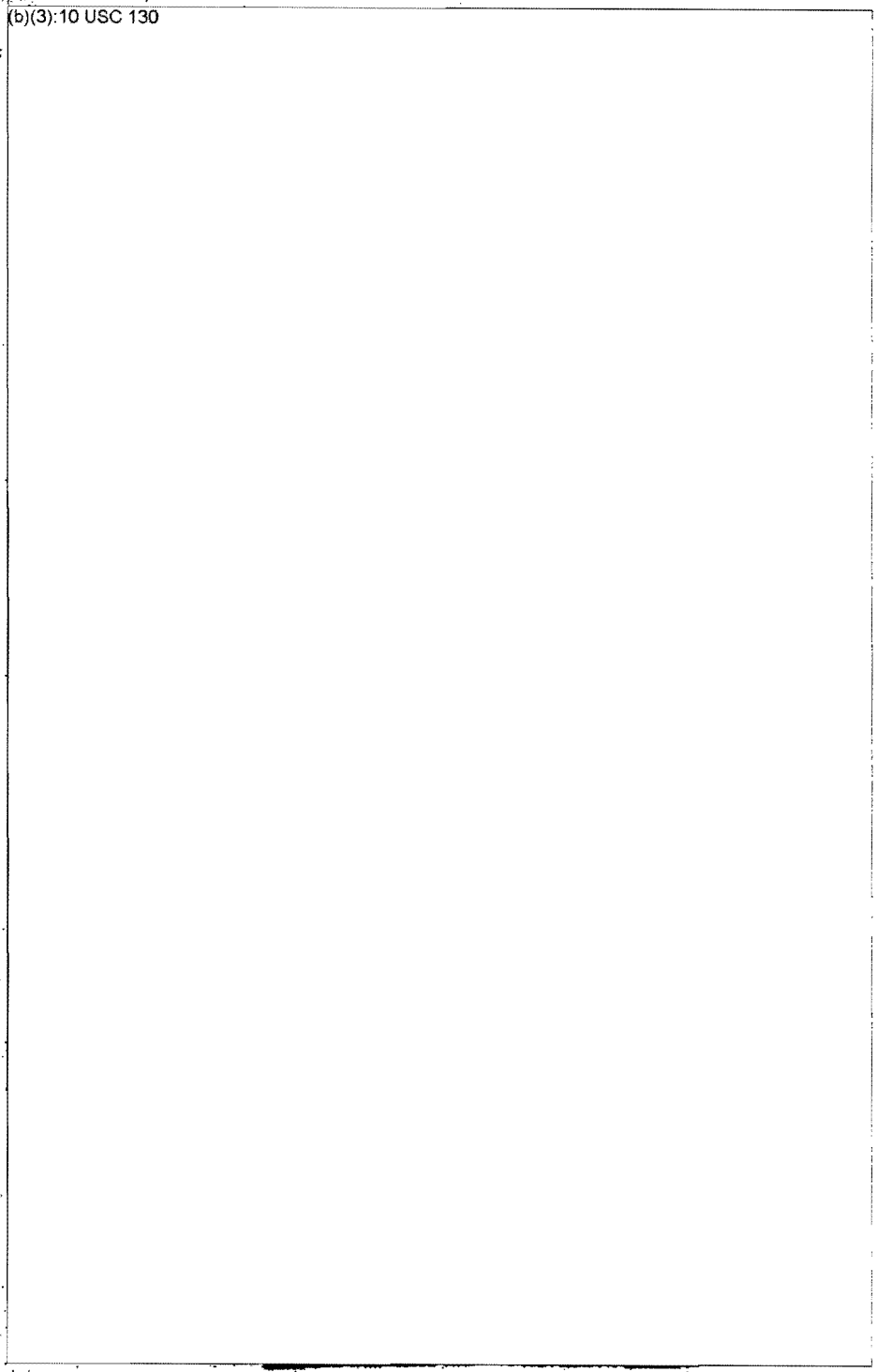
(b)(3):10 USC 130



(b)(3):10 USC 130

[redacted]

(b)(3):10 USC 130

VII. BIBLIOGRAPHY.

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(2) Geyer, Harry G., Bucklin, Harris H., Jr., Johns, William F., Isom, Wiley S., Shibley, John W.A., Jr., ETF 634-2, Engineering Tests of Dog Gas Masks. Reports of Individual Tests. 13 April 1944.

(3) Doyle, John B., Mace, Don L., et al, ETF 634-1, Engineering Tests of Dog Masks, 19 April 1944.

(4) Vinylidene Chloride, U.S. Army Specification E81-57, Netting, Vinylidene Chloride.

(5) "Filter Unit," Development type Chemical Corps Purchase Description No. 197-54-103 (3 Aug 1950).

(6) Chemical Corps Drawing No. E5-3-810, Disc, Filtering, Assembly.

(7) U.S. Army Specification No. 97-52-146, Canister, Dog, M12, 4 June 1947.

(8) Chemical Corps Drawing No. E5-64-46, Receptacle, Canister, Right, and E-5-64-89, Receptacle, Canister, Left.

(9) Gross, W.E., Shanty, F., and Utnage, W.L., CRLR No. 27, Development of Modified Combat Canister M11 (E5R1) to Permit Use of Coal-Base Charcoal, 27 April 1953.

(10) CWS Tentative Specification No. 197-53-144, Charcoal, Impregnated, Type ASC (For Combat Canisters, M11) 14 May 1945.

(11) Gross, W.E., CRLR No. 10, Design and Development of Combat Canister E5R7, 21 November 1951.

[redacted]

APPENDIX A

TABLES

TABLE I

PHYSICAL CHARACTERISTICS OF CHARCOALS

Lab Code No.	D-24 (1)	A1886 (2)	D-46 (3)	D-61 (4)
(b)(3):10 USC 130				

APPENDIX B

FIGURE

(b)(3):10 USC 130

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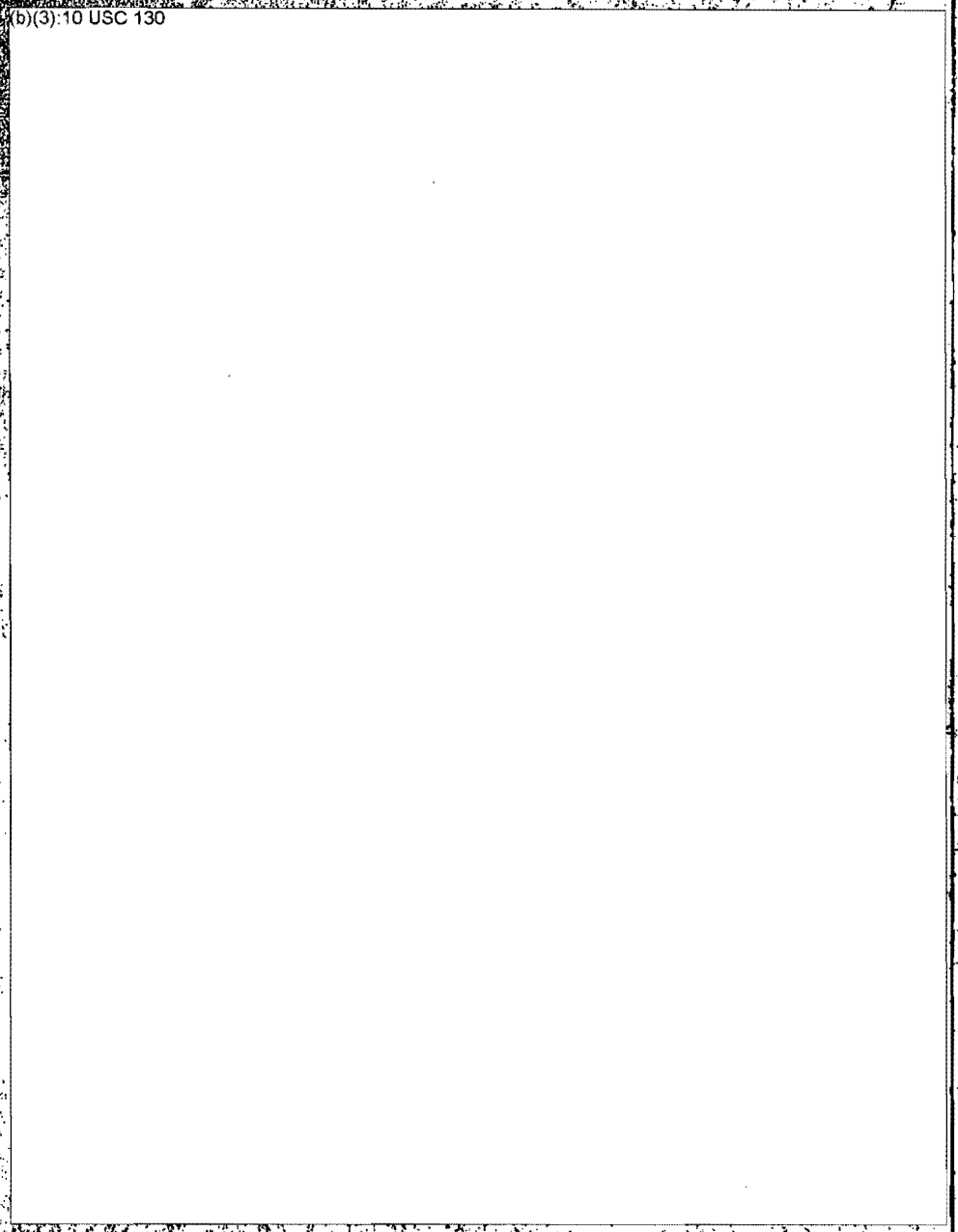
TABLE 11

[redacted] COMPARISON OF B12 AND FOLIC CRYSTICS

(b)(3):10 USC 130



CANISTER, DOG
EADR ASSEMBLY
DRG XC-99-1 SCALE: APPROX 1:1
3 JUNE 1952 R.E. HORWICH

CLASS

CRLIR No. 187

Submitted by:

(b)(6)

Development of Dog Canister
E40R4 (Modified Dog Canister M12)

Project: 4-80-01-002 - Job 527

Notebook: 3644

* Authors

Experimental work:
Started: 15 February 1952
Completed: 15 June 1952

Typed: 26 August 1952
el

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CRLR 94
Project 4-80-01-002

FINAL ENGINEERING TEST NO. 61

CANISTER, DOG, E40R4

Regrad [redacted]
by authority of Chief, Test Division, CRLR
5 Jan. 1954
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CML & RAD LABS, A Cml C, Md.

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CRLR 94
Project 4-80-01-002

FINAL ENGINEERING TEST NO. 61
CANISTER, DOG, E4OR4

Experimental work by:

Test Engineer
Materials Branch

Submitted by:

Chief, Final Engineering Section

Prepared by:

Test Coordinator
Final Engineering Section

•Author

Recommending approval:

Chief, Field Operations Branch

APPROVED:

Chief, Test Division

Experimental work:
Started: 6 November 1952
Completed: 14 January 1953

Typed: 11 February 1953
ok

Control no:
8022-94

UNCLASSIFIED

Object

The object of these tests was to determine if the E4OR4 Dog Canister (Modified Dog Canister, M12) will withstand recent rough-handling requirements to be included in Specification No. 97-52-146.

Discussion

At the request of the Chemical Corps Engineering Agency, the Protective Division of the Chemical and Radiological Laboratories attempted to establish requirements for a rough-handling test to be included in Specification No. 97-52-146, Canister, Dog, M12. Initial

(b)(3):10 USC 130

The scope of this test was not as extensive as usual Final Engineering tests since it was conducted with the sole objective of determining the ability of the subject canister to withstand rough-handling, and to determine the effect of this treatment on the protective properties of the canister. While certain deficiencies were noted in the canister as a result of this test program, the recommended requirements were met.

(b)(3):10 USC 130

[redacted]

(b)(3):10 USC 130

Conclusions

With respect to the rough-handling requirement prescribed in Final Engineering Test Directive No. 61 (appendix A, hereto), the E4OR4 dog canister performed as follows:

A. Satisfactory

(b)(3):10 USC 130

Recommendations

(b)(3):10 USC 130

[redacted]

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FINAL ENGINEERING TEST NO. 61
CANISTER, DOG, E4OR4

I. OBJECT

The object of these tests was to determine if the E4OR4 Dog Canister (Modified Dog Canister, M12) will withstand recent rough-handling requirements to be included in Specification No. 97-52-146.

II. AUTHORITY

Authority for conduct of final-engineering tests was derived from Disposition Form from Chief, Protective Division, to Chief, Test Division, dated 2 October 1952, subject, Modified Dog Canister M12 (E4OR4) (Test Division Job No. F-1209). The work was charged to Ex. O. 1708 (Project 4-80-01-002), Job 527, Special Problems, Protective Division.

III. DIRECTIVE

The tests were conducted in accordance with Final-Engineering Test Directive No. 61 (attached hereto as appendix A), with the additions or deletions noted in the appropriate sections of the report.

IV. PLACE AND TIME OF TESTS

All tests were conducted at Chemical and Radiological Laboratories, Army Chemical Center, between 6 November 1952 and 14 January 1953.

V. FACILITIES

The only facility required, other than those specified in the Test Directive was the DOP (dioctyl phthalate) penetration apparatus (Apparatus, Canister Testing, MIT-E3).

VI. TEST DATA AND RESULTS

(b)(3):10 USC 130

(b)(3):10 USC 130

.. Rough Handling

1. E4 Rough-Handling Machine

(b)(3):10 USC 130

2. Drop Test

(b)(3):10 USC 130

3. Vibration Test (L.A.B. Machine)

(b)(3):10 USC 130

(b)(3):10 USC 130

B. Surveillance

No surveillance tests were undertaken as the only modifications made on standard M12 dog canister in developing the E4OR4 were structural changes, so that the experimental item would be no more susceptible to effects of climatic extremes than would the standard canister.

C. Design Efficiency

The photographs prescribed in the Test Directive plus additional photographs showing the damage to the canisters and their packages due to the rough-handling test are included as appendix C hereto.

D. Functional Efficiency

The functional-efficiency tests were conducted in the following order:

1. Air-Flow Resistance

(b)(3):10 USC 130

2. Smoke Penetration (HB)

(b)(3):10 USC 130

3. PS(Chlorpicrin) Life

(b)(3):10 USC 130

(b)(3):10 USC 130

E. Supplemental Tests

(b)(3):10 USC 130

1. Rough Handling

a. E4 Rough Handling Machine

(b)(3):10 USC 130

b. Drop Test

(b)(3):10 USC 130

(b)(3):10 USC 130

c. Vibration Test (L.A.B. Machine)

(b)(3):10 USC 130

4. Air-Flow Resistance

(b)(3):10 USC 130

5. Smoke Penetration (HB and DOP)

(b)(3):10 USC 130

F. Comparison With M12 Dog Canister

No rough-handling or functional-efficiency tests were made on the

M12 dog canister for comparison with data obtained for the E4OR4 dog canister (modified dog canister, M12). In lieu of this, a letter , attached as appendix

(b)(3):10 USC 130

VII. DISCUSSION

At the request of the Chemical Corps Engineering Agency, the Protective Division of the Chemical and Radiological Laboratories attempted to establish requirements for a rough-handling test to be included in Specification No. 97-52-146, Canister, Dog, M12. Initial investigations indicated the inability of

(b)(3):10 USC 130

(b)(3):10 USC 130

The scope of this test was not as extensive as usual Final Engineering tests since it was conducted with the sole objective of determining the ability of the subject canister to withstand rough-handling and to determine the effect of this treatment on the protective properties of the canister. In regard to

(b)(3):10 USC 130

(b)(3):10 USC 130

VIII. CONCLUSIONS

With respect to the rough-handling requirement prescribed in Final Engineering Test Directive No. 61 (appendix A, hereto), the E4OR4 dog canister performed as follows:

[redacted]

A. Satisfactory

(b)(3):10 USC 130

IX. RECOMMENDATIONS

(b)(3):10 USC 130

APPENDIX A

FINAL ENGINEERING TEST DIRECTIVE NO. 61

Canister, Dog, E4OR4

Project 4-80-01-002

TEST DIVISION
CHEMICAL CORPS
CHEMICAL AND RADIOLOGICAL LABORATORIES
Army Chemical Center
Maryland

Final Engineering Test Directive No. 61

Canister, Gp, E4Q14

Project No. 4-80-01-002

29 October 1952

TEST DIVISION
CHEMICAL CORPS
CHEMICAL AND RADIOLOGICAL LABORATORIES
Army Chemical Center
Maryland

CMLRE-CR(T) 29 October 1952

Final Engineering Test Directive No. 61
Canister, Dog, E4OR4
Project No. 4-80-01-002

I. Object

The object of these tests is to determine if the E4OR4 Dog Canister (Modified Dog Canister, M12) will withstand recent rough-handling requirements to be included in Specification No. 97-52-146.

II. Authority

The authority for preparation of a plan of test was derived from Disposition Form (Appendix I, hereto) from Chief, Protective Division, to Chief, Test Division, dated 20 August 52, subject, Modified Dog Canister M12 (E4OR4). This test is designated Test Division Job F-1209, and work is chargeable to Ex. O. 1708 (Project 4-80-01-002), Job 527, Special Problems, Protective Division.

Initiation of final engineering tests is authorized by D/F (Appendix II, hereto) from Chief, Protective Division, to Chief, Test Division, dated 2 October 1952, subject, Modified Dog Canister M12 (E4OR4).

III. Description

(b)(3):10 USC 130

RESTRICTED

(b)(3):10 USC 130

IV. Military Characteristics

(b)(3):10 USC 130

V. Pertinent References

(b)(3):10 USC 130

VI. Plan of Test and Procedure

A. Rough Handling

(b)(3):10 USC 130

(b)(3):10 USC 130

B. Surveillance

(b)(3):10 USC 130

C. Design Efficiency

(b)(3):10 USC 130

D. Functional Efficiency

1. PS (Chlordrin) Life

(b)(3):10 USC 130

2. Smoke Penetration

(b)(3):10 USC 130

3. Air-Flow Resistance

(b)(3):10 USC 130

E. Comparison with M12 Dog Canister

(b)(3):10 USC 130

VII. Place of Tests

All tests in part VI,e, will be conducted by Materials Branch, Test Division, using their facilities. The Test Engineer will request use of the facilities of Protective Division in conducting the Functional Efficiency tests in par. VI,D,1, 2 and 3.

VIII. Materials Required and Source

Twenty-four M10A1 Dog Canisters will be required for these tests and will be supplied by Protective Division.

IX. Safety

Current applicable safety regulations of Cml & Rad Labs will be observed throughout the tests.

X. Responsibilities

A. Protective Division will submit the prototypes for this program and provide facilities for the Functional Efficiency tests. In addition they will furnish through the Test Engineer to Final Engineering Section, past engineering-test data on physical characteristics of the M10A1 canister, and may provide observer(s) if desired.

B. Materials Branch, Test Division, will provide a Test Engineer who will coordinate and conduct the tests and submit all data to Final Engineering Section, Test Division; the Test Engineer will maintain liaison with the Cml C Board and Final Engineering Section in all test phases. Materials Branch will in addition, perform the tests outlined in Par. VI, submitting the data to the Test Engineer.

C. Final Engineering Section, Test Division, will designate a Test Coordinator who will integrate the entire program, and advise as to the acceptability of required changes in the plan of test. Final Engineering Section, upon

[redacted]

completion of testing, will evaluate the data submitted and prepare a Final Engineering Report for distribution by Protective Division.

Submitted by:

(b)(6)

DISTRIBUTION LIST
Final Engineering Test Directive No. 61
Project No. 4-80-01-002

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1	Chief, Test Division, CRL
3	Chief, Field Operations Branch, Test Div, CRL (2 ATTN: Final Engineering Section)
2	Chief, Materials Branch, Test Div, CRL (1 ATTN: Test Engineer)
1	President, Cml C Board
2	Commanding General, Cml C R&E Command (1 ATTN: Chief, Development Division) (1 ATTN: Chief, Planning Branch, Dvpr Gd Div)
1	Commanding Officer, Edgewood Proving Ground
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1	Commanding Officer, Cml C Engr Agency

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CMLRE-CR(F)R

Modified Dog Canister M12 (E4OR4)

TO Chief, Test Division
CmlC Cml & Rad Labs

FROM Chief, Protective Div
CmlC Cml & Rad Labs

DATE 2C August 1952
SIEGEL/el/4282

(b)(3):10 USC 130

2. Information is requested as to the number of modified Dog Canisters M12 (E4OR4) will be needed for final engineering tests.

(b)(6)

APPENDIX I

COPY

CMLRE-CR(P)R

Modified Dog Canister M12 (E4OR4)

TO Chief, Test Division
Cml & Rad Labs

FROM Protective Division
Cml & Rad Labs

DATE 2 October 1952
SIEGEL/el/4282

1. It is requested that final engineering tests be performed on the Modified Dog Canister M12 (E4OR4). This canister was modified through incorporation of several changes to permit it to withstand rough handling.

2. CRLIR No. 187 has been written, covering the development of the subject canister and the associated tests performed. Twenty-four (24) canisters have been fabricated for use in your final engineering tests.

3. For these canisters and any further details, contact Mr. Frank Shanty, Extension 5255.

(b)(6)

Chief, Protective Division

APPENDIX II

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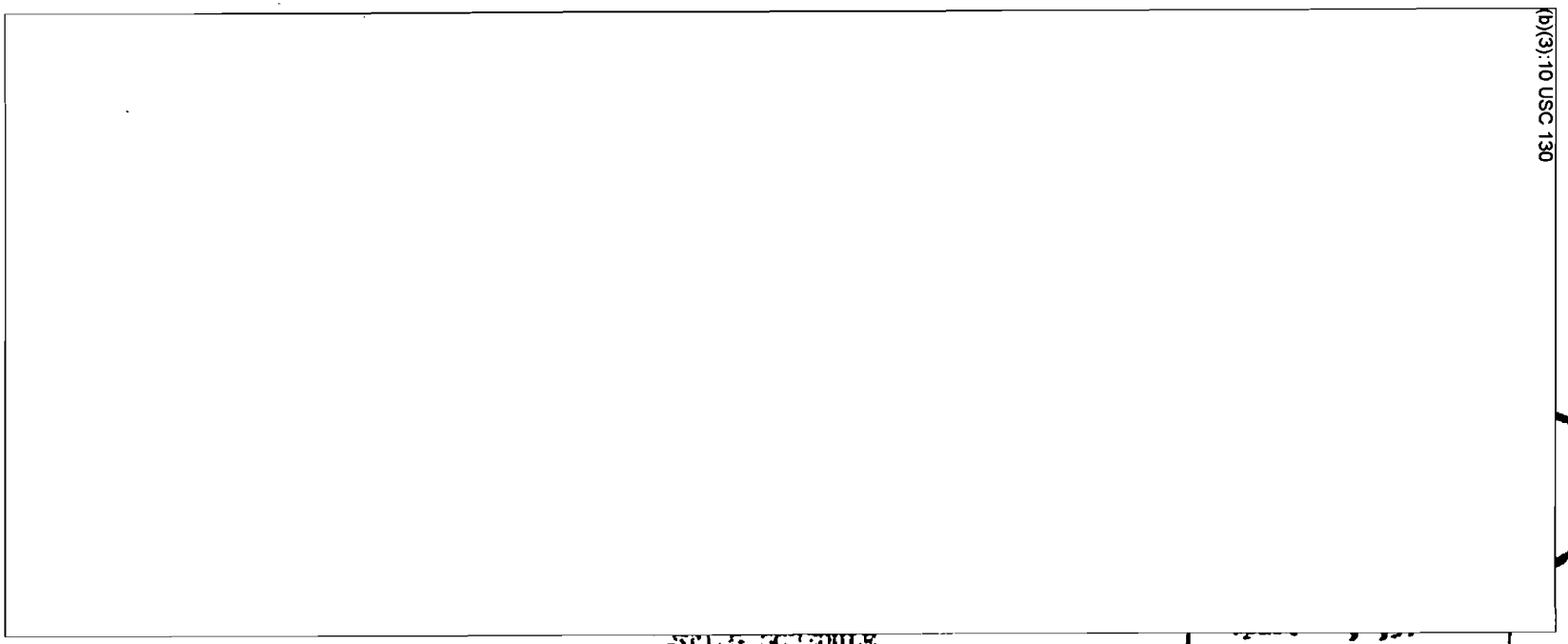


...STILL SCHEDULE

FLORA DOG CANISTER

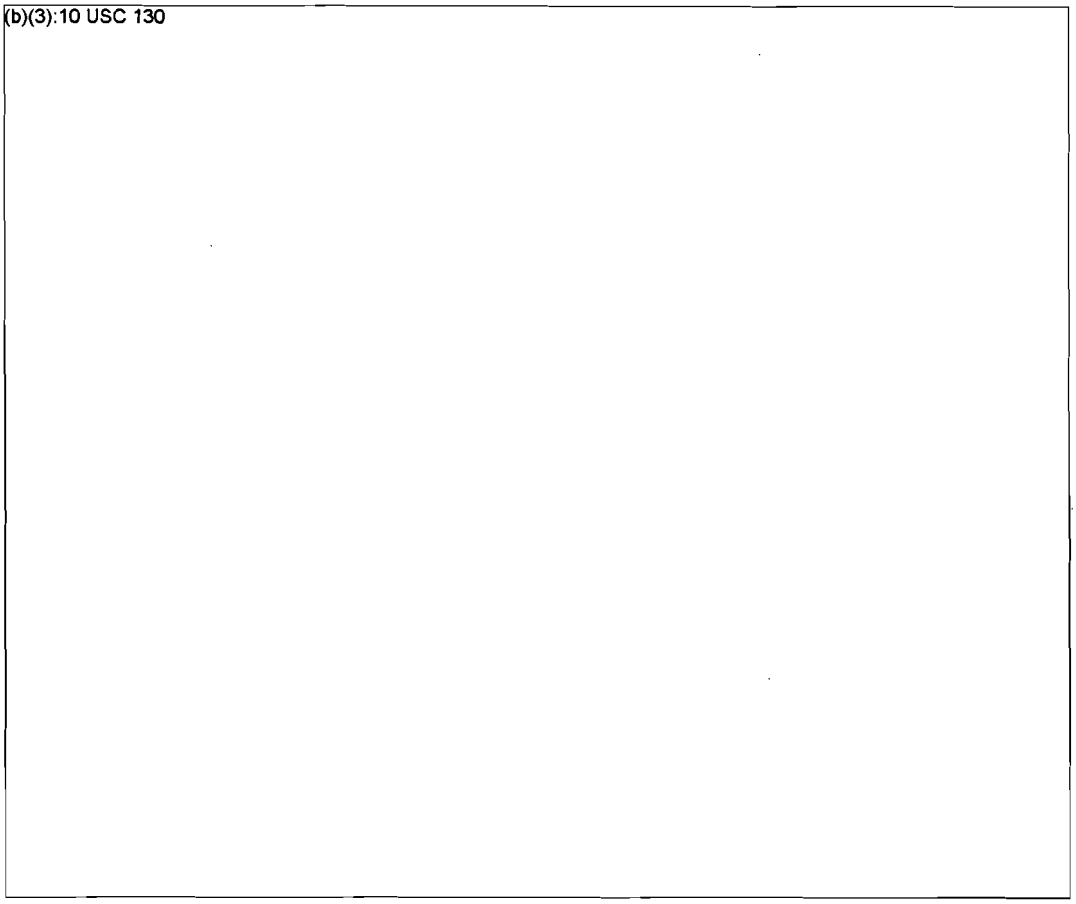
F.W.S.-23Oct52

APPENDIX III

DOD CANISTER LABEL

PACKAGE KEY

(b)(3):10 USC 130



APPENDIX III

APPENDIX B

TEST DATA

Table 1, Damage to Canister, Dog, E4OR4, as a Result of Rough Handling

Table 2, Air-Flow Resistance, Smoke Penetration, and Gas Life of Canister, Dog, E4OR4

Table 3, Air-Flow Resistance, Smoke Penetration and Gas Life of Canister, after E4 Machine Rough-Handling

Table 4, Air-Flow Resistance, Smoke Penetration and Gas Life of Canister after E4 Machine Rough-Handling and Drop Test

Table 5, Air-Flow Resistance, Smoke Penetration, and Gas Life of Canister, after E4 Machine Rough-Handling, Drop and Vibration Tests

Table 6, Effect of Rough Handling on Canister, Dog, E4OR4

TABLE 1

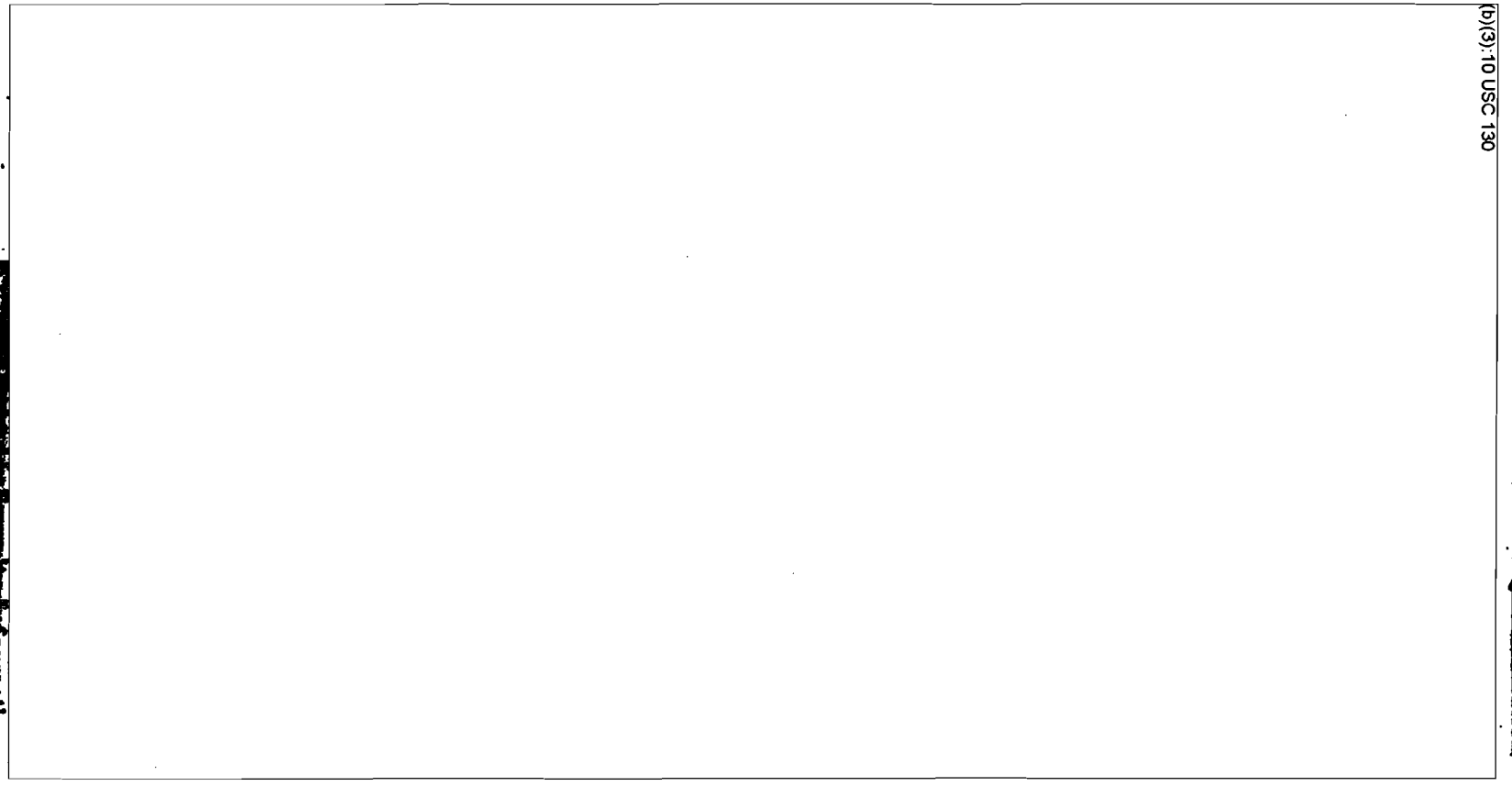
DAMAGE TO CANISTER,* DOG, E4OR4, AS A RESULT OF ROUGH HANDLING

Canister no.	Components Damaged		
	Cover	Wire screen	Felt filter pad
After E4 rough handling:			
(b)(3):10 USC 130			
After E4 rough handling and drop tests:			
(b)(3):10 USC 130			
After E4 rough handling, Drop, and Vibration Tests:			
(b)(3):10 USC 130			

* Equipped with simulated mud guard

TABLE 2

AIR-FLOW RESISTANCE, SMOKE PENETRATION AND GAS LIFE OF CANISTER*, DOG, EA0R4



(b)(3):10 USC 130

TABLE 3

AIR-FLOW RESISTANCE, SMOKE PENETRATION AND GAS LIFE OF CANISTER*

AFTER E4 MACHINE ROUGH-HANDLING

(b)(3):10 USC 130

* Equipped with simulated mud guard

TABLE 4

AIR-FLOW RESISTANCE, SMOKE PENETRATION AND GAS LIFE OF CANISTER*

AFTER E4 MACHINE ROUGH HANDLING AND DROP TEST

[redacted]

(b)(3):10 USC 130

TABLE 5

AIR-FLOW RESISTANCE, SMOKE PENETRATION, AND GAS LIFE OF CANISTER,*

DOG, E4OR4, AFTER E4 MACHINE ROUGH-HANDLING, DROP AND VIBRATION TESTS

[redacted]

(b)(3):10 USC 130

UNCLASSIFIED

UNCLASSIFIED

[redacted]

(b)(3):10 USC 130

TABLE 6

EFFECT OF ROUGH HANDLING ON CANISTER*, DOG [redacted]

PAGE 28
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APPENDIX C

PHOTOGRAPHS

Fig. 1, M6-12-8 Dog Gas Mask with E4OR4 Canisters

Fig. 2, E4OR4 Dog Canister

Fig. 3, Sectionalized E4OR4 Dog Canister

Fig. 4, E4OR4 Dog Canister with Simulated Mud-Guard Assembly

Fig. 5, Packaged E4OR4 Dog Canister

Fig. 6, Interior Arrangement of Package of E4OR4 Dog Canisters

Fig. 7, Canister Packages after 10-Min. Exposure to E4 Rough-Handling Machine

Fig. 8, Individual Canisters after Packaged Rough Handling

Fig. 9, Dog Canister Package after E4 Machine Rough Handling, and Drop Test

Fig. 10, Damage Caused to Canister after Packaged Rough-Handling and Drop Tests

Fig. 11, Canister Package after Rough-Handling, Drop, and Vibration-Tested

Fig. 12, Individual Dog Canisters after Rough-Handling, Drop, and Vibration Tests

Fig. 13, E4OR4 Dog Canister with E4R2 Mud Guard

Fig. 14, Damage to E4OR4 Dog Canister from E4 Rough Handling Machine

Fig. 15, Damage to E4OR4 Dog Canister from E4 Machine Rough-Handling and Drop Test

Fig. 16, Damage to Individual E4OR4 Dog Canisters from Rough-Handling, Drop, and Vibration Tests

FIGURE I

M6-12-8 DOG GAS MASK WITH E4OR4 CANISTERS

Two E4OR4 dog canisters, with mud guards, are shown attached to an M6-12-8 dog gas mask. The M6-12-8 dog gas mask is fitted to a simulated dog head form to show the appearance of this item in use.

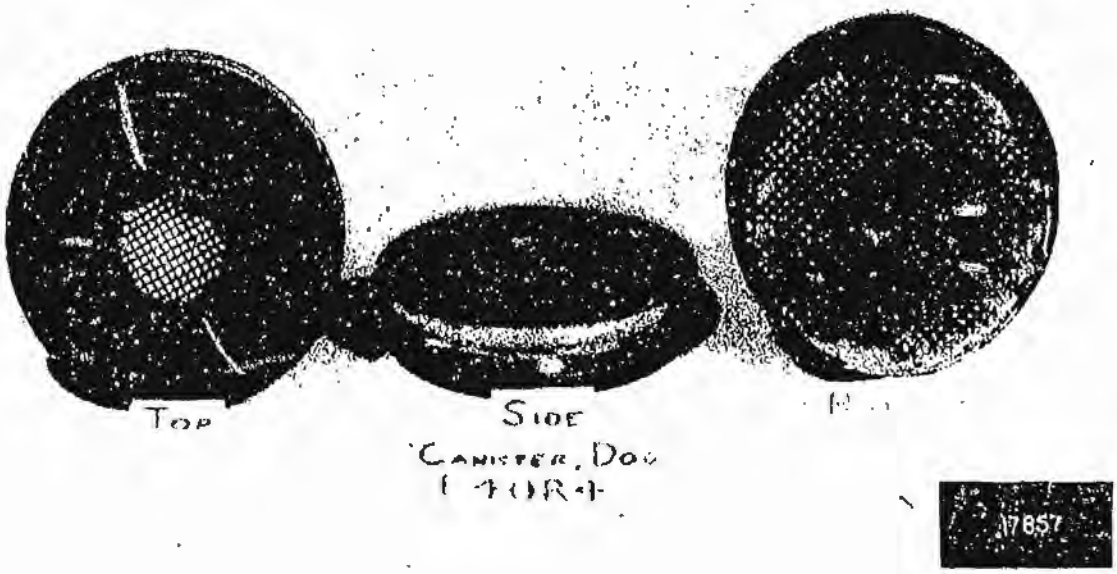

FIGURE 2

E4OR4 DOG CANISTER

The photo shows the exterior appearance of the top, side, and bottom of the canister.

SECTIONALIZED VIEW OF A CANISTER, DOG, E4OR4 SHOWING COMPONENT PARTS

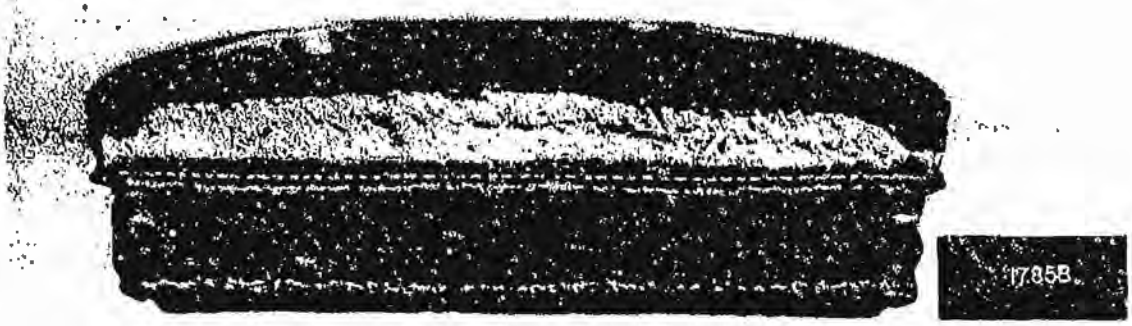

FIGURE 3

SECTIONALIZED E4OR4 DOG CANISTER

(b)(3) 10 USC 130

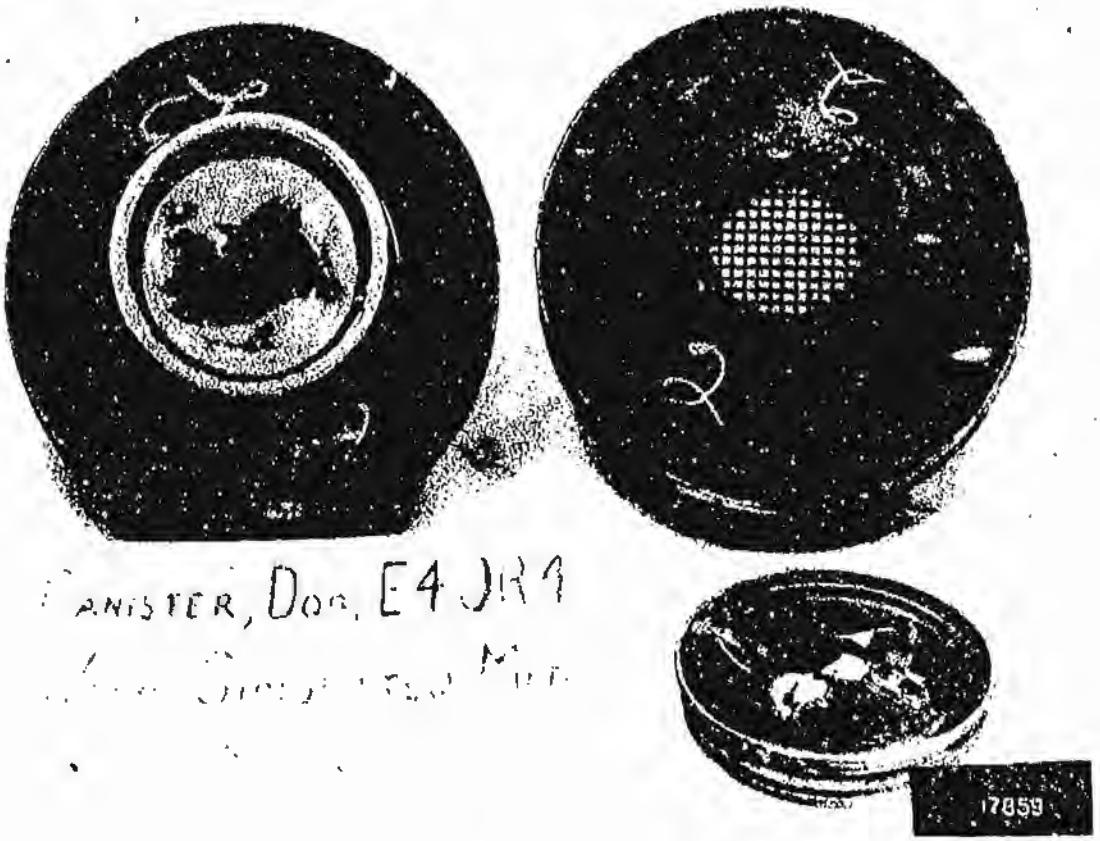

FIGURE 4

E4OR4 DOG CANISTER WITH SIMULATED MUD-GUARD ASSEMBLY

(b)(3):10 USC 130

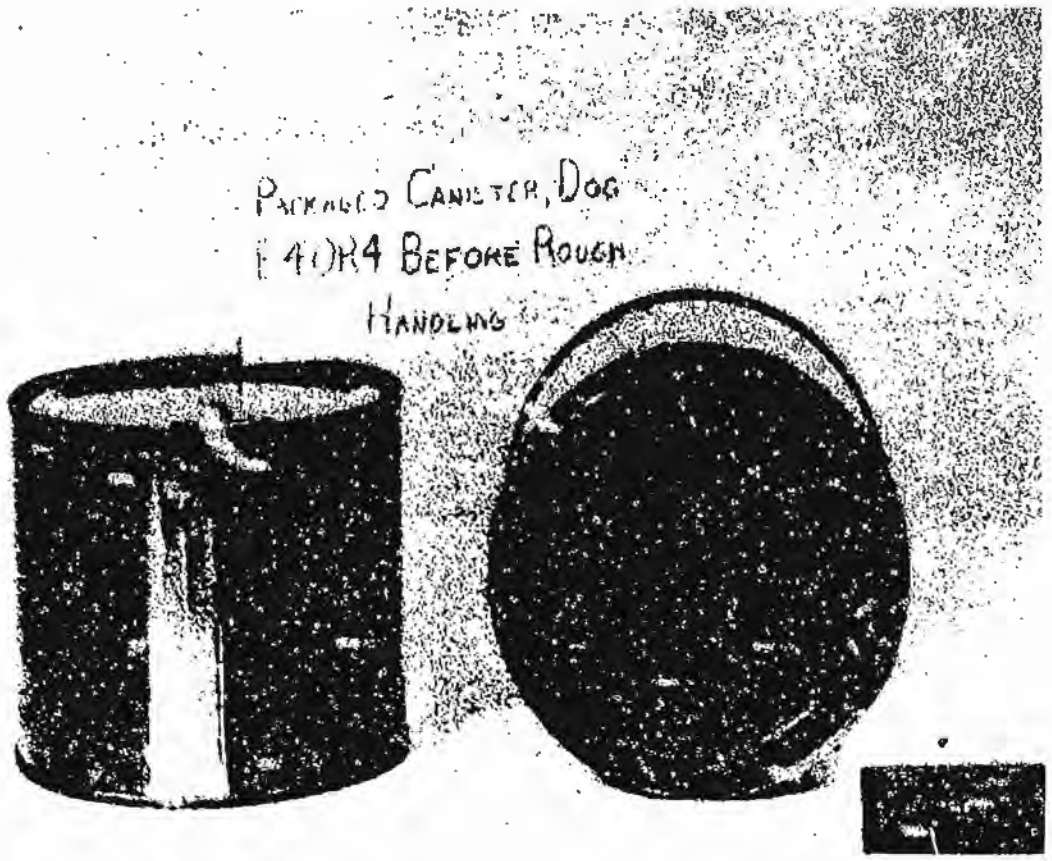

FIGURE 5

PACKAGED E4OR4 DOG CANISTER

View shows exterior appearance of two tear-strip cans, each holding two E4OR4 dog canisters, before rough handling.

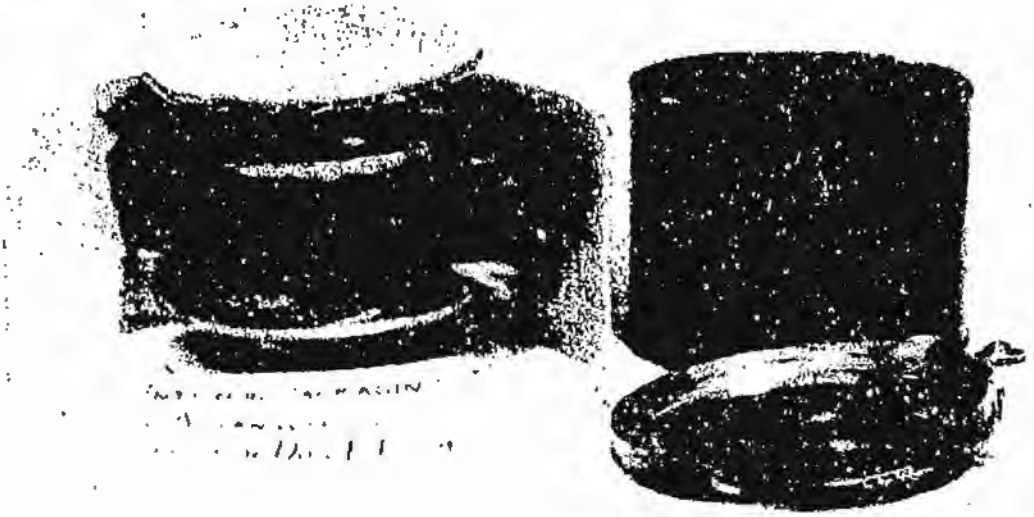

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FIGURE 6

INTERIOR ARRANGEMENT OF PACKAGE OF EIGHT DOG CANISTERS

(b)(3):10 USC 130

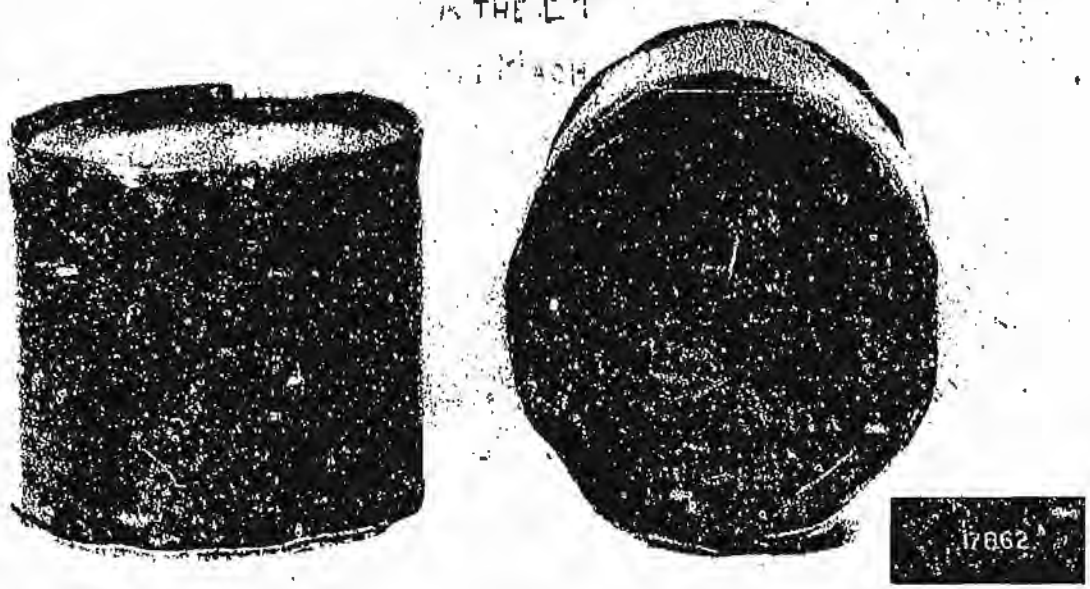

FIGURE 7

CANISTER PACKAGES AFTER 10-MIN. EXPOSURE TO E4 ROUGH-HANDLING MACHINE

(b)(3):10 USC 130

DAMAGE CAUSED PACKAGE
CANISTER, DOG; E4OR4
IN E4 ROUGH HANDLING
MACHINE.

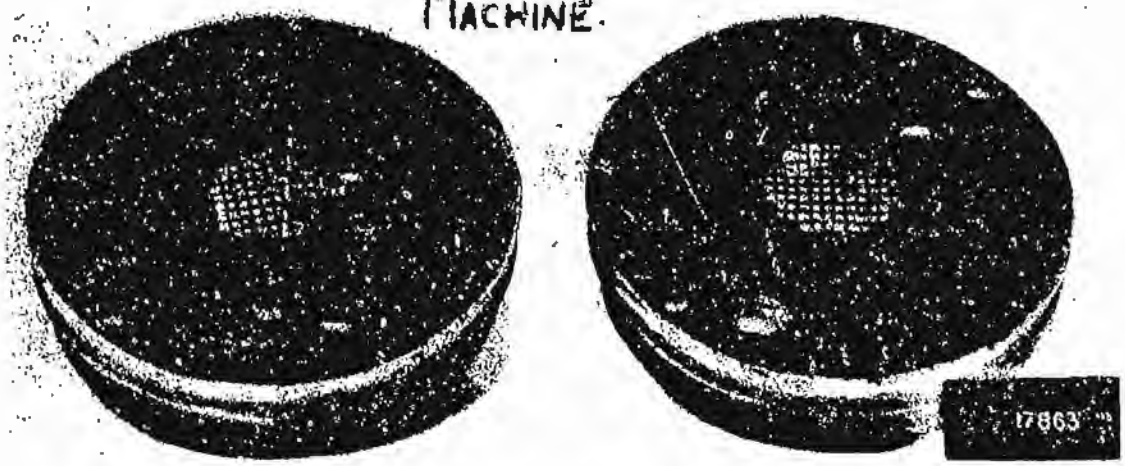

FIGURE 8

INDIVIDUAL CANISTERS AFTER PACKAGED ROUGH HANDLING

(b)(3):10 USC 130

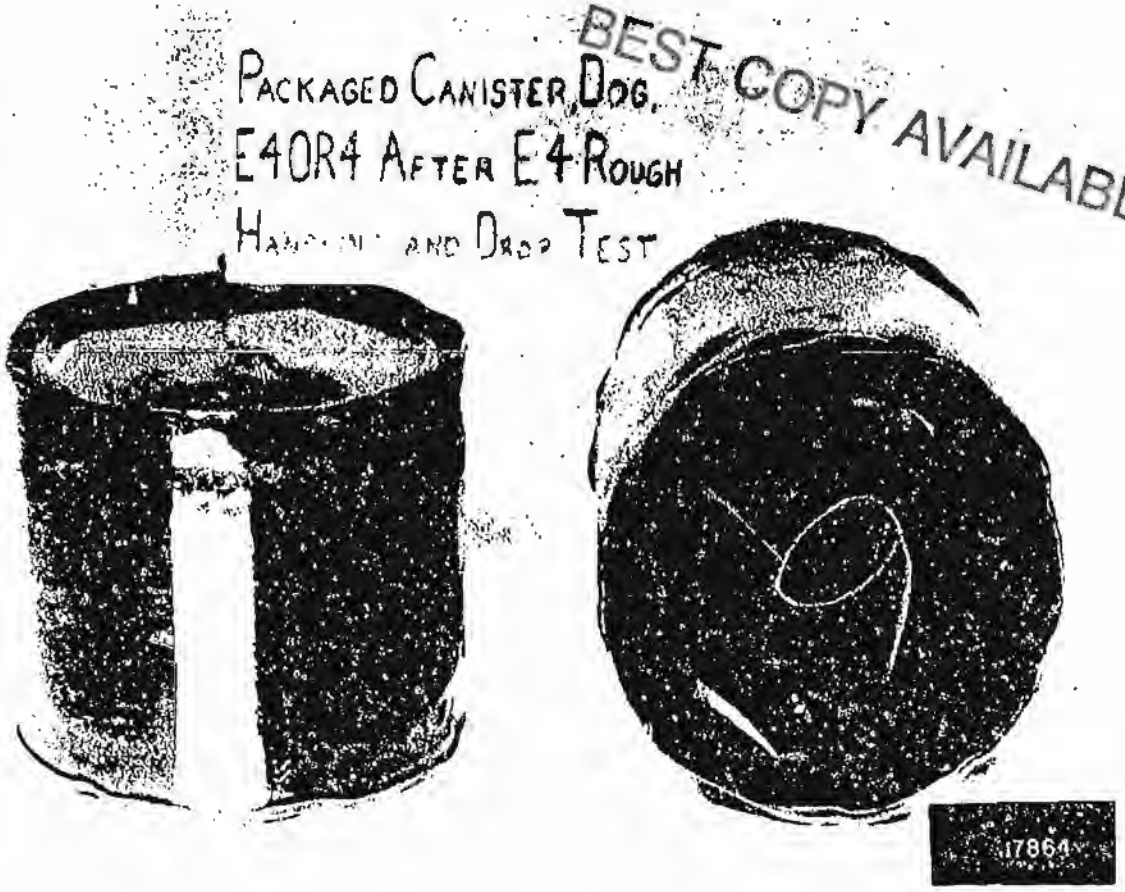

FIGURE 9

DOG CANISTER PACKAGE AFTER E4 MACHINE ROUGH HANDLING, AND DROP TEST

Typical appearance of packages of E4OR4 dog canisters after rough handling on E4 machine and drop test.

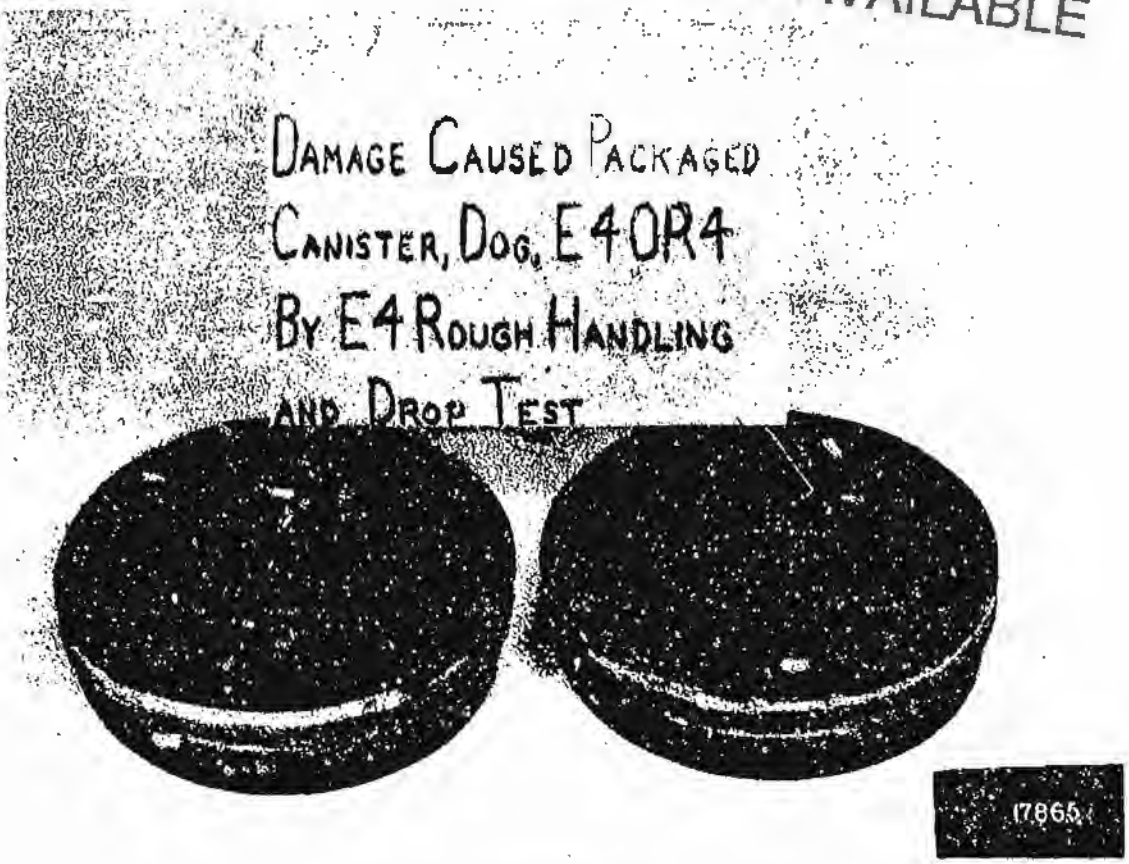

FIGURE 10

DAMAGE CAUSED TO CANISTER AFTER PACKAGED ROUGH-HANDLING AND DROP TESTS

(b)(3).10 USC 130

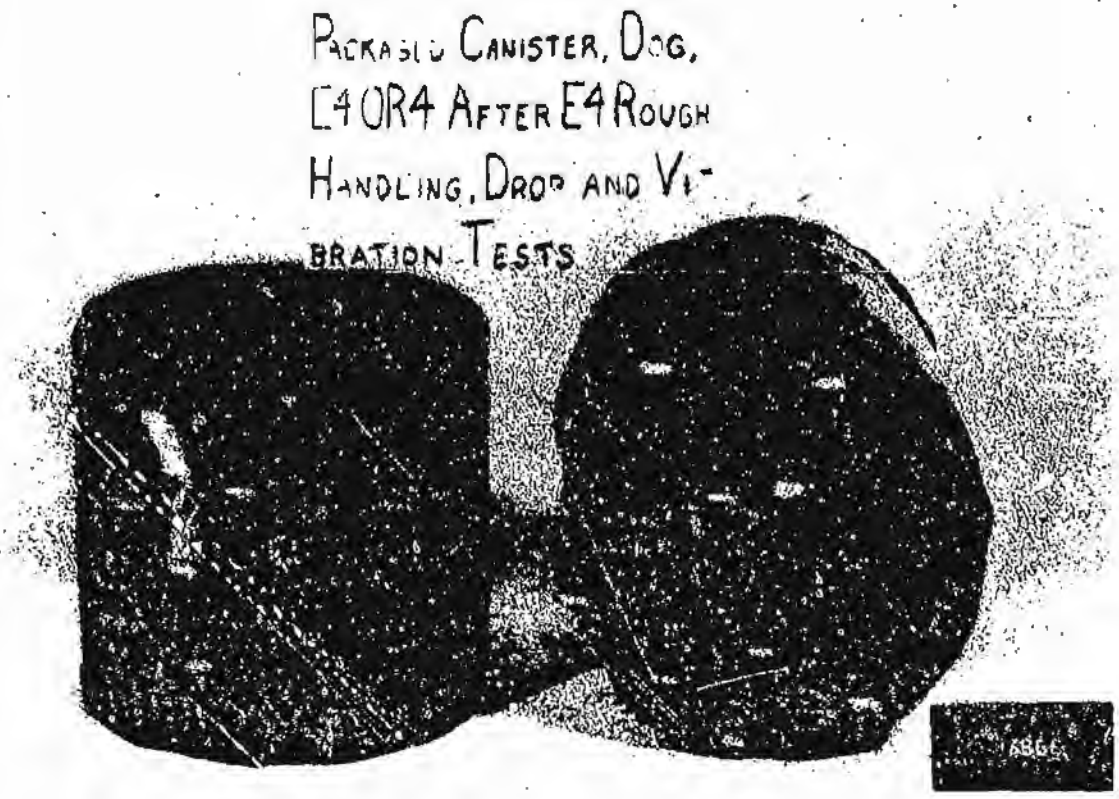

FIGURE 11

CANISTER PACKAGE AFTER ROUGH-HANDLING, DROP, AND VIBRATION-TESTED

Appearance of two packages of E4OR4 dog canisters that were rough-handled on the E4 machine, and then drop-and vibration-tested.

DAMAGE CAUSED PACKAGED CANISTER, DOG, E4OR4 BY E4 ROUGH HANDLING, DROP, AND VIBRATION TESTS

FIGURE 12

INDIVIDUAL DOG CANISTERS AFTER ROUGH-HANDLING, DROP, AND VIBRATION TESTS

(b)(3):10 USC 130

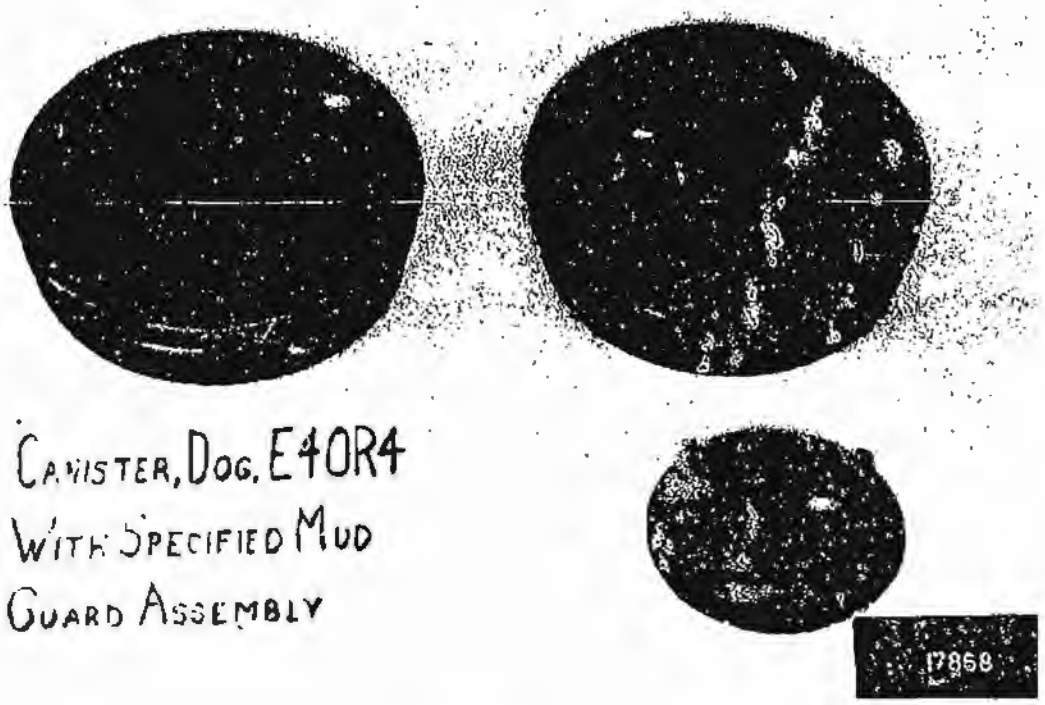

FIGURE 15

E4OR4 DOG CANISTER WITH E4R2 MUD GUARD

The Canister, Dog, E4OR4, is here fitted with the prescribed mud guard.

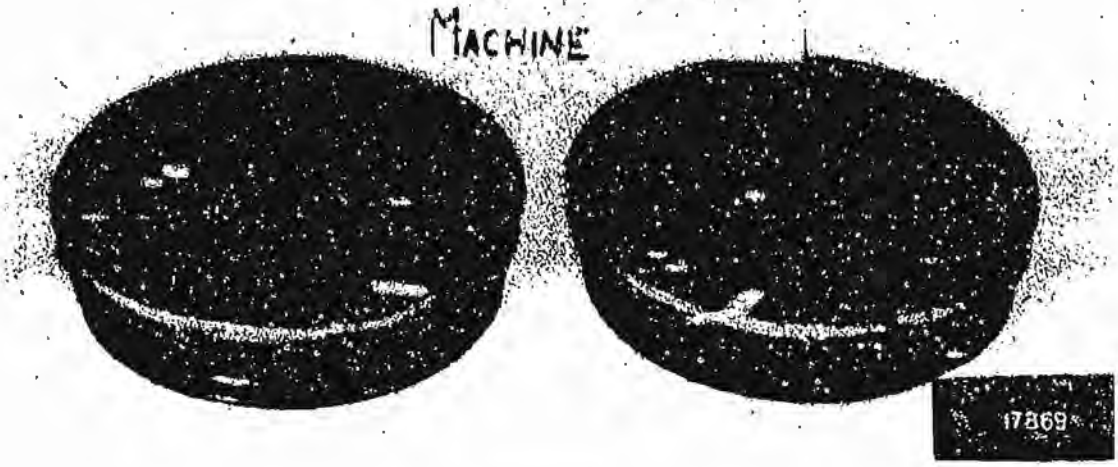

FIGURE 14

DAMAGE TO E4OR4 DOG CANISTER FROM E4 ROUGH-HANDLING MACHINE

(b)(3):10 USC 130

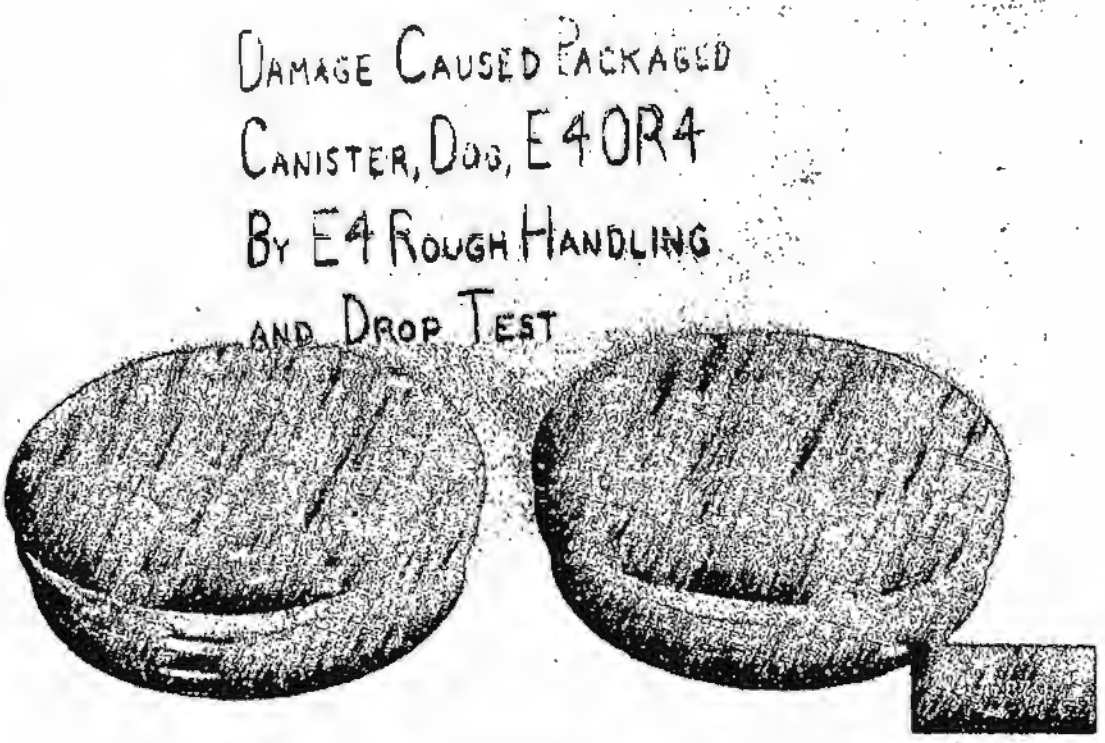

FIGURE 15

DAMAGE TO E4OR4 DOG CANISTER FROM E4 MACHINE ROUGH-HANDLING AND DROP TEST

(b)(3):10 USC 130

DAMAGE CAUSED PACKAGED CANISTER, DOG, E4OR4 BY E4 ROUGH HANDLING, DROP, AND VIBRATION TESTS

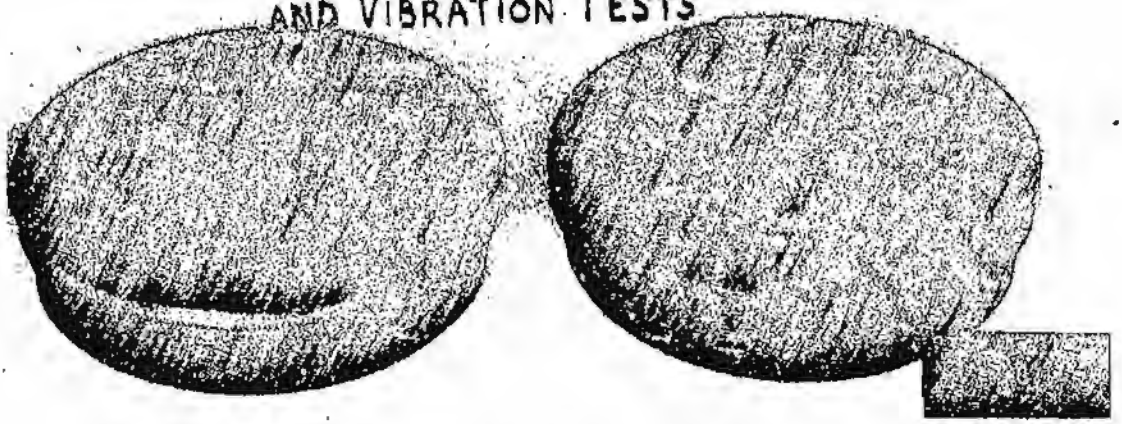

FIGURE 16

DAMAGE TO INDIVIDUAL E4OR4 DOG CANISTERS FROM ROUGH-HANDLING, DROP AND VIBRATION TESTS

(b)(3) 10 USC 130

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APPENDIX D

CORRESPONDENCE

Canister, Dog, E4C1L4

CMLRE-CR(P)GT 1st Ind. GOSHORN/4287/bjy
(10 Dec 52)
SUBJECT: Canister, Dog, M12

CHEMICAL CORPS CHEMICAL AND RADIOLOGICAL LABORATORIES, Army Chemical Center, Maryland, 7 January 1952

TO: Commanding Officer
Cml C Engineering Agency
Army Chemical Center, Maryland

1. A number of dog canister, M12 were obtained from the (b)(3):10 USC 130 (b)(3):10 USC 130

Canister No.	Rough Handled	Methods of Rough Handling	Life min.
(b)(3):10 USC 130			

2. The above results show that the subject canister is not satisfactory for use in service.

3. A project has been initiated in the Protective Division to develop a suitable dog canister.

FOR THE COMMANDING OFFICER:

(b)(6)

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Lt Col, Cml C, Executive Officer

cc: R & E Com
CRL
Reading File
Prot Div

[redacted]

COPY

CMLRE-RA SS-5 10 December 1952

SUBJECT: Canister, Dog, M12

TO: Commanding Officer
Cml C Chemical and Radiological Laboratories
Army Chemical Center, Md.
ATTN: Chief, Protective Division

1. A Military specification to supersede U. S. Army Specification 97-52-146, covering the subject item is being prepared by this Agency.

2. Since the Military specification will include a rough handling test, it is requested that requirements for said test be furnished this Agency in order that conversion of the specification may be expedited.

/S/ (b)(6)
Colonel, Cml C
Commanding

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	20 - 22	Chief, Protective Division, CRL
	23	Chief, Engineering Division, CRL
	24	Commanding Officer, CmlC Engineering Agency, Army Chemical Center, Md.
	25	Commanding Officer, Edgewood Proving Ground, Army Chemical Center, Md.
	26	Commanding Officer, Dugway Proving Ground, Tooele, Utah
	27	President, CmlC Board, Army Chemical Center, Md.
	28	Commandant, CmlC School, Fort McClellan, Alabama
	29	Commanding General, CmlC Materiel Command, 200 W. Baltimore St., Baltimore, Md.

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