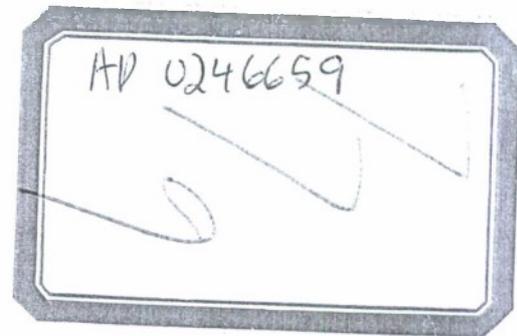


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**GUIDE TO AIRCREW PERSONAL AND AIRCRAFT
INSTALLED EQUIPMENT**
(Supersedes WADC TN 57-331)

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Edited by

BETTY K. BOGART

AERO MEDICAL LABORATORY

AUGUST 1958

WRIGHT AIR DEVELOPMENT CENTER
AIR RESEARCH AND DEVELOPMENT COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

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WADC TECHNICAL NOTE 58-259
ASTIA DOCUMENT No. 155895

AD-246659

**GUIDE TO AIRCREW PERSONAL AND AIRCRAFT
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(Supersedes WADC TN 57-331)**

Edited by
BETTY K. BOGART

AERO MEDICAL LABORATORY

AUGUST 1958

PROJECT No. 6325

**WRIGHT AIR DEVELOPMENT CENTER
AIR RESEARCH AND DEVELOPMENT COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO**

FOREWORD

This catalog of Aero Medical Laboratory end items includes both aircrew personal equipment and aircraft installed equipment of special interest to aircrews.

The information contained herein has been compiled by the Aero Medical Laboratory, Wright Air Development Center, Wright-Patterson Air Force Base, Ohio.

Corrections, criticisms and comments would be appreciated and should be directed to the Commander, Wright Air Development Center, ATTN: WCLD, Wright-Patterson Air Force Base, Ohio.

Section IV entitled, "Parachutes and Related Equipment," was prepared with the help of Parachute Branch, Aeronautical Accessories Laboratory, Wright Air Development Center.

ABSTRACT

This catalog contains new and old Aero Medical Laboratory end items of special interest to aircrews and includes information on special high altitude and long range flight clothing, personal and aircraft installed oxygen equipment, survival kits, life rafts and preservers, parachutes, in-flight feeding systems, survival food packets, and aircraft installed food service equipment. A brief description of 94 items is included; there are 104 photographs. This technical note is intended as a supplement to Air Force supply catalogs and Air Force Manual 64-4, "Handbook of Survival Training and Personal Equipment Personnel."

PUBLICATION REVIEW

This report has been reviewed and is approved.

FOR THE COMMANDER:



ANDRES I. KARSTENS
Colonel, USAF (MC)
Assistant Chief,
Aero Medical Laboratory
Directorate of Laboratories

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Introduction.	1
I Special Flight Clothing	2
Anti-Exposure Assembly	2
Coveralls, Flying, Anti-Exposure, Type MD-1	2
Overshoes, Flying, Anti-Exposure Coveralls, Type MC-1	3
Coveralls, Flying, Man' s, Intermediate, Type MD-3A	3, 4
Ventilating Garments.	4
Ventilating Garment, Type MA-2	4, 5
Ventilating Garment, Type MA-3	6, 7
Ventilating Garment, Type CMU-1/P	12, 13
Coveralls, Flying, Man' s, Type CWU-1/P	7
Anti-G- Garments.	8
Coveralls, Anti-G, Type MB-2	8, 9
Anti-G, Cutaway, Type CSU-3/P	9
High Altitude (Partial Pressure) Coveralls	10
Coveralls, Flying, High Altitude, Type MC-3A	11
Coveralls, Flying, High Altitude, Anti-G, Type MC-4A.	11, 12
Gloves, Flying, Pressurized, High Altitude, Type MG-1	13, 14
Boot, Combat, Service, Mildew Resistant	14
Helmets	14
Helmet, Flying, Type P-4A	14, 15
Helmet, Flying, Type P-4B	15
Helmet, Flying, Protective, Type MB-3	16
Helmet, Flying, High Altitude, Type MA-2	16, 17
Helmet, Flying, High Altitude, Type MA-3	17
Helmet, Flying, Protective, Type HGU-2/P	18
Helmet, Sound Protector, Accomodating, Type HGU-1/P	19
Glass, Sun, Type HGU-4/P	18
Protector, Ear Sound, Type PRU-1/P and Helmet Sound Protector, Accomodating, Type HGU-1/P	19
II Oxygen Equipment	20
Oxygen Masks.	20
Oxygen Mask, Constant Flow, Type A-8B	20
Mask, Oxygen, Disposable, Type MA-1	20
Connector, Oxygen Mask To Regulator, Type CRU-8/P	21

Mask, Oxygen, Type A-14B 21
Mask, Oxygen, Pressure Breathing, Type MS-22001. 21, 22
Mask, Oxygen, Type MBU-3/P. 22
Modification Kit, MS-22001 Oxygen Mask, and P-4
Helmet, Type MD-1 22
Modification Kit, MS-22001 Oxygen Mask, Type CRU-4/P. 23
Oxygen Mask Facelet Kit 23, 24
Connector, Oxygen Mask To Regulator, Type MC-3A 24

Portable Oxygen Supplies. 24

Regulator, Oxygen, Demand, Type A-13 24
Regulator, Diluter Demand, Oxygen, Type A-15 25
Regulator, Oxygen, Demand, Pressure Breathing, Type A-21 25
Regulator, and Manifold Assembly, Multiplace, Portable,
Type ME-1 25
Cylinder and Regulator, Portable, Oxygen, Type A-1 26
Regulator and Cylinder Assembly, Portable, Therapeutic
Oxygen, Low Pressure, Type B-1 26
Cylinder and Regulator, Breathing Oxygen, Type MA-1 26
Regulator, Oxygen, Continuous Flow, Type CRU-5/P 27

Aircraft Mounted Regulators 27

Regulator, Oxygen, Type A-9A. 27
Regulator, Oxygen, Diluter Demand, Type A-12B. 27
Regulator, Oxygen, Diluter Demand, Manual Pressure
Breathing, Type A-14 28
Regulator, Oxygen, Diluter Demand, Automatic Pressure
Breathing, Types MD-1 and MD-2 28
Regulator, Automatic Diluter Demand, Oxygen Pressure
Breathing, Type D-2A. 28, 29
Regulator, Oxygen, Diluter Demand, Automatic Pressure
Breathing, High Pressure, Type MB-2 29

Emergency Oxygen Supplies 29

Cylinder Assembly, Oxygen, Type H-2 29
Regulator, Oxygen, Pressure Demand Bailout, Type MC-1 29
Regulator, Pressure Suit, Kit Mounted 30

Testers. 30

Tester, Oxygen Mask, Headset and Microphone, Type MQ-1. 30
Tester, Pressure Suit and Helmet, Preflight, Type TTU-17/E. 30

III Survival Equipment 31

Survival Containers 31

Cushion, Seat, Oxygen, and Survival Equipment 31
Container, Contoured, Seat Style, Emergency Sustenance,
Type MD-1 31, 32
Survival Cushion, Seat, Type MB-1 32
Sustenance Kit Container, Back Pad, Parachute Harness,
Type CNU-1/P. 33

Section

Page

Life Rafts	34
Raft, Inflatable, One-Man, Type MB-2	34
Life Raft, Inflatable, One-Man, Type PK-2, MB-4	34, 35
Life Raft Case, Back Type, One-Man, Type MH-1	35
Raft, Pneumatic, Four-Man, Type A-3B; Six Man, Type E-2B.	35, 36
Life Raft, Inflatable, Four-Man, Type MA-1	36
Raft, Pneumatic, Twenty-Man, Type F-2A, F-2B, F-2C.	37
Life Preservers	38
Life Preserver, Underarm, Pneumatic, Type MA-2, MA-2A, LPU-2/P	38, 39
Vest, Life Preserver, Pneumatic, Type B-5	39
Life Preserver, Underarm, Casualty, Type MB-1	40
Communications Equipment	40
Radio Set, AN/URC-4	40, 41
Radio Set, AN/URC-11	41
Battery, Type BA-1315/U	41
Radio Receiving Equipment, Airborne, UHF.	42
IV Parachutes and Related Equipment.	43
Parachutes	43
Parachute, Automatic, Back Type	43
Parachute, Automatic, Seat Type	44
Parachute, Automatic, Chest Type	44
Parachute, Separable, Back Type	45
Related Equipment	45
Capewell Canopy Release, Type J-1	45
Parachute Ripcord, Automatic, Type F-1B	45, 46
Spacer, Parachute Support	46
V Feeding Systems, Food Packets and Food Service Equipment	47
In-Flight Feeding Systems.	47
Sandwich Snack Meal.	47
Compact Box Lunch	48
Food Packet, In-Flight, Individual	48, 49
Meal, Precooked, Frozen	49
Foil Pack In-Flight Feeding System	50
Survival Food Packets.	50
Food Packet, Survival, ST.	50, 51
Food Packet, Survival, Arctic, SA.	51
Ration, Survival, Individual	51
Food Service Equipment	52
Galleys	52

Section

Page

Jugs and Vacuum Bottles	53
Jug, Insulated, Type CNU-2/C	53
Bottle, Vacuum.	53, 54
Hot Cups and Brackets	54, 55
Oven, Food Warming, Electrically Heated, Type B-4	56
Refrigerators	56
Dry Ice Refrigerator, Type B-1	56, 57
Refrigerator, Mechanical, Non-Frozen, Storage.	57, 58
Refrigerator, Mechanical, Frozen and Non-Frozen, Storage.	58
Packet, Accessory, In-Flight Feeding	58
Dispensing Kit, Liquid, Can Piercing.	59

LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1	The MD-1 anti-exposure coveralls with the emergency hood, mittens, and MC-1 boots	3
2	The MD-3A intermediate coveralls with matching hood	4
3	The MA-2 ventilating garment which protects the wearer against extremes of heat or cold	5
4	Front and back views of the MA-3 ventilating garment designed to protect the wearer against extremes of heat or cold	6
5	The CWU-1/P coveralls	7
6	The hook blade-snap blade pocket knife with both blades extended	8
7	The hook blade-snap blade pocket knife is attached to the knife pocket with a 60-inch long lanyard	8
8	The MB-2 anti-g coveralls	9
9	Front and back views of the CSU-3/P anti-g cutaway garment	10
10	The MC-3 partial pressure suit for bomber crews	11
11	The MC-4 partial pressure suit for fighter pilots	12
12	The CMU-1/P ventilating garment designed for wear under the partial pressure suit	13
13	The MG-1 high altitude pressurized flying gloves	13
14	The combat boot for wear with all standard flight clothing and the partial pressure suit	14
15	The P-4A helmet	15
16	The P-4B helmet	15
17	The MB-4 protective flying helmet	16
18	The MA-2 high altitude flying helmet	17
19	The MA-3 high altitude flying helmet	17
20	The HGU-2/P protective flying helmet	18
21	The HGU-4/P sunglass	18
22	The PRU-1/P ear sound protectors for wear by ground crews exposed to intense noise levels	19

<u>Figure</u>		<u>Page</u>
23	The HGU-1/P helmet for wear over the ear sound protectors during cold weather	19
24	The A-8B oxygen mask	20
25	The MA-1 disposable oxygen mask with connector and tubing assembly	20
26	The CRU-8/P oxygen mask to regulator connector	21
27	The A-14B demand oxygen mask	21
28	The MS-22001 oxygen mask	22
29	The MD-1 oxygen mask retention kit worn with the MS-22001 oxygen mask and P-4A helmet	22
30	The MS-22001 oxygen mask with CRU-4/P sponge modification kit	23
31	The CRU-4/P sponge modification kit	23
32	The oxygen mask facelet kit	23
33	The MC-3A oxygen mask to regulator connector	24
34	The A-13 oxygen regulator	24
35	The A-15 oxygen regulator	25
36	The A-21 oxygen regulator	25
37	The ME-1 portable therapeutic kit regulator	25
38	The A-1 oxygen cylinder and regulator assembly	26
39	The B-1 portable regulator and cylinder assembly	26
40	The MA-1 oxygen cylinder and regulator assembly	26
41	The CRU-5/P oxygen regulator	26
42	The A-9 oxygen regulator	27
43	The A-12B automatic diluter demand oxygen regulator	27
44	The A-14 automatic diluter demand oxygen regulator	27
45	The MD-1 regulator	28
46	The D-2A regulator	28
47	The MB-2 regulator	28
48	The H-2 oxygen cylinder assembly	29
49	The MC-1 oxygen regulator	29

<u>Figure</u>		<u>Page</u>
50	The kit mounted oxygen regulator	29
51	The ME-1 control panel for the kit mounted regulator	29
52	Contractor furnished kit	31
53	The MD-1 survival container	32
54	The MB-1 survival cushion with the H-2 bailout assembly	32
55	The CNU-1/P back type sustenance kit container	33
56	The arrangement of the survival items in the CNU-1/P sustenance kit	33
57	MB-3 assembly	34
58	The PK-2 one-man life raft (modified MB-4)	34
59	The MH-1 life raft case	35
60	A modified version of the MH-1 life raft case	35
61	The A-3B four-man life raft	36
62	The E-2B six-man life raft	36
63	The F-2B 20-man life raft with the canopy rolled back	37
64	The F-2B 20-man life raft with the canopy down	37
65	The MA-2 underarm life preserver	38
66	The B-5 life preserver	39
67	The MB-1 life preserver	40
68	The URC-4 radio with battery	41
69	The URC-11 radio	41
70	Front view of the back type automatic parachute	43
71	Back view of the back type parachute	43
72	Front view of the B-4 parachute	43
73	Back view of the B-4 parachute	43
74	Front view of the seat type parachute	44
75	Back view of the seat type parachute	44
76	The chest type automatic parachute	44

<u>Figure</u>		<u>Page</u>
77	The harness configuration of the separable back pack	45
78	Front view of the separable back pack	45
79	Back view of the separable back pack	45
80	The F-1B automatic parachute ripcord	46
81	The parachute support spacer for all ejection seat aircraft	46
82	The parachute support spacer for B-47 and B-52 aircraft	46
83	The sandwich snack meal	47
84	Packaging arrangement of the compact box lunch	48
85	Components of the compact box lunch	48
86	The packaging arrangement of the in-flight food packet	49
87	Components of the individual flight food packet	49
88	Casserole and tray types of precooked frozen meals	49
89	The foil pack meal ready for serving	50
90	Survival food ration for tropical conditions	50
91	SA-4 arctic survival food packet	51
92	Individual survival ration	51
93	Components of the individual survival ration	51
94	An aircraft food galley	52
95	The CNU-2/P insulated jug	53
96	A horizontal bottle for hot or cold liquids	53
97	The A-1 and B-1 hot cup inserted in the bracket and receptacle	54
98	The B-4 oven	56
99	The B-1 dry ice refrigerator	56
100	The SR-6 mechanical refrigerator showing foil packs in place	57
101	The SR-6A mechanical refrigerator	57
102	The in-flight feeding accessory packet	58

<u>Figure</u>		<u>Page</u>
103	The can-piercing drinking device showing the disposable mouthpiece and plastic drinking tube	59
104	The complete can-piercing drinking device, "Canmaster"	59

INTRODUCTION

This technical note has been prepared as an information brochure of both old and new personal equipment and aircraft installed equipment of special interest to aircrews. The information contained herein is limited to nomenclature and a brief description of each item with an appropriate photograph illustrating most of the items.

The items included in this publication are of four status classifications. Developmental -- any new or redesigned item undergoing development or testing and which has not been released as a satisfactory prototype for procurement in quantity for limited or general Air Force use. Tentative standard -- an item which will be procured in limited quantities prior to completion of development or of testing. Standard -- any item of established need for Air Force use. Limited standard -- an item in stock which will be used until stocks are exhausted and of which additional stocks will not be procured.

This technical note is not a substitute for Air Force Supply Manual 67-1 or Air Force Manual 64-4, "Handbook for Survival Training and Personal Equipment Personnel", but it is intended as a supplement thereto.

SECTION I

SPECIAL FLIGHT CLOTHING

ANTI-EXPOSURE ASSEMBLY

The anti-exposure assembly is two complete assemblies in one. The inner assembly consists of the intermediate insulation coveralls (type MD-3A) and a separate protective hood. The leather combat boot completes this assembly. The outer assembly consists of the type MD-1 anti-exposure coveralls, the permanently attached MC-1 overshoe, and a separate protective hood and mittens. The MA-2 ventilating garment is also an integral part of the assembly and should be used under the inner garment to achieve the greatest degree of comfort. The type MD-1 coveralls come equipped with the type MC-1 parachutist knife.

Coveralls, Flying, Anti-Exposure, Type MD-1

MD-1 anti-exposure coveralls (figure 1) are used by pilots for extended or sustained flights over water where unprotected or prolonged exposure to cold air and cold water (approximately 50° F minimum) could be hazardous or fatal.

The one-piece coveralls are fabricated of a neoprene coated nylon fabric. Its main features include:

- a. Separate MC-1 overshoe boots attached to the coveralls after each has been fitted to the wearer;
- b. Separate hood and mittens stored in a pocket of the suit for emergency use;
- c. Portals for the hoses of the ventilating garment and anti-g suit;
- d. Double acting air bleeder valves to vent the air from the anti-exposure garment and to maintain a constant air flow, and to prevent water from entering the suit in the event of an emergency bailout over water;
- e. Entrance through a roll-up portal at the chest area which is secured by two diagonally installed slide fasteners.

The MD-1 anti-exposure coveralls replace the MK-4 assembly for Air Force use. The MD-1 which is lighter in weight and has less bulk than the MK-4 suit is fabricated of a higher abrasion resistant and longer wearing fabric.

Improvements presently being incorporated into the MD-1 anti-exposure coveralls include:

- a. A new type of neck and wrist seal that will provide less restriction and more protection from the entrance of water; and
- b. A more satisfactory integration of the ventilating garment.

The MD-1 anti-exposure suit has been designed to integrate with:

- a. MD-3A intermediate flying coveralls and hood;
- b. The MC-1 overshoe;
- c. The leather combat boot;
- d. The MA-2 and MA-3 ventilating garments;
- e. The MB-2 and CSU-3/P anti-g suits; and
- f. Other allied personal equipment such as helmets, parachutes, and underarm preservers.

It should be noted that the anti-exposure suit assembly does not integrate satisfactorily with the current standard partial pressure suit assembly.

Status: Tentative Standard

Identification: Specification MIL-C-25501
Stock No. 8415-641-6558
(small short)

Contractor: Aviator's Clothing Co.,
Beacon, New York

Overshoes, Flying, Anti-Exposure Coveralls, Type MC-1

The rubber MC-1 overshoe is designed to fit over the standard ankle-high service shoe or the ten-inch leather aircrew flight boot. The boot is similar to standard commercial overshoes, except that it utilizes a ring eyelet-lacing type closure. This provides ease in donning and eliminates any possibility of hooks catching on parachute lines or other equipment.

The overshoes are permanently affixed to the anti-exposure suit (figure 1) by field personnel in accordance with the instructions outlined in T.O. 14P3-5-31.

The overshoes are furnished in whole sizes 6 through 14 inclusive. All half sizes of basic boots or shoes are fitted in the next higher size of overshoe.

Status: Tentative Standard

Identification: Specification MIL-O-25489
Stock No. 8430-641-5980 (size 6)

Coveralls, Flying, Man's, Intermediate, Type MD-3A

The MD-3A intermediate coveralls (figure 2) are primarily an insulation garment for the MD-1 anti-exposure coveralls. The coveralls may also be used as separate flying coveralls in the intermediate temperature range of 14° to 40° F.

The major features include:

- a. Fabrication from two layers of a wool-backed nylon material;
- b. A full complement of pockets, webbing straps with take-ups at the leg endings, and pass-throughs for the hoses of the ventilating garment and anti-g suit;
- c. Entrance through the front by use of two slide fasteners. The lower slide fastener extending from the waist in front to the waist in back to provide entry at the back of the coveralls; and
- d. A separate hood of single ply wool-backed nylon material stored in a pocket of the coveralls.

The MD-3A intermediate coveralls are being procured as a part of the anti-exposure assembly, but by a separate stock number.



Figure 1. The MD-1 anti-exposure coveralls with the emergency hood, mittens, and MC-1 boots.

Status: Tentative Standard

Identification: Specification MIL-C-25490
Stock No. 8415-634-6524
(small short)

Contractor: Rolen Sportswear Co., Elizabeth,
New Jersey

VENTILATING GARMENTS

Ventilating garments have been designed to protect the wearer against extremes of heat and cold. The MA-2 ventilating garment presently in use will be replaced by the MA-3 ventilating garment. The main difference between the two garments is that the thermal efficiency of the MA-3 is increased and the weight is reduced. Both the MA-2 and MA-3 ventilating garments require the same air supply systems.

Ventilating Garment, Type MA-2

The MA-2 ventilating garment (figure 3) keeps the wearer of the integrated flying clothing assembly in thermal balance indefinitely at an ambient temperature of 165° F when 13CFM relatively dry ventilating air is supplied, the temperature of which is 70° F. In lower ambient temperatures, higher ventilating air temperatures or lower air flows are used. (See WADC Technical Report 55-152, "A Ventilating System for Clothing").

The major design and operational features of the MA-2 ventilating garment are as follows:

- a. It is a single piece, one-size garment without sleeves, designed to fit all sizes of personnel.
- b. It is made of two layers of vinyl film.
- c. Air is blown between the two vinyl layers through the air inlet hose at the front, and reaches the body through numerous perforations of the garment's inner layer.
- d. The suit and supply hose can be engaged or separated by a quick disconnect.
- e. The air flow is controlled by a throttle which is incorporated in the male part of the quick disconnect. The female part of the quick disconnect, which comes with the ventilating garment, is attached to its air inlet hose.
- f. A rubber flange at the garment's air inlet provides a water-tight seal between the ventilating garment and the MD-1 anti-exposure coveralls.
- g. The garment is closed by tie tapes at the back.

The following equipment or accessories are essential to supply the garment with the necessary ventilating air:

- a. In-Flight:
 1. The cockpit air conditioning system; or
 2. A small lightweight blower (4 inches in diameter by 8-1/2 inches in length and



Figure 2. The MD-3A intermediate coveralls with matching hood.

3-3/4 pounds in weight) which can supply air for two suits simultaneously. This blower comes with 27 volt D.C., 1/12 horsepower electric motor or with 115 volt A.C., 1/10 horsepower electric motor.

b. In standby and the readyroom:

1. The above small blower;
2. The above small blower with a 115 volt A.C., 1/10 horsepower electric motor;
3. A large blower (specification MIL-V-26095) which can supply air to 12 garments simultaneously; or
4. Compressed air from conventional compressed air lines using a connector throttle conforming to Air Force Drawing 56B3671, inserted in a compressed air hose of 5/16-inch inside diameter.

The first three standby or readyroom air sources require a male disconnect connector (Air Force Drawing 55B3546) and oxygen hoses (mask-to-regulator type), in accordance with AN6003, to connect the air source to the ventilating garment.

Clothing items to be worn with the MA-2 ventilating garment are:

- a. Long underwear;
- b. A coverall type anti-g suit or K-2B coveralls;
- c. One pair of medium weight wool socks;
- d. The MD-3A coveralls;
- e. The MD-1 anti-exposure suit with gloves and boots.

The ventilating garment can also be worn with other clothing combinations such as partial pressure suits, normal flying clothing, and clothing of maintenance personnel. The MA-2 ventilating garment should not be worn with MC-3 or MC-4 partial pressure suits. The CMU-1/P ventilating garment should be worn. (See page 12).

With proper handling, few problems will be encountered with the MA-2 ventilating garment during actual use. The garment must be dry before storing in the carrying bag. Cleaning of the garment should not be necessary under normal use. Small defects of the vinyl layers can be repaired by cementing a piece of flexible vinyl film over the damaged spot with plastic cement.

Status: Limited Standard

Identification: Specification MIL-V-25505
Stock No. 8415-508-7449

Contractor: LaResista Corset Co., Bridgeport, Connecticut



Figure 3. The MA-2 ventilating garment which protects the wearer against extremes of heat or cold.



Figure 4. Front and back views of the MA-3 ventilating garment designed to protect the wearer from extremes of heat or cold.

Ventilating Garment, Type MA-3

The MA-3 ventilating garment (figure 4) is interchangeable with the MA-2 ventilating garment and replaces the MA-2 ventilating garment.

The major features are:

- a. It is a single piece, one size garment without sleeves and with open legs, designed to fit all sizes of personnel;
- b. It is made of two layers of flexible vinyl film, the surface of which is cross-corrugated into a fine waffle pattern to facilitate the ventilating airflow between the vinyl layers and along the outer surfaces of the garment;
- c. Air is blown between the two vinyl layers through the air inlet hose at the front, and

- reaches the body through numerous specially arranged small holes in the garment's inner layer;
- d. Engagement with the air source, control of the ventilating air flow and the water tight seal between the ventilating garment and the MD-1 anti-exposure suit are obtained with the same elements as used with the MA-2.
 - e. The same air sources as described under the MA-2 ventilating garment (page 4) are used to supply the necessary ventilating air to the MA-3 ventilating garment during flight and standby or in the readyroom.

As compared with the MA-2 ventilating garment, the advantageous features of the MA-3 are:

- a. When worn unventilated the sweat accumulation within the clothing is reduced by the open legs and the larger and more numerous air exit holes provided through the garment.
- b. The thermal efficiency is increased 25%.
- c. The surface coverage of the wearer's back is increased.
- d. Elements such as coil spring spacers and snap fasteners which could cause pressure spots are eliminated.
- e. The weight is reduced 40%.

The MA-3 ventilating garment is worn with the same clothing combinations as listed for the MA-2 ventilating garment (page 4).

Status: Tentative Standard

Identification: Specification MIL-V-25923

Coveralls, Flying, Man' s, Type CWU-1/P

The CWU-1/P one-piece coveralls (figure 5) is a light lined suit fabricated from the following materials: The outer shell is nylon twill cloth, the inner lining is rayon-faced, wool-backed cloth, and the hood is a light-weight nylon twill cloth. The suit closure is made with a slide fastener that extends from the neck to the crotch and may be opened by a pull a tab at either end. The suit is equipped with pockets at breast, thigh, and calf areas, and a belted drop seat with slide fastener opening on each side. A combination cigarette-pencil pocket is placed on the left sleeve with slide fastener closure. A hood fabricated from 3-1/4 ounce nylon twill fabric, designed to cover the head, retracts within the fabric collar when not in use. The collar opening is closed by a slide fastener. The color of the suit is sage green. The suit is supplied in twelve sizes. The subject suit meets the requirements for a one-piece flight garment for use by flying personnel operating in the temperature range of 50 to 86°F.

Status: Standard

Identification: MIL-C-25786
Stock No. 8415-576-3402



Figure 5. The CWU-1/P coveralls.

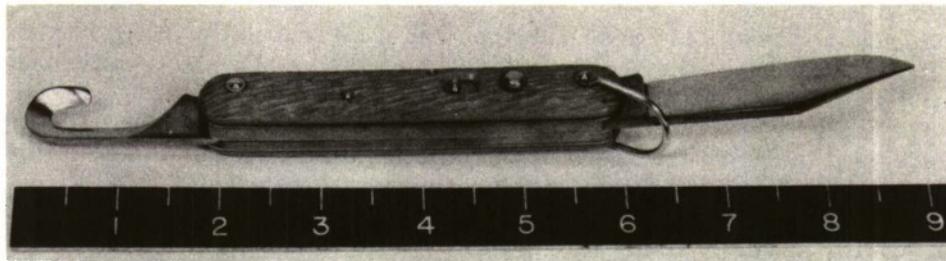


Figure 6. The hook blade-snap blade pocket knife with both blades extended.

Knife, Pocket, Hook Blade, Snap Blade, Type MC-1

The MC-1 pocket knife (figure 6) is a two blade knife. One blade is a hook blade designed with the cutting edge on the inside curve and along the inner edge of the shank. The hook blade is for the cutting of shroud lines or risers should entanglement occur after a water landing. (Reports indicate that entanglement in the canopy or suspension lines occurs when there is very little or no wind). The switch blade is an ordinary blade designed with a snap or push button mechanism. It is for the puncturing of life rafts or preservers should accidental inflation occur during normal flight. The knife can also be used as a readily accessible survival knife.

The knife is to be carried in a special pocket on the inner left thigh of outer flight clothing (figure 7). The knife will be inserted in the pocket with the hook blade open and down; the snap blade will be closed and locked. The knife will be attached to the pocket with a lanyard 60 inches long. The lanyard is accordion folded and carefully placed along side the knife in the pocket.

A technical order has been prepared outlining instructions for installing the knife pocket on outer flight clothing.

Status: Standard

Identification: Specification MIL-K-25594
Stock No. 7340-526-8740

ANTI-G GARMENTS

Anti-g garments are worn by fighter pilots for protection against acceleration forces.

Coveralls, Anti-G, Type MB-2

The major design features of the MB-2 anti-g coveralls (figure 8) include:



Figure 7. The hook blade-snap blade pocket knife is attached to the knife pocket with a 60-inch long lanyard.

- a. Five interconnecting bladders which exert pressure over the thigh, calf and abdominal regions;
- b. Interlacing adjustments extending from the crotch to knee and from the waist to knee; and
- c. Two placket type zippers on the back of the waist which can be loosened for comfort on the ground.

The basic material is 50-percent nylon-50-percent cotton combination. The bladder material is a chloroprene-coated nylon twill. The coveralls are available in 12 sizes.

Status: Limited Standard

Identification: Specification MIL-C-9277
Stock No. 8415-264-6364
(small short)

Contractors: Berger Brothers Co., New Haven, Connecticut;
David Clark Co., Inc.
Worcester, Massachusetts;
H. I. Garment Co., Chicago, Ill.
Switlik Parachute Co., Trenton, New Jersey;
Seymour Wallas Co., St. Louis, Missouri



Figure 8. The MB-2 anti-g coveralls.

Anti-G Garment, Cutaway, Type CSU-3/P

The cutaway garment, the CSU-3/P anti-g suit (figure 9) is a waist-to-ankle length wraparound suit incorporating the following features:

- a. Increased bladder coverage in the abdominal and thigh areas as compared to the MB-2 anti-g coveralls;
- b. A minimum of stiffening material limited to the back;
- c. Zippers opening fully down the side of the girdle area and down the entire leg length;
- d. Covered outer lacing adjustments in the waist and thigh areas which are accessible by unzipping the lacing cover;
- e. A placket type zipper on each thigh which can be loosened for additional comfort while not flying; and
- f. Elimination of the large coil springs which conventionally pass through the bladder system to facilitate inflation and which are the cause of painful pressure points experienced with the MB-2, G-3A and G-4A anti-g garments. These springs have been replaced by soft sponge rubber strips, except in the small areas under the parachute harness where three small rings run for a short distance to prevent constriction of the bladder passage.

The basic material is a 50-percent nylon-50-percent cotton combination. The bladder material is a chloroprene coated nylon twill. The garment is available in six sizes.

Status: Standard

Identification: Specification MIL-A-24892



Figure 9. Front and back views of the CSU-3/P anti-g cutaway garment.

HIGH ALTITUDE (PARTIAL PRESSURE) COVERALLS

High altitude coveralls are close-fitting garments designed for emergency and long term use in bomber and fighter type aircraft to provide emergency ("get down") protection to unlimited altitudes and extended duration at operational altitudes. The coveralls provide protection against the effects of low atmospheric pressure encountered at altitude; they are required on all flights above 50,000 feet.

The MC-3 partial pressure suit is for bomber type aircraft and the MC-4 partial pressure suit is for fighter type aircraft. The MC-4 partial pressure suit is identical to the MC-3, except that anti-g features (abdominal, thigh, and calf bladders) have been integrated into the MC-4 suit.

Coveralls, Flying, High Altitude, Type MC-3A

The MC-3A partial pressure suit (figure 10), designed for wear in bomber type aircraft, replaces the MC-3 partial pressure suit. The MC-3A is identical to the MC-3 except that the MC-3A permits size selection based on the individual's height and weight, simplifying the fitting of the garment. The MC-3A is also more comfortable to wear.

The MC-3A coveralls utilize inflatable capstan tubes. It contains a full torso bladder extending from the shoulder to mid thigh, completely surrounding the chest, abdomen and hips, and passing through the crotch.



Figure 10. The MC-3A partial pressure suit for bomber crews.

The MC-3A partial pressure suit is worn with the MA-2 pressure helmet (page 16), the CMU-1/P ventilating garment (page 12), a seat mounted oxygen regulator assembly, and the MG-1 pressure gloves (page 13).

Special boots for wear with the MC-3A partial pressure suit are currently under development. Until they are available, regular GI boots or jump boots may be worn with the partial pressure suit.

The MC-3A partial pressure suit is made of a combination nylon and cotton fabric.

The MC-3A partial pressure suit is always worn under regular flight clothing. It is never worn as an outer garment.

Status: MC-3 -- Limited Standard
MC-3A -- Tentative Standard

Contractors: Berger Brothers Company, New Haven, Connecticut;
David Clark Company, Worcester, Massachusetts

Coveralls, Flying, High Altitude, and Anti-G, Type MC-4A

The MC-4A partial pressure suit (figure 11), designed for wear in fighter type aircraft, replaces the MC-4 partial pressure suit.

The MC-4A partial pressure suit utilizes inflatable capstan tubes and contains a circumferential torso bladder extending from the shoulder to mid thigh.

The MC-4A is used with the MA-2 pressure helmet (page 16), the CMU-1/P ventilating garment (page 12), the seat kit mounted oxygen regulator, and the MG-1 pressure gloves (page 13).



Figure 11. The MC-4 partial pressure suit for fighter pilots.

Special boots for wear with the MC-4A partial pressure suit are currently under development. Until they are available, regular GI boots or "jump boots" may be worn with the MC-4 suit.

The MC-4A partial pressure suit is made of a combination nylon and cotton fabric.

The MC-4A partial pressure suit is worn as underwear under regular flight clothing. It is never worn as an outer garment.

The MC-4A partial pressure suit features great comfort and mobility. However, field comments indicate that when the MC-4A is worn in hot climates without benefit of air conditioning, heat on the ground (readyroom, transport to the aircraft, cockpit, and ramp) is excessive.

The CMU-1/P ventilating garment (page 12) has been developed to eliminate this problem.

The MC-4A partial pressure suit permits size selection based on the individual's height and weight eliminating the need to make extensive body measurements.

Status: MC-4 -- Limited Standard
MC-4A -- Tentative Standard

Contractors: Berger Brothers Company, New Haven, Connecticut;
David Clark Company, Worcester, Massachusetts.

Ventilating Garment, Type CMU-1/P

The CMU-1/P ventilating garment (figure 12) has been designed to maintain thermal balance, thus improving aircrew performance, under adverse conditions of heat and cold while wearing partial pressure garments.

It is a one-size, bib-like garment which closes in the back with two pairs of tie tapes. It is worn over the undershirt and tucked into the drawers.

The CMU-1/P ventilating garment is made from two layers of flexible vinyl film which is cross-corrugated into a fine "waffle" pattern to facilitate the ventilating air flow between the vinyl layers and along the outer surfaces of the garment.

Air passes through the air inlet hose at the lower front between the two vinyl layers and reaches the body through a large number of specially arranged small vent holes in the garment's inner layer. The air flow can be controlled by a throttle valve which is incorporated in the male part of a quick disconnect.

The female part of the quick disconnect comes with the garment and is attached to the air

inlet hose. This air inlet hose and the quick disconnect are the same parts as used for the MA-2 ventilating garment.

The same air sources as described under the MA-2 ventilating garment (page 4) are used to supply the necessary ventilating air to the CMU-1/P ventilating garment during flight and in the standby or in the readyroom. This ventilating air will allow the wearer of the CMU-1/P and the partial pressure suit to maintain thermal balance in moderately dry ambient air of 100°F, using that ambient air for ventilating. At 120°F under the same conditions, the wearer will reach the tolerance limit after about 3 hours. The use of colder ventilating air improves the situation substantially.

The CMU-1/P ventilating garment has been designed for wear with the following clothing:

- a. Underwear;
- b. The MC-3 or MC-4 partial pressure suit, including gloves, helmet; and
- c. Outer flight clothing.

Status: Tentative standard

Identification: Specification MIL-V-25882
Stock No. 8415-600-7651

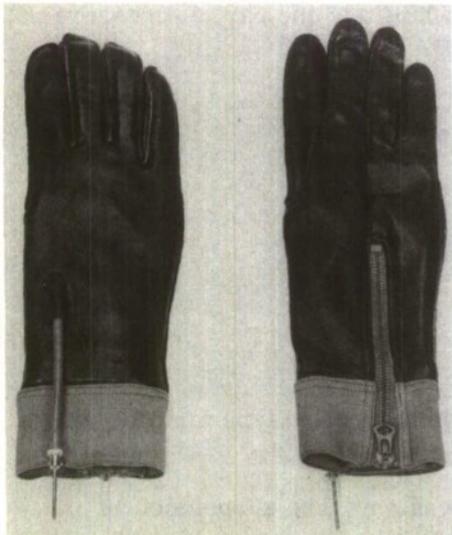


Figure 13. The MG-1 high altitude pressurized flying gloves.

sensitivity. The MG-1 glove is available in 12 sizes and provides a better fit. The MG-1 glove is not interchangeable with the earlier MCG-1 glove due to relocated and modified connections.

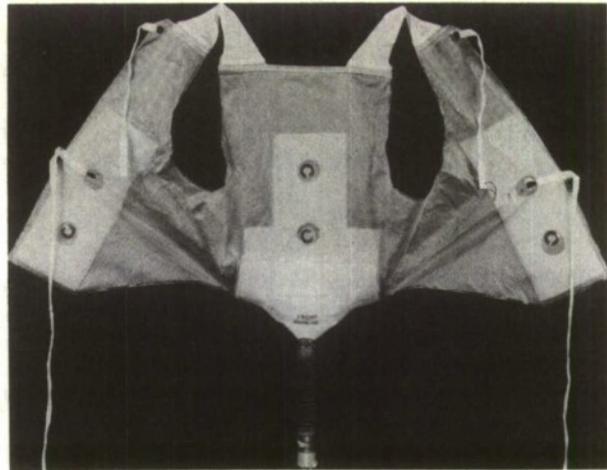


Figure 12. The CMU-1/P ventilating garment designed for wear under the partial pressure suit.

Gloves, Flying, Pressurized, High Altitude, Type MG-1

The MG-1 gloves (figure 13) are designed to provide counter pressure to the hands, when worn with the partial pressure altitude suits (MC-3 and MC-4), thereby, with the helmet, completing the protective assembly. The gloves provide adequate protection to any altitude and consist of:

- a. An outer leather shell,
- b. An inner bladder,
- c. A cuff, and
- d. A pressurizing tube.

The bladder covers the top of the wearer's hand from the wrist to the fingertips. It is connected by means of a positive locking needle connector to the altitude suit.

Pressure equal to breathing pressure inflates the bladder, drawing the relatively non-stretch leather tightly against the palm.

The MG-1 glove replaces the MCG-1 glove which was issued with the MC-1 altitude suit. The MG-1 is more durable and provides better finger dexterity and

Status: Standard

Identification: Stock No. 8415-551-9610 (through 9621)

Contractors: Berger Brothers Co., New Haven, Connecticut;
David Clark Co. Inc., Worcester, Massachusetts

Boot, Combat, Service, Mildew Resistant

This combat boot (figure 14) is used by aircrewmembers as a flight boot from the intermediate through high temperature ranges, 40° F and above. The boot integrates with all standard flying clothing and may be used with the partial pressure suits.

The item is a 10-inch high black leather boot with:

- a. A semi-hard capped toe;
- b. A raised diamond tread rubber sole;
- c. A rubber whole heel with beveled breast corners, and is
- d. Full laced from the blucher opening to the top.

The combat boot is not interchangeable with any other standard boot, but it is similar in design and appearance to the currently issued Air Police boot. The publication of the new TA-1-21 will make the combat boot available to all flying personnel as an issue item.

A long range program is in effect to improve the leather in the boot, to improve the design, and to develop a new last.

Status: Standard

Identification: Specification MIL-B-11077, class 2
Stock No. 8430-270-1702 (through 1818)



Figure 14. The combat boot for wear with all standard flight clothing and the partial pressure suit.

HELMETS

Helmet, Flying, Type P-4A

The P-4A helmet (figure 15) is for wear by crew members of jet propelled type aircraft on missions below 50,000 feet altitude.

It is a rigid molded plastic shell with a head harness type suspension. The suspension is laced to the helmet shell, rather than attached with hardware, to eliminate the danger of penetration if contact is made between the head and shell during impact. The lacing cord should be checked frequently to insure proper tautness.

The shell is lined with padding material for the dual purpose of providing additional head protection and to dampen vibrations.

The chin strap should be fastened at all times to insure helmet retention.

The P-4A helmet is identical to the P-4 helmet with the exception of the visor mechanism, which was modified to insure more protective locking in the down position during windblast. The visor is not automatic and must be operated manually.

The visor lens should be pulled down to the oxygen mask and locked into place. If it does not lock without pressure being applied to the mask, mark with a crayon pencil at places of contact, remove and grind off so as to lock in place with a minimum space between the lens and the mask.

Polish the ground edge of lens with a soft cloth polishing wheel and a jeweler's rouge.

Removal of the visor assembly changes the type designation to MB-4. The P-4A and the MB-4 helmets are interchangeable.

The P-4A helmet is used with all standard flight clothing except pressure suits. It also affords integration with the MS-22001 oxygen mask, and is equipped with communications for use with the AN/AIC-10 interphone system.

Status: Limited Standard

Identification: Specification MIL-H-7328B
Stock No. 8415-636-5527
(small)

Contractor: General Textile Mills,
Carbondale, Pennsylvania

Helmet, Flying, Type P-4B

The P-4B helmet (figure 16) is identical in all respects to the P-4A helmet except for the communications system.

Headset type H-149/AIC is compatible with the AN/AIC-10 intercommunication system.

The principal difference in the H-149 headset as used in the P-4B and the H-75 headset installed in previous P-4 models is in the routing of the cable leads and suspension of the earphone mountings inside the helmet.

The headset cable is attached to the oxygen mask hose with short leads to the microphone and earphone jack mounted on the helmet. The earphone mountings are laced to the helmet. The spring type suspension was deleted to eliminate interference with the mounting of the MD-1 oxygen mask retention kit (Hardman).

The cable arrangement of the H-149 headset is shown in figure 19 with the type HGU-2/P helmet.

Status: Standard

Identification: Specification MIL-H-7328

Contractor: Consolidated Controls Corporation, Portsmouth, Ohio



Figure 15. The P-4A helmet.



Figure 16. The P-4B helmet.

Helmet, Flying Protective, Type MB-3

The MB-3 helmet (figure 17) replaces the A-13 intermediate flying helmet (non-protective) and the P-4A helmet where the duties of bomber aircrewman cannot be performed while wearing a rigid type helmet (observers, navigators, bombardiers, photographers, etc.).

The MB-3 helmet is worn with all standard flight clothing except pressure suits. It consists of:

- a. A pliable white leather outer shell lined with a soft cotton suede material; and
- b. A laminated inner shell consisting of successive layers of 3/16-inch foam rubber, 1/32-inch vulcanized sheet fiber, 1/2-inch "Ensolite" (U. S. Rubber Co.) padding material, and a final layer of 3/16-inch foam rubber. Four such laminates are cut to a predetermined shape and joined together to form a shell approximately the configuration of a human skull. Each joint between the laminates is filled with low density foam rubber, permitting each section to shift position in conformance with the user's head shape. This form-fitting characteristic of the protective shell results in greatly reduced bulk when compared with standard rigid shell types of protective headgear.



Figure 17. The MB-3 protective flying helmet.

A reduction in helmet weight from 3-1/2 pounds (type P-4) to 2-1/8 pounds (type MB-3) results in part from reduced bulk of the helmet but is due principally to the use of vulcanized fiber in lieu of reinforced plastic in the protective shell. The effect of this substitution is less protective quality due to lower strength, rigidity, and hardness characteristics normally associated with currently protective helmet shells. However, a compromise involving these factors is considered necessary and justified in fulfilling the objectives underlying the development of the MB-3 helmet.

Status: Tentative Standard

Identification: Specification MIL-H-25758

Contractor: Continental Controls Corp., Portsmouth, Ohio

Helmet, Flying, High Altitude, Type MA-2

The MA-2 helmet (figure 18) is basically similar to the MB-5 helmet and is functionally superior. The MA-2 differs from the MB-5 in that it is equipped with:

- a. A long neckpiece which covers the upper chest and shoulder areas;
- b. A deeper neck seal;
- c. An in-turned bladder;
- d. A three-way stretch cloth insert in the neckpiece to increase head mobility;
- e. Snap fasteners to prevent the neckpiece from pulling out of the suit; and
- f. A facepiece which incorporates a 24 volt heating circuit, and in flight feeding valve, and a 3/8-inch internal diameter silicone hose covered with a nylon stockinette which carries both communication and facepiece heater wires.

The MA-2 helmet is worn only with the MC-3 and MC-4 partial pressure suits. Field

comments indicate the MA-2 helmet incorporates better defrosting characteristics with a greater degree of safety from pulling out of the partial pressure suit. However, restricted vision and lack of mobility have been cited as problems.

Status: Tentative Standard

Identification: Stock No. 8415-527-9679

Contractor: International Latex Corp., Dover
Delaware



Figure 18. The MA-2 high altitude flying helmet.

Helmet, Flying, High Altitude, Type MA-3

The MA-3 helmet (figure 19) has been designed to provide protection at altitudes above 50,000 feet. It is used with the MC-3 or MC-4 partial pressure suits and is interchangeable (as a complete unit) from a functional standpoint with the MA-2 helmet.

The principal features of the MA-3 helmet are:

- a. A hard outer shell which serves as a pressure retaining part;
- b. A neck seal bladder extending from the ring neck seal to the lower portion of the neck;
- c. A cloth neckpiece, extending from the base of the helmet over the upper part of the chest and shoulder and fitting well under the partial pressure suit, which prevents ballooning of the bladder and is attached to the detachable neck ring;
- d. A foamed plastic material lining the interior shell to provide adequate comfort;
- e. A visor coated with a new material permitting heating of the lens without filament wires in the visor improving vision. The visor is hinged to the helmet for ease in opening and closing of the visor; and
- f. An inhalation valve located in the rear of the helmet shell which ducts the oxygen via channels, and a spray bar over the lens for defogging.



Figure 19. The MA-3 high altitude flying helmet.

The helmet provides improved vision, comfort, and ease in donning as compared to the MA-2 helmet. The MA-3 helmet is presently being service tested.

Status: Developmental

Contractor: Bill Jack Scientific Instrument Co., Solana Beach, California

Helmet, Flying, Protective, Type HGU-2/P

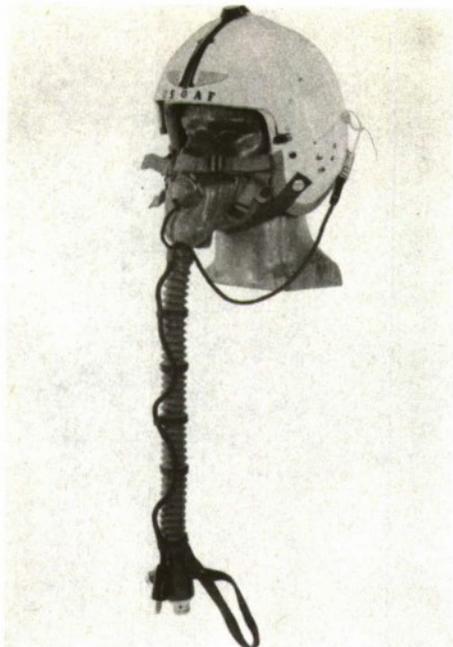


Figure 20. The HGU-2/P protective flying helmet.

The HGU-2/P helmet (figure 20) has been designed to replace the P-4 series helmet.

It is a rigid molded reinforced plastic shell. The shell contours are formed by a system of continuing radii for greater inherent strength. This further permits the use of a closely fitted visor assembly. A visor housing serves to reduce damage to the lens and adds considerably to impact protections. The visor is not automatic and must be operated manually.

The principal difference from previous configurations is the use of a foam plastic liner rather than the sling type suspension. To this liner are attached the helmet fitting pads of proper thickness to adjust the helmet to individual head sizes.

The HGU-2/P helmet will be used with all standard flight clothing except pressure suits.

Status: Tentative Standard

Identification: Stock No. 8415-NSL-02
P/N 78040 (medium)
P/N 78041 (large)

Contractor: Mine Safety Appliance Company,
Pittsburg, Pennsylvania

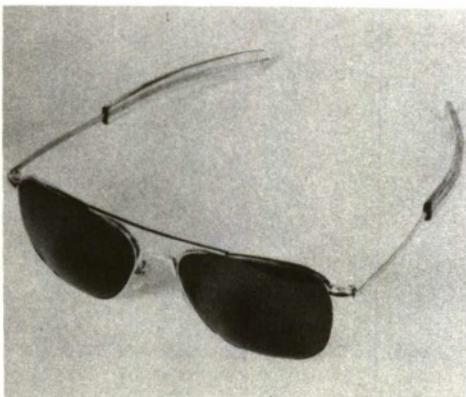


Figure 21. The HGU-4/P sunglass.

GLASS, SUN, TYPE HGU-4/P

The HGU-4/P sunglass (figure 21) is a metal frame sunglass with plastic tipped temples and tinted glass lenses. This sunglass replaces the F-2 plastic frame sunglass and the G-2 metal frame sunglass.

This sunglass has been designed to integrate with any type oxygen mask and helmet. The sunglass conforms to easy donning and removing while wearing headgear because of the straight temple. The straight temple also relieves the pressure behind the ears.

This sunglass is intended for global use by aircrews and ground personnel subject to sun glare during the normal course of duty.

Status: Standard

Identification: Specification MIL-G-25848
Stock No. 8465-559-6215

Contractor: American Optical Co., Southbridge, Massachusetts

**PROTECTOR, EAR, SOUND, TYPE PRU-1/P, AND HELMET,
SOUND PROTECTOR ACCOMMODATING, TYPE HGU-1/P**

The ear protector (figure 22) consists of close fitting muffs held in place over the ears by an adjustable head band. One size fits all individuals.

The ear protector is for use by all individuals who are exposed regularly to intense noise levels during work on the ground. The ear protector is not intended for wear during flight but may be required in shops, wind tunnels, gunnery ranges, etc. Its most widespread requirement is among personnel working on aircraft engine test stands and performing ground maintenance on aircraft.



Figure 22. The PRU-1/P ear sound protector for wear by ground crews exposed to intense noise levels.



Figure 23. The HGU-1/P helmet for wear over the ear sound protectors during cold weather.

The ear protector may be integrated into the HGU-1/P cloth helmet (figure 23) for warmth during cold weather. This wool backed nylon helmet is especially designed to accommodate the ear protectors. It will provide adequate thermo protection in a temperature range of approximately -15° to $+60^{\circ}$ F. When not needed, it can be rolled up to sit on top of the head. The helmet can be washed or dry cleaned without danger of shrinkage or loss of shape. The helmet comes in four sizes.

A related item to the ear protector is the Headset-Microphone H-133/AIC. This consists of the same basic ear protector into which earphones are integrated and to which is attached a microphone mounted in a noise shield. This item is for use when interphone communication is required in intense noise.

Status: Standard

Identification: Ear Protector -- Air Force Drawing 57D3529
Stock No. 8415-565-0253

Helmet -- Specification No. MIL-H-25785
Stock No. 8415-55-1-0711 (small)

Contractor: Ear Protector -- David Clark Co., Inc., Worcester, Massachusetts

SECTION II

OXYGEN EQUIPMENT

The oxygen systems in aircraft all accomplish the same purpose regardless of their basic configuration. They deliver breathing oxygen to the crew members through a mask at the required pressure from installed components consisting of containers (high or low pressure gaseous bottles or liquid oxygen converters), distribution lines, and valves to a regulator located at the crew station.

There are three basic types of oxygen systems:

1. The continuous-flow system for routine use at altitudes up to 30,000 feet;
2. The diluter-demand system for routine use at altitudes up to 35,000 feet and emergency use to 42,000 feet; and
3. The pressure breathing system for routine use up to and including 42,000 feet and emergency use to 50,000 feet.

OXYGEN MASKS

Oxygen Mask, Constant Flow, Type A-8B

The A-8B constant flow oxygen mask (figure 24) is similar to the A-20 oxygen mask now undergoing evaluation. The main difference is that the A-20 will receive the M32/AIC microphone in its port, whereas A-8B will only accommodate the carbon-microphone, ANB-M-C-1, of the AIC/8 interphone system.

Status: Standard

Identification: Air Force Drawing 42C4764
Stock No. 1660-516-2749

Contractor: Ohio Chemical And Surgical Co.,
Madison, Wisconsin

Mask, Oxygen, Disposable, Type MA-1

The type MA-1 disposable mask (figure 25) is used with the continuous flow systems for emergency use only by passengers. The Type A-8B mask is for routine use. The MA-1 mask is a one-time use item and should be destroyed after use.

Status: Standard

Identification: Ohio Chemical P/N 304-5124V
Stock No. 5538-304-5124

Contractor: Ohio Chemical and Surgical Co.,
Madison, Wisconsin



Figure 24. The A-8B oxygen mask.

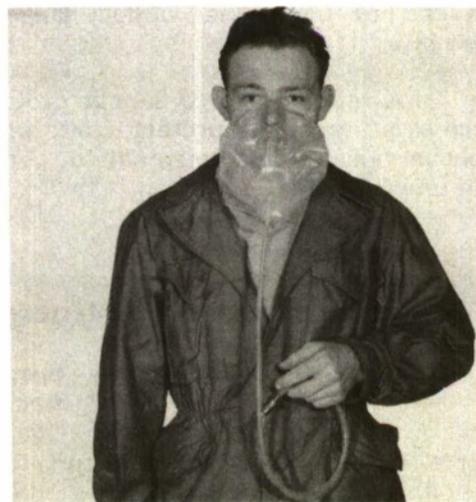


Figure 25. The MA-1 disposable oxygen mask with connector and tubing assembly.

Connector, Oxygen Mask To Regulator, Type CRU-8/P

The connector, oxygen mask to regulator, type CRU-8/P (figure 26) will replace the type MC-3A connector. It is essentially a three-way manifold block incorporating the same accidental disconnect warning feature as its predecessor. It recesses by means of a male dove-tailed plate into a female receiving bracket which is mounted on the parachute harness at the intersection of the horizontal chest strap and the right vertical harness strap. Upon ejection, disconnection from the aircraft oxygen supply hose takes place at the lower intake port. The oxygen mask delivery tube remains fixed at its distal end and is no longer free to flail. The emergency oxygen supply from the bail-out cylinder is attached to a port which swivels to receive it either from above or below as may be required in various aircraft. Use of this item requires a three-pronged male adapter on the end of the oxygen mask delivery tube identical to that with which the MBU-3/P oxygen mask is equipped. The CRU-8/P connector has eliminated the need for the alligator clamp previously employed to sustain the weight and assist in preventing separation of the aircraft oxygen hose from the delivery-tube connector. The aircrew member may leave his parachute in the aircraft by disconnecting at only one point -- the delivery-tube port. When he reconnects at the same point, he is ready for flight, since the connections to the emergency and aircraft oxygen sources have remained undisturbed.

Status: Standard

Identification: Federal Stock No. 1660-609-0521

Contractor: Sierra Engineering Company
Sierra Madre, California



Figure 26. The CRU-8/P oxygen mask to regulator connector.

Mask, Oxygen, Type A-14B

The A-14B demand oxygen mask (figure 27) replaces the A-14A mask. The A-14B microphone pocket receives the M32/AIC microphone.

Status: Limited Standard

Identification: Specification MIL-M-7585
Stock No. 5509-AAF-709275

Contractor: Ohio Chemical and Surgical Co.,
Madison, Wisconsin



Figure 27. The A-14B demand oxygen mask.

Mask, Oxygen, Pressure Breathing, Type MS-22001

The MS-22001 pressure breathing oxygen mask (figure 28) replaces the A-13A oxygen mask. The basic difference is that the MS-22001 mask has an improved connector on the delivery tube and improved harness suspension buckles.

Status: Standard

Identification: Specification MIL-M-6482
Stock No. 1660-516-6607 (small)
Stock No. 1660-516-6620 (medium)
Stock No. 1660-516-6621 (large)

Contractors: Acushnet Process Co., New Bedford, Massachusetts;
Mine Safety Appliance Co., Pittsburg, Pennsylvania



Figure 28. The MS-22001 oxygen mask.

Mask, Oxygen, MBU-3/P

The type MBU-3/P oxygen mask is identical to the MS-22001 oxygen mask, which it supersedes, except for the following:

- a. The delivery tube has been increased in length by four inches to 17-1/2 inches;
- b. The delivery tube contains an internally-installed nylon cord which serves to prevent its elongation upon exposure to windblast; and
- c. A three-pronged male bayonet adapter is provided at the terminus of the delivery tube for integration with the connector, oxygen mask to regulator, type CRU-8/P.

Status: Standard

Identification: Specification MIL-M-25981
Stock No. 5509-1660

Contractors: Acushnet Process Co.,
New Bedford, Massachusetts



Figure 29. The MD-1 oxygen mask retention kit worn with the MS-22001 oxygen mask and P-4A helmet.

Modification Kit, MS-22001 Oxygen Mask, and P-4 Helmet, Type MD-1

The MD-1 oxygen mask modification kit (figure 29) is designed to hold the oxygen mask securely against the face under high windblast conditions, and to provide for attachment of the mask with greater facility. Because of the ease with which pressure of the mask against the face can be adjusted (through varying degree of insertion of the metal tongue in the receiver) increased individual mask-wear comfort is achieved.

The kit consists of two quick-release receivers, two bayonet fittings, a nylon web suspension harness, and a fiber glass hardshell retainer for the oxygen mask.

Status: Limited Standard

Identification: Hardman P/N 3740
Stock No. 5555-3740-7 (small)
Stock No. 5555-3740-9 (medium)
Stock No. 5555-3740-11 (large)

Contractor: Hardman Tool and Engineering Company
Los Angeles, California

Modification Kit, MS-22001 Oxygen Mask, Type CRU-4/P

A supplement to the oxygen mask facelet, the modification kit, MS-22001 oxygen mask, type CRU-4/P (figure 30) facilitates custom fitting of the MS-22001 oxygen mask (figure 31). In addition to instructions, it provides a small piece of emery paper, a tube of cement, an open-celled sponge insert, and a rubber diaphragm. Both the insert and the diaphragm are molded to conform with the contours of the mask. The sponge insert is placed within the diaphragm and the latter is cemented to the periphery of the oxygen mask. The mask seal is then effected by contact of the diaphragm surface with the individual's face. Perspiration may harden the insert after 150 hours of use. If this occurs, the old diaphragm and sponge insert should be replaced.



Figure 30. The MS-22001 oxygen mask with the CRU-4/P sponge modification kit.

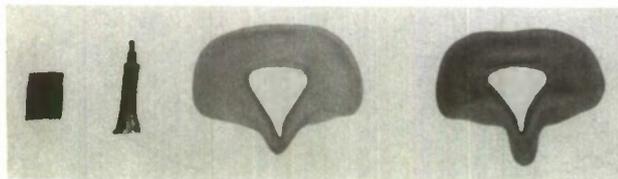


Figure 31. The CRU-4/P sponge modification kit.



Figure 32. The oxygen mask facelet kit.

Status: Standard (minor item)

Identification: Modification Kit - Oxygen Mask Specification MIL-O-25748, Type CRU-4/P Specification MIL-O-25748 (USAF) Oxygen Mask Modification Kit, Sponge

Stock Nos. 1660-541-0022
1660-541-0023

Contractor: Neff Perkins Company, Cleveland, Ohio

Oxygen Mask Facelet Kit

The oxygen mask facelet (figure 32) a closed cell triangular thickness of ensolite, is provided in a kit with materials and instructions necessary for fixing it to the inner surface of the MS-22001 or A-13 oxygen masks. Installation of the facelet in the manner recommended improves the seal of the mask as altitude is increased, since the closed-cell material expands with the reduction of atmospheric pressure.

In addition, the facelet substantially improves the comfort of the mask, particularly at its point of contact with the bridge of the nose.

Status: Standard

Identification: Oxygen Mask Facelet Kit
Specification MIL-O-25543

Stock Nos. 1660-535-3312 (size 1, small)
1660-535-3313 (size 2, medium)
1660-535-3314 (size 3, large)

Contractor: Neff Perkins Company, Cleveland, Ohio

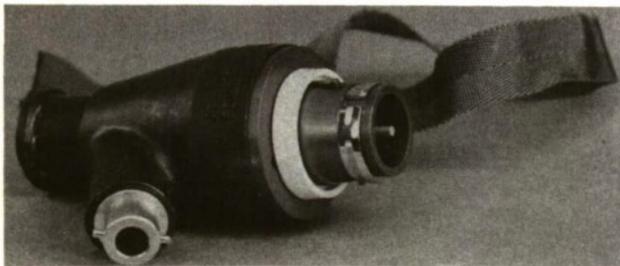


Figure 33. The MC-3A oxygen mask to regulator connector.

Status: Standard

Identification: Specification MIL-C-19246

Contractors: Mine Safety Appliance Co., Pittsburg, Pennsylvania
Scott Aviation Corp., Lancaster, New York

Connector, Oxygen Mask To Regulator, Type MC-3A

The MC-3A connector (figure 33) is used with the MS-22001 and A-14B oxygen mask to unite them with the oxygen regulator hose. It is equipped with an attachment for the bail out bottle. The connector also provides a warning when the mask is inadvertently disconnected from the regulator by closing a flapper valve which restricts the air supply to the mask.

PORTABLE OXYGEN SUPPLIES

Regulator, Oxygen, Demand, Type A-13

The A-13 regulator (figure 34) is used with the A-6 cylinder and a full face oxygen mask to provide 100 percent oxygen to personnel on aircraft in a toxic atmosphere.

Status: Limited Standard

Identification: Specification MIL-R-9338
Stock No. 5544-1052-1

Contractor: Scott Aviation Corp.,
Lancaster, New York



Figure 34. The A-13 oxygen regulator.

Regulator, Diluter Demand, Oxygen, Type A-15

The A-15 regulator (figure 35) is used with the A-6 and D-2 low pressure (500 psi) oxygen cylinders and the A-14B and MS-22001 oxygen masks to provide aircrew members with a walk around capability.

Status: Standard

Identification: Specification MIL-R-9057
Stock No. 5544-AD1876

Contractor: Scott Aviation Corp.,
Lancaster, New York



Figure 35. The A-15 oxygen regulator.

Regulator, Oxygen, Demand, Pressure Breathing, Type A-21

The A-21 regulator (figure 36) is used with a low pressure (500 psi) oxygen cylinder and a MS-22001 oxygen mask to provide oxygen for walk around purposes.

Status: Standard

Identification: Specification MIL-R-7605
Stock No. 5544-9010

Contractor: Scott Aviation Corp.,
Lancaster, New York



Figure 36. The A-21 oxygen regulator.

Regulator and Manifold Assembly, Multiplace, Portable, Type ME-1

This portable therapeutic kit regulator (figure 37) is capable of supplying up to nine persons with continuous flows of oxygen. It consists of a modified AN6010 continuous flow regulator with a nine-outlet manifold. When used with the A-8B or MA-1 oxygen mask, it provides oxygen therapy during air evacuation.

Status: Standard

Identification: Air Force Drawing 48D3673

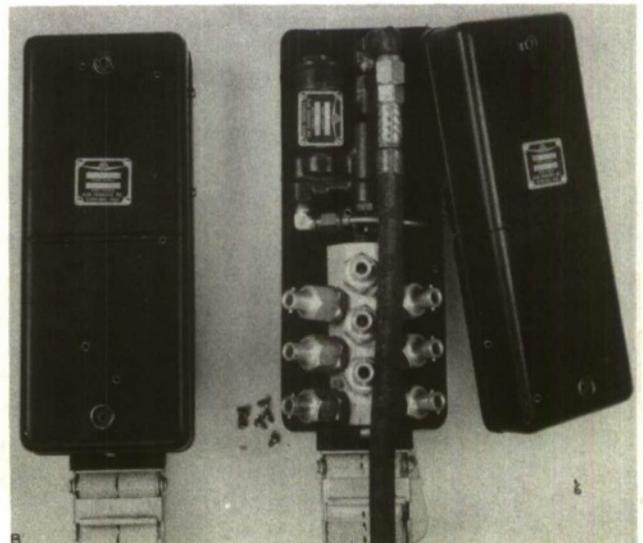


Figure 37. The ME-1 portable therapeutic kit regulator.



Figure 38. The A-1 oxygen cylinder and regulator assembly.

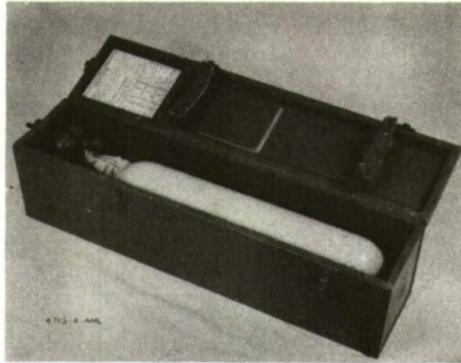


Figure 39. The B-1 portable oxygen cylinder and regulator assembly.



Figure 40. The MA-1 oxygen cylinder and regulator assembly.

Cylinder and Regulator, Portable, Oxygen, Type A-1

The A-1 assembly (figure 38) is used with the A-14B and MS-22001 oxygen masks to provide oxygen to aircrew members from ground level to 35,000 feet.

Status: Standard

Identification: Air Force Drawing 44D22201
Stock No. 5509-44D22201

Contractor: Scott Aviation Corp., Lancaster, New York

Cylinder and Regulator Assembly, Portable, Therapeutic Oxygen, Low Pressure, Type B-1

The B-1 portable assembly (figure 39) is used with the A-8B and MA-1 oxygen masks to provide therapeutic oxygen to air evacuation patients.

Status: Limited Standard

Identification: Air Force Drawing 44B24620

Contractor: Pioneer Central Division, Bendix Aviation Corp., Davenport, Iowa



Figure 41. The CRU-5/P oxygen regulator.

Cylinder and Regulator, Breathing Oxygen, Type MA-1

The MA-1 assembly (figure 40) is used with the A-14B and MS-22001 oxygen masks to provide oxygen to aircrew members at the proper pressures upon demand from ground level to 42,000 feet.

Status: Standard

Identification: Air Force Drawing 53C3794
Stock No. 5509-53C3794

Contractor: Scott Aviation Corp., Lancaster, New York

Regulator, Oxygen, Continuous Flow, Type CRU-5/P

The CRU-5/P regulator (figure 41) is used the same as the type A-9A regulator and operates on a low pressure (50 to 500 psig) system. It has a manual override control to provide increased flow during emergency. This regulator supersedes the type A-9A regulator.

Status: Standard

Identification: Specification MIL-R-25693

Contractor: Alar Products, Inc.,
Cleveland, Ohio

AIRCRAFT MOUNTED REGULATORS

Regulator, Oxygen, Type A-9A

The A-9A regulator (figure 42) is used with an oxygen source -- either the B-1 portable unit, a ship system, or the therapeutic oxygen kit -- and the A-8B and A-20 oxygen mask to provide continuous flow oxygen in physiologically safe quantities from ground level to 30,000 feet.

Status: Limited Standard

Identification: Specification MIL-R-25164
Stock No. 5542-2085-3B-B1

Contractor: Pioneer Central Division,
Bendix Aviation Corp.,
Davenport, Iowa

Regulator, Oxygen, Diluter Demand,

This automatic diluter demand oxygen regulator (figure 43) is for routine use up to 35,000 feet and emergency use up to 42,000 feet. It operates with either a high (1800 psi) or low (500 psi) pressure oxygen system. This regulator supersedes previous types A-12 and A-12A (AN6004) regulators which operated with a low pressure (500 psi) oxygen source. It is used with the A-14B mask.

Status: Standard

Identification: Specification MIL-R-6018
Stock No. 5505-3011

Contractor: Aro Equipment Corp.,
Cleveland, Ohio

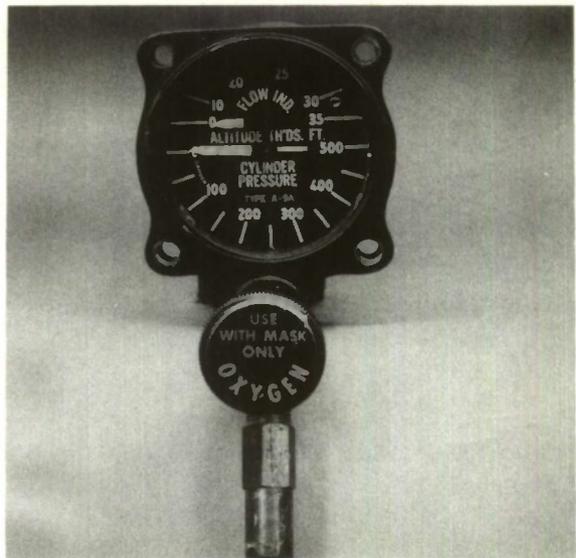


Figure 42. The A-9 oxygen regulator.

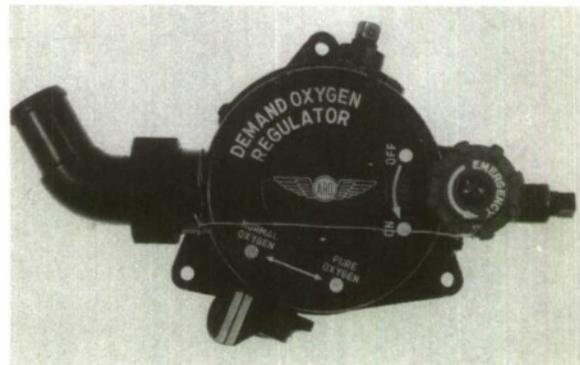


Figure 43. The automatic diluter demand oxygen regulator.



Figure 44. The A-14 automatic diluter demand oxygen regulator.



Figure 45. The MD-1 regulator.

Regulator, Oxygen, Diluter Demand, Manual Pressure Breathing, Type A-14

The A-14 automatic diluter demand, manual pressure breathing regulator (figure 44) is for routine use up to 42,000 feet and emergency use up to 50,000 feet. It operates with a low pressure (500 psi) oxygen system. It is used with the MS-22001 oxygen mask.

Status: Standard

Identification: Specification MIL-R-6371
Stock No. 5505-3000

Contractors: Alar Products, Inc., Cleveland, Ohio
Aro Equipment Corp., Cleveland, Ohio

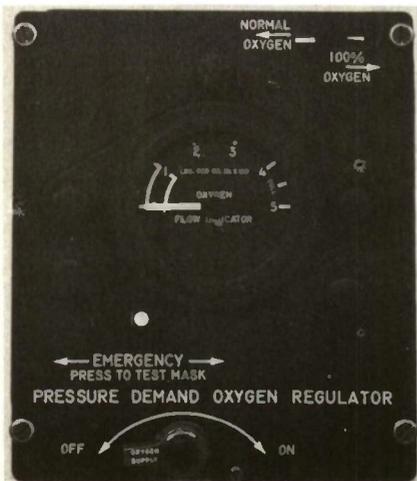


Figure 46. The D-2A regulator.

Regulator, Oxygen, Diluter Demand, Automatic Pressure Breathing, Types MD-1 and MD-2

The MD-1 and MD-2 automatic diluter demand and automatic pressure-breathing regulators (figure 45) are for routine use up to 42,000 feet and for emergency use to 50,000 feet. The only difference between the two regulators is that the MD-1 operates with a low pressure (500 psi) oxygen system, while the MD-2 operates with a high pressure (1,800 psi) oxygen system. Both regulators are used with the MS-22001 oxygen mask.

Status: Limited Standard

Identification: General Performance Specification MIL-R-25410
MD-1 -- Air Force Drawing 55D3787
Stock No. 5509-AAF-617130
MD-2 -- Air Force Drawing 55D3788
Stock No. 5509-AAF-617125

Contractors: Aro Equipment Corp., Cleveland, Ohio
Pioneer Central Division, Bendix Aviation Corp., Davenport, Iowa



Figure 47. The MB-2 regulator.

Regulator, Automatic Diluter Demand, Oxygen, Pressure Breathing, Type D-2A

The D-2A automatic diluter demand, automatic pressure-breathing regulator (figure 46) is for routine use up to 42,000 feet and emergency use to 50,000 feet. It operates from a 50 to 500 psi oxygen source. The D-2A regulator supersedes previous types D-1 and D-2 regulators. It is used with the MS-22001 oxygen mask.

Status: Standard

Identification: Specification MIL-R-8202
Stock No. 5542-2885-5C-A1

Contractors: Aro Equipment Corp., Cleveland, Ohio
Pioneer Central Division, Bendix
Aviation Corp., Davenport, Iowa

Regulator, Oxygen, Diluter Demand, Automatic, Pressure
Breathing, High Pressure, Type MB-2

The MB-2 automatic diluter demand and automatic pressure-breathing regulator (figure 47) is for routine use up to 42,000 feet and emergency use to 50,000 feet. It is similar to the D-2A regulator except that the MB-2 operates with high pressure (1,800 psi) oxygen systems. It is used with the MS-22001 oxygen mask.

Status: Standard

Identification: Specification MIL-R-9494
Stock No. 5509-AAF-709700

Contractor: Pioneer Central Division, Bendix
Aviation Corp., Davenport, Iowa

EMERGENCY OXYGEN SUPPLIES

Cylinder Assembly, Oxygen, Type H-2

This assembly (figure 48) provides an emergency supply of oxygen in the event of ship mounted oxygen system failure or during ejection. It is similar to the MD-1 and MD-2 cylinder assemblies, differing only in the length of the hose and cable. It is used with the MS-22001 and A-14B oxygen masks.

Status: Standard

Identification: H-2 -- Air Force Drawing 44D7586
Stock No. 1660-491-0970
MD-1 -- Air Force Drawing 54C3721
Stock No. 5509-54C-3721
MD-2 -- Air Force Drawing 54C-3723
Stock No. 5509-54C-3723

Contractors: Bastian-Blessing Co., Chicago, Illinois
Erie Mfg. Co., Milwaukee, Wisconsin

Regulator, Oxygen, Pressure Demand Bail Out, Type MC-1

The MC-1 regulator (figure 49) is a dual outlet bail out regulator for the partial pressure suit. The MC-1 is the same as the F-1 regulator except that the MC-1 has a 90 degree mask outlet elbow.

Status: Limited Standard

Identification: Specification MIL-R-25376



Figure 48. The H-2 oxygen cylinder assembly.



Figure 49. The MC-1 oxygen regulator.

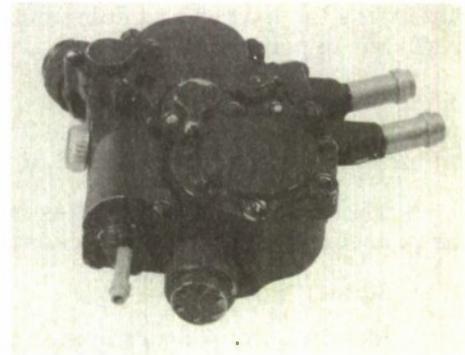


Figure 50. The kit mounted oxygen regulator.

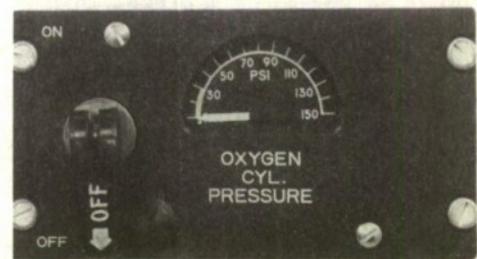


Figure 51. The ME-1 control panel for the kit mounted oxygen regulator.

Contractor: Pioneer Central Division, Bendix
Aviation Corp., Davenport, Iowa

Regulator, Pressure Suit, Kit Mounted

This regulator (figure 50) is incorporated in a kit, either semi-rigid or rigid, and furnishes the pressure necessary for operation of the MC-3 or MC-4 partial pressure suit and the MA-2 pressure helmet.

The regulator consists of one inlet port and two outlet ports, one of the latter for the suit and one for the helmet. Oxygen, in the range of 60 to 80 psi, is furnished to the regulator inlet port. Between ground level and 40,000 feet, the helmet outlet delivers breathing oxygen to the helmet at approximately 3.5 inches of water pressure. Above this altitude, the pressure required for the suit operation is furnished.

This regulator is projected for use in all "Century Series" fighters except the F-100.

A new regulator, which will incorporate dilution, is currently being considered for development.

The control panel for the regulator is shown in figure 51.

Status: Tentative Standard

Identification: Specification MIL-R-25572

TESTERS

Tester, Oxygen Mask, Headset, and Microphone, Type MQ-1

The MQ-1 tester is a preflight tester for the MS-22001 oxygen mask and P series helmet. It duplicates the oxygen and communication system installed on aircrafts, except that this unit will be available in personal equipment areas.

The tester is contained in a portable case, 10 by 17 by 12 inches, and consists of an A-14 manual setting regulator, a blinker, a pressure gage, hoses, and complete communications test equipment. All parts contained in the tester are standard items of equipment.

The MQ-1 tester integrates with the Tester, Pressure Suit and Helmet, Type TTU-17/E when the pressure suit tester is necessary.

Status: Standard

Identification: Specification MIL-T-25620
Stock No. 7CAC-807569

Tester, Pressure Suit and Helmet, Preflight, Type TTU-17/E

The TTU-17/E is intended for use in preflight or readyroom testing of partial pressure suits and helmets.

The tester is a portable suitcase type device approximately 10 by 17 by 12 inches. There are two gages on the panel, one for the suit and one for the helmet. The regulator furnishes approximately 3.5 inches of water pressure to the helmet. The suit pressure is normally increased to the desired level, and the helmet pressure is automatically maintained in the correct ratio.

The tester is a complete unit. However, if the intercommunication leads of the pressure helmet are to be checked, the MQ-1 tester is also necessary. An oxygen supply in the range of 50 to 450 psi is also necessary.

Status: Standard

Identification: Specification MIL-T-25629

SECTION III

SURVIVAL EQUIPMENT

SURVIVAL CONTAINERS

Cushion, Seat, Oxygen and Survival Equipment

This container (figure 52) is now being used in F-102 and TF-102 aircraft and is the first to be furnished by the airframe manufacturer. It is designed to meet the requirements of high altitude, high speed aircraft.

The container is divided into two sections.

The aft section contains the oxygen regulator and associated items. (See regulator, pressure suit, kit mounted, page 29). During altitude flights all pressure suit leads are connected to the right rear corner of the container. This system is also adaptable to the use of a pressure demand oxygen mask by use of an in-line reducer. A pressure demand panel mounted regulator is also included in those aircraft flights below 50,000 feet.

The forward compartment of the container shall be used for survival equipment packed in a water proof container and strapped to the bottom of the container. The MB-4 life raft (page 34), will be packed on top of the inter-container and connected to the actuator handle. Other items to be included in the container are specified in T.O. 1431-3151.

Until a technical order for each container is published, ASTIA document No. AD 142304 may be used as a guide for the Operation, Inspection and Maintenance for Seat, Oxygen, and Survival Container. For a partial list of replacement parts and stock numbers of individual containers, T. O. 00-35F-1-03K may be used.

Similar containers will be furnished as aircraft equipment in B-52, B-58, F-101, F-104, F-105, F-106 and T-38 aircraft.

Status: Standard Contractor Furnished Equipment

Identification: Specification MIL-C-25570

Contractors: Firewel Co., Buffalo, New York
Bendix Corp., Davenport, Iowa
Scott Aviation, Inc., Lancaster, New York

Container, Contoured, Seat Style, Emergency Sustenance, Type MD-1

The MD-1 survival container (figure 53) can be used as a global survival container for both land and sea.



Figure 52. Contractor furnished kit.

The container is attached to the parachute by snaps fastened to the "D" rings. The container has a rigid contoured top section covered with an MA-1 contoured cushion which serves as a seat cushion during flight.

On over water bailouts, the actuating lanyard is pulled which allows the zipper to pull apart. Simultaneously, the lanyard inflates the one-man dinghy (PK-2). The inflated raft and accessory bag are then suspended on a 25-foot static line. The raft is 15 feet below the survivor, and the accessories are 25 feet below the man.

It is recommended that the special barrel type fastener for closing the slide fastener and for actuating the container opening and raft inflation should be inspected prior to each flight to ascertain that it is in the correct position. The barrel fastener is located at the front right of the leading edge of the kit container. T. O. 14S1-3-51 should be consulted for instructions for packaging the items in the container and for safetying the barrel fastener.



Figure 53. The MD-1 survival container.

The MD-1 container is used in the following type aircraft: F-84E, F, and G; F-86A through F (except D, K, and L); F-94A, B, and C; F-89B, C, D, H, and J; F-100A, C, and D; F-101A (if contractor furnished rigid container is not supplied); B-47B, D, E, and H; and B-52 and RB-66C.

Status: Standard

Identification: MD-1 Container -- Air Force Drawing 48F3865F
Stock No. 2010-126602
MA-1 Cushion -- Stock No. 2010-159100

Survival Cushion, Seat, Type MB-1

The MB-1 survival cushion (figure 54) is for use in B-57 and T-33 aircraft which require a seat style parachute. It is a thin survival kit with a seat cushion fastened to the top and is worn between the parachute seat pack and the individual. The MB-1 cushion is similar to the MB-2 cushion, the difference being the space used for the storage of survival equipment.



Figure 54. The MB-1 survival cushion with the H-2 bailout assembly.

The H-2 oxygen cylinder is included in the survival kit for high altitude bailout purposes. The survival items contained in the kit are listed in T. O. 14S3-2-13.

After the survivor completes raft entry, the leg straps are unfastened and the accessory bag is removed from the survival kit.

The MB-1 survival kit is used with the MH-1 life raft kit.

Status: Standard

Identification: MB-1 Cushion -- Air Force Drawing 54D3655
Stock No. 2010-159053

Survival Kit Container -- Air Force Drawing 53D6667
Stock No. 2010-130100

Contractor: Pioneer Parachute Co., Manchester, Connecticut

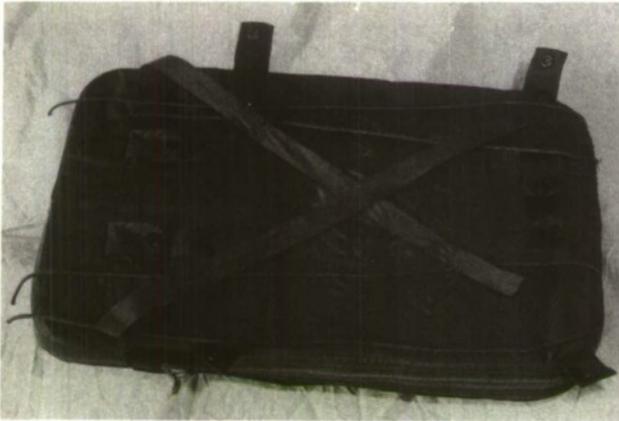


Figure 55. The CNU-1/P back type sustenance kit container.



Figure 56. The arrangement of the survival items in the CNU-1/P sustenance kit.

Sustenance Kit Container, Back Pad, Parachute Harness, Type CNU-1/P

This nylon fabric container (figure 55) replaces the back pad of the B-4 and B-5 parachute. It may be used in F-84, F-86, F-89, B-47 and B-45 aircraft, providing the 2-inch balsa back spacer is removed from the seat.

Webbing straps attach the kit to the inside of the parachute harness so that the kit is between the parachute and the wearer's back. The insert is 2 inches thick and fabricated of "Ensolite" with cutouts to contain the survival items.

The survival items (figure 56) are listed in T. O. 14S1-3-51.

The kit may be used to supplement a seat style survival kit which may contain a sleeping bag and raft.

Status: Standard

Identification: Air Force Drawing 56E3848
Stock No. 4220-565-3275

LIFE RAFTS

Raft, Inflatable, One-Man, Type MB-2

The MB-2 life raft assembly consists of an ML-4 container (with inner accessory container), a one-man life raft and accessories (figure 57). The container has a slide fastener opening at the front and snaps at both sides. It is attached to the parachute "D" rings with two snaps. The left side snap is the ejector type which facilitates separation from the "D" ring during parachute descent. When the left side swings free, the container is readily accessible from the right. The raft is operated by pulling free the zipper with a continuous pull to inflate the raft. T.O. 14S3-2-1 outlines operations and service instructions for the MB-2 and also lists the accessories that can be contained therein.

The MB-2 assembly is used in nonejection seat aircraft and ejection seat aircraft where the upper three seat adjustments are used.

The accessories are listed as a separate stock item.

Status: MB-2 -- Limited Standard
ML-4 -- Limited Standard

Identification: MB-2 -- Air Force Drawing 54D3748
Stock No. 4220-142-1702
ML-4 -- Air Force Drawing 54D3749
Accessories and Accessories Container -- Stock No. 2010-001200



Figure 57. MB-2 assembly

Life Raft, Inflatable, One-Man, Types PK-2 and MB-4

The PK-2 life raft (figure 58) is a boat-shaped, pneumatic, one-man raft with a single tube. The tube is a rubberized fabric and runs the perimeter of the raft. It is inflated by an 0.50-pound charge of carbon dioxide. The cylinder is mounted on the side of the raft.

The raft is equipped with a spray shield which buttons up the side. Handholds are provided to assist in raft entry. The weight of the raft is 7.13 pounds.

The MB-4 raft is identical to the PK-2 except for additional handholds and a new type valve for the carbon dioxide cylinder. This cylinder has a separate cable ball assembly for operating the valve.

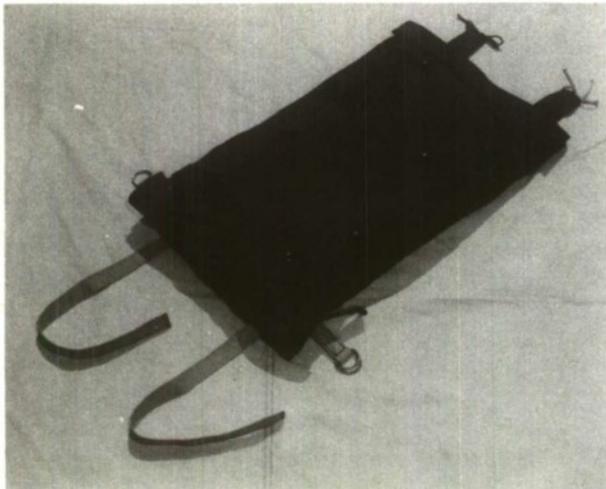


Figure 58. The PK-2 one-man life raft (modified MB-4).

The PK-2 and MB-4 rafts are used in all types of individual survival kits such as the MD-1, X-91, etc. In B-57 and T-33 aircraft, where a seat type parachute is required, the rafts are packed in the MH-1 life raft case. Only the MB-4 raft can be used in the CFE kits (see page 31).

Status: Standard

Identification: PK-2 -- Bureau of Aeronautics Specification 23K3Aer-1
Stock No. 2010-670203
MB-4 -- Specification MIL-L-25569
Stock No. 4220-541-0872



Life Raft Case, Back Type, One-Man, Type MH-1

The MH-1 life raft case (figure 59) is used with the PK-2 and MB-4 life rafts in B-57 and T-33 aircraft where a seat type parachute is required.

The life raft kit is packed flat and approximates the rectangular dimensions of the parachute back pack. The kit is attached to the outside of the parachute harness and under the risers by retaining straps.

The pack is closed by a zipper along the back. The ends are fastened with snaps.

The raft, which is attached to the case by a retaining lanyard, is inflated during parachute descent and prior to entering the water by pulling the slide fastener off the zipper; then the last few inches actuates the carbon dioxide bottle. At this time, the inflating raft forces itself out of the container.

Figure 59. The MH-1 life raft case.

the actuating tab at the lower right corner of the pack. The first few inches of the lanyard pulls the slide fastener off the zipper; then the last few inches actuates the carbon dioxide bottle. At this time, the inflating raft forces itself out of the container.

The raft should not be operated unless it is attached to the parachute harness when worn by an individual.

The modified version of the kit (figure 60) differs only in the method of closing utilizing the ripcord and loop method. All flaps are anchored in the center with the raft being packed in a circular arrangement.



Figure 60. A modified version of the MH-1 life raft case.

the number of crew members. Both rafts are of a rubberized fabric and have a top and a bottom chamber with a dividing diaphragm. Each chamber provides full buoyancy in an emergency.

Status: Standard

Identification: Air Force Drawing 53K6666
Stock No. 4220-132-2268

Contra

Contractor: M. Steinthal & Co.,
New York, New York

Raft, Pneumatic, Four-Man, Type A-3B; Six-Man, Type E-2B

The A-3B (figure 61) and the E-2B (figure 62) rafts are similar; the type used is contingent upon

the number of crew members. Both rafts are of a rubberized fabric and have a top and a bottom chamber with a dividing diaphragm. Each chamber provides full buoyancy in an emergency.

Both chambers are automatically inflated by a release of a mixture of carbon dioxide and nitrogen gases. Inflation is provided through a manually operated hand pump.

Each raft is equipped with an accessory kit containing oars and signal and survival equipment.

The rafts are carried in life raft compartments in the aircraft. They may be manually ejected through the escape hatches.

Status: A-3B -- Limited Standard
E-2B -- Standard

Identification: A-3B -- Specification MIL-R-5804
Stock No. 2101-670212
E-2B -- Specification MIL-R-5773
Stock No. 2010 -670223

Contractors: Air Cruisers Co., Belmar, New Jersey
Patten Company, Inc., West Palm Beach, Florida

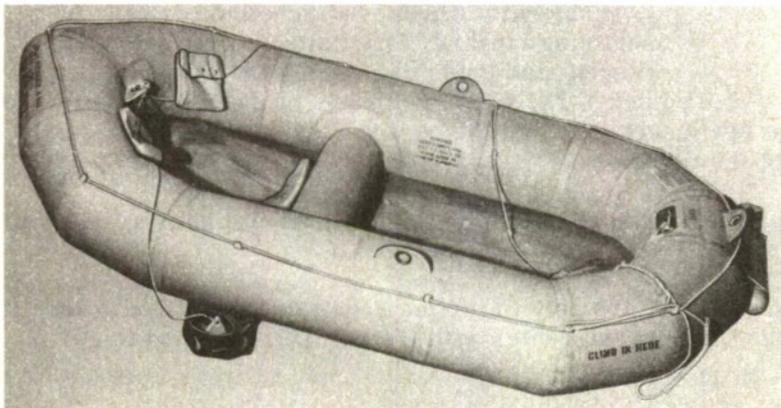


Figure 61. The A-3B four-man life raft.

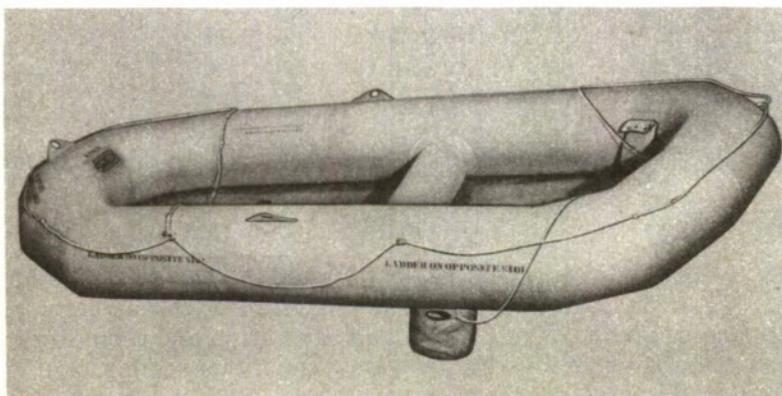


Figure 62. The E-2B six-man life raft.

Life Raft, Inflatable, Four-Man,
Type MA-1

The MA-1 four-man life raft was designed for use in the life raft compartment of B-47 aircraft, however, the raft may be used with other type aircraft.

The MA-1 raft is identical to the MK-4 raft. It is similar in shape and construction to the A-3B, with the following exceptions:

- a. The carbon dioxide bottle is installed on the side of the raft rather than on the end; and
- b. The raft is divided into two separate compartments by vertical bulkheads, equidistant from each end of the raft, rather than by horizontal bulkheads.

The MA-1 is interchangeable with the A-3B except when used in B-47 aircraft.

Status: Standard

Identification: Specification
MIL-L-25691
Stock No. 4220-
142-2270

Contractor: New York Rubber
Corp., Beacon,
New York

Raft, Pneumatic, Twenty-Man, Types F-2A, F-2B, F-2C

The F-2A twenty-man raft consists of two buoyancy chambers, one mounted on the other. A floor is suspended between the two chambers with inflatable floor supports on each side. When inflated, these can hold the floor of a fully loaded raft in a level position.

The raft is designed to always land "right-side-up" since both compartments are back-to-back and are identical in size and buoyancy.

The F-2B (figure 63) is identical to the F-2A raft except the F-2B has two boarding stations. The stations are placed opposite each other, one station servicing one main tube and the second ramp servicing the other main tube. The purpose of these ramps is to assist boarders into either chamber. It will always be "right-side-up" since the main tubes are mounted back-to-back with the floor in the middle.

Each raft is equipped with an inflation device using a mixture of carbon dioxide and nitrogen. The device may be actuated as the raft is manually tossed from the aircraft or as the raft is dropped from a rescue aircraft.

Each raft has a reversible canopy (figure 64) for protection from the elements. It is blue on one side and red on the other. The canopy is held erect by aluminum rods and a center support rod. Each raft is equipped with an accessory kit.

The F-2C raft, currently under development, will be similar to the F-2B except that it will be air inflated and will have continuous tubes rather than tubes with two sections. Inflation time will be ten seconds at room temperature as compared to the 30 to 45 seconds required to inflate the F-2B raft.

Consult T. O. 14S3-1-1 for aircraft in which the rafts are authorized.

Status: F-2A -- Limited Standard
F-2B -- Standard
F-2C -- Developmental

Identification: F-2A -- Specification
MIL-R-9131
Stock No. 2010-670231
F-2B -- Specification
MIL-R-9131
Stock No. 4220-563-3567

Contractors: Air Cruisers Co., Belmar,
New Jersey
Patten Co., Inc., West Palm
Beach, Florida

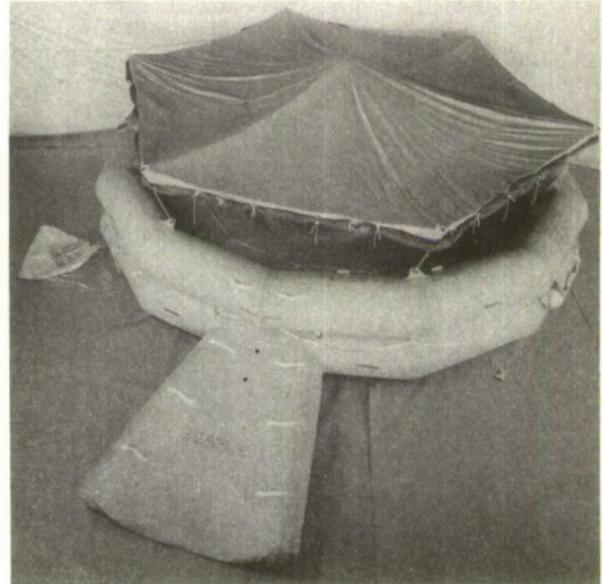


Figure 63. The F-2B 20-man life raft with the canopy rolled back.

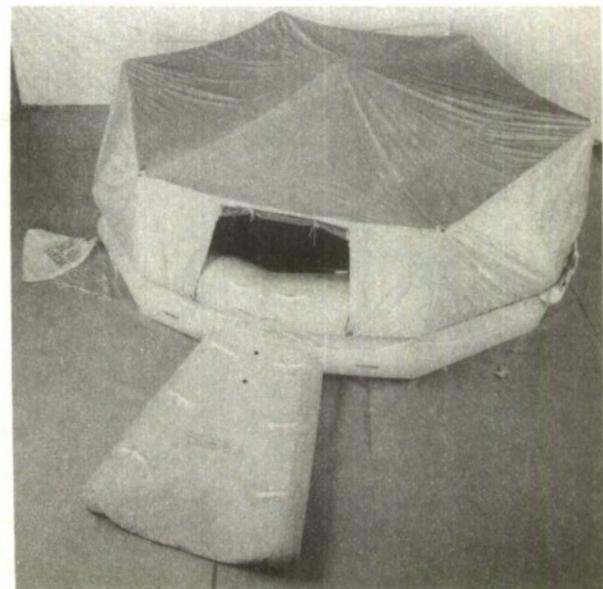


Figure 64. The F-2B 20-man life raft with the canopy down.

LIFE PRESERVERS

Life Preserver, Underarm, Pneumatic, Types MA-2, MA-2A, LPU-2/P

The MA-2 underarm life preserver (figure 65) consists of two neoprene coated fabric flotation cells, each packed into an 8 by 5 by 1-1/4-inch container. The container is attached to an adjustable harness which secures the preserver to the body. A container is positioned under each arm.

Each cell is inflated mechanically by a 28-gram carbon dioxide cylinder and is also equipped with an oral inflation tube. The cells are molten orange for visual rescue purposes.

The preserver has provisions for attaching an accessory packet to each cell container. These accessory packets are not used in ejection seat aircraft. Mandatory items will be stowed in the survival container.

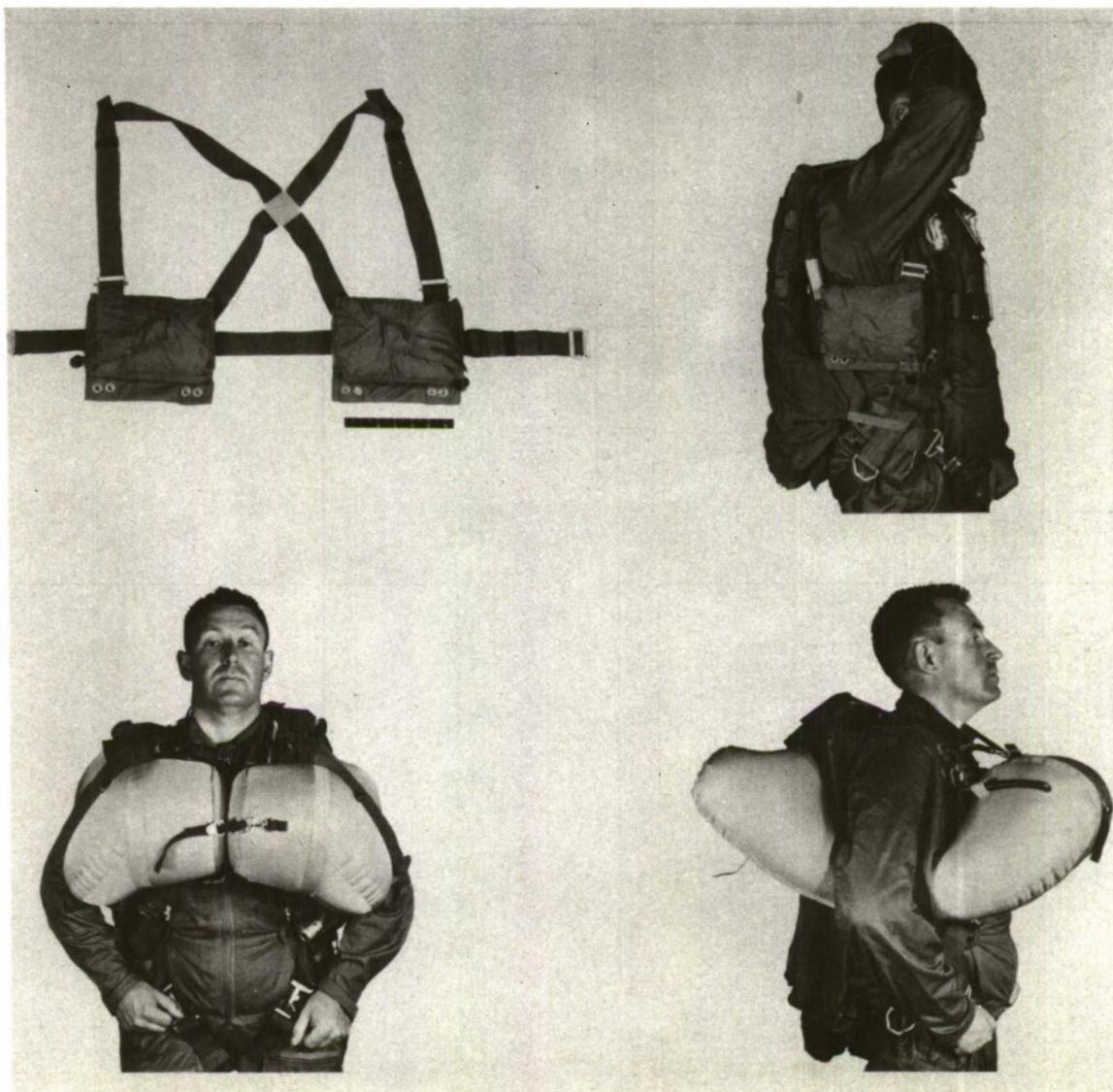


Figure 65. The MA-2 underarm life preserver.

Since it is known that during decompression the MA-2 preserver will expand, 1 by 5 by 8-inch blocks should be placed along side of each MA-2 cell container to simulate the expansion at altitude. If the crewmember can successfully place his arms within the armrests, it is anticipated he will be able to clear the canopy rails. (See T.O. 14S2-3-1, dated 11 June 1958).

The MA-2A preserver is identical to the MA-2 preserver except that the internal baffle is designed to permit venting of the cells at altitudes.

The LPU-2/P preserver, in the packaged configuration, will be considerably thinner than the MA-2 preserver. It is designed to vent any air in the cells when at altitude or during decompression.

Status: MA-2 -- Limited Standard
MA-2A -- Standard
LPU-2/P -- Developmental

Identification: MA-2 -- Specification MIL-L-25194
Stock No. 4220-329-7258
MA-2A -- Specification MIL-R-25926

Contractors: MA-2, MA-2A, LPU-2/P -- Stein Brothers Mfg. Co., Chicago, Illinois
Switlik Parachute Co., Trenton, New Jersey

Vest, Life Preserver, Pneumatic, Type B-5

The B-5 life preserver (figure 66) is a neck yoke type of vest made of yellow fabric. It contains two internal "U" shaped rubber buoyancy chambers.

A carbon dioxide inflation valve is attached to each buoyancy chamber. The actuating lanyards for each valve are located in front of the vest between the chambers.

The vest also has an oral inflation tube connected to each chamber. These tubes are used for oral inflation of the vest in case of malfunction of the inflating devices and for deflating the vest.

The vest is fastened by two straps passing through the crotch and one strap around the waist.

This preserver will be replaced by the MA-2 underarm life preserver.

Status: Limited Standard

Identification: Specification MIL-V-5367
Stock No. 4220-491-1092

Contractors: U. S. Rubber Co.,
Providence, Rhode Island
Switlik Parachute Co.,
Trenton, New Jersey



Figure 66. The B-5 life preserver.



Life Preserver, Underarm, Casualty, Type MB-1

The MB-1 life preserver (figure 67) is for use by patients on MATS evacuation aircraft, but it could be used by others not wearing parachute harnesses.

The MB-1 underarm preserver is inflated manually with two 28 gram carbon dioxide cylinders. An oral tube assembly is provided for emergency inflation.

When inflated, the preserver has a V-shaped cylindrical bulge in the front and two lobes in the rear. The flotation cell is contoured to fit around the chest and back of the wearer to provide self righting characteristics. The flotation cell is packed in a container 33 inches long by 6 inches wide.

A special harness is attached to the container and so arranged that the preserver may be fitted to a litter patient with a minimum of movement of the patient. The flotation capacity of the life preserver is adequate for an individual wearing any type of splint or cast in present use by the Armed Services.

Status: Standard

Identification: Specification MIL-L-35798

Figure 67. The MB-1 life preserver.

COMMUNICATIONS EQUIPMENT

Radio Set, AN/URC-4

Radio Set AN/URC-4 is intended as a personal rescue receiver-transmitter for use by aircrewmembers forced to abandon their aircraft. The purpose of the equipment is to aid search and rescue facilities in rapidly locating and recovering them. (See figure 68.)

It is a VHF-UHF radio receiver-transmitter providing for the transmission and reception of CW, modulated CW and voice signals on a frequency of 121.5 or 243.0 megacycles. The transmission of a modulated CW signal permits the search aircraft to "home" on the signal and accurately locate the operator. Using the VHF band, the equipment has a "homing" range of approximately 75 miles to a search aircraft at an altitude of 10,000 feet, using Homing Adapter Group AN/ARA-8 and any standard VHF airborne receiver, and a voice communication range of approximately 50 miles. UHF range is approximately half of the VHF ranges stated above and requires the use of Radio Direction Finder Group AN/ARA-25 and any standard UHF airborne receiver. Battery BA-1315/U, used to supply necessary power for operation of the receiver-transmitter, has an operating life of 24 hours based on 50 percent transmit, 50 percent receive cycle. The equipment weighs a total of five and one-half pounds.

Status: Standard

Identification: Specification MIL-R-6373B (USAF)

Stock Nos. Radio Receiver-Transmitter RT-159A/URC-4 - 1600-218997008
 Radio Receiver-Transmitter RT-159B/URC-4 - 1600-018782620
 Special Purpose Cable Assembly CX-1093A/U - 1600-010732050

Contractors: Hoffman Radio Corp., Los Angeles, California
Philharmonic Radio & Television Corp., New Brunswick, New Jersey

Radio Set, AN/URC-11

Radio Set, AN/URC-11 (figure 69) is intended as a personal rescue receiver-transmitter for use by aircrews forced to abandon their aircraft. The purpose of the equipment is to aid search and rescue facilities in rapidly locating and recovering the aircrews. Because of its reduced size and weight compared to Radio Set AN/URC-4, Radio Set AN/URC-11 was intended primarily for use in ejection seat aircraft; however, it is available at the present time for transport and cargo aircrews.

It is a UHF radio receiver-transmitter providing for the transmission and reception of CW, modulated CW and voice signals on a frequency of 243.0 megacycles. The transmission of a modulated CW signal permits the search aircraft to "home" on the signal and accurately locate the operator. The equipment has a "homing" range of approximately 100 miles to a search aircraft at an altitude of 10,000 feet and a voice communication range of approximately 65 miles. Battery BA-1315/U, used to supply necessary power for operation of the receiver-transmitter, has an operating life of 24 hours based on 50 percent transmit, 50 percent receive cycle. The equipment weighs a total of three and one-half pounds.

Status: Standard

Identification: Specification MIL-R-8178 (USAF)
Stock Nos. Radio Receiver Transmitter
RT-285/URC-11 -1600-013388080
Special Purpose Cable Assembly
CX-1003A/U - 1600-010732050

Contractor: Philharmonic Radio & Television Corp.,
New Brunswick, New Jersey

Battery, Type BA-1315/U

Battery BA-1315/U (figure 68) is of the mercury cell type and offers the advantage of maximum stored power in a minimum size and weight. However, battery operation is affected at low temperatures. It is recommended that for maximum receiver-transmitter operation, in temperatures of approximately 32°F or lower, Battery BA-1315/U be placed inside the operator's clothing. Body heat will then maintain the battery at a sufficiently high temperature to permit operation of the receiver-transmitter at temperature as low as -40°F.

Status: Standard

Identification: Stock No. 6135-2950608

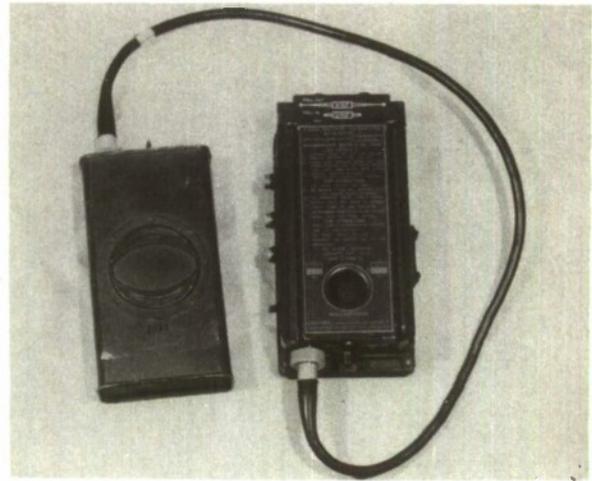


Figure 68. The URC-4 radio with battery.

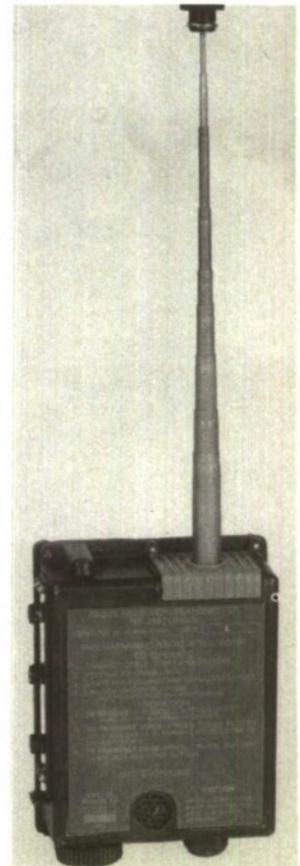


Figure 69. The URC-11 radio.

Radio Receiving Equipment, Airborne, UHF

UHF airborne radio receiving equipment, such as AN/ARC-27, AN/ARC-33 and AN/ARC-34, incorporate a "guard channel" that can automatically receive signals in the emergency frequency of 243.0 megacycles regardless of the normal communication channel that has been selected and is in use. The AN/URC-11 is compatible with this "guard channel" operation.

SECTION IV

PARACHUTES AND RELATED EQUIPMENT

PARACHUTES

Parachute, Automatic, Back Type

The back type automatic parachute (figures 70 and 71) is designed primarily for high performance aircraft. It is equipped with the class IV harness assembly which is permanently attached to the pack assembly. The harness consists of a light-weight, flexible, nylon webbing framework which secures the parachute to the wearer.

The parachute pack presently contains a type C-11, 30-foot parachute canopy or a modified type C-9, 28-foot flat circular canopy with an H-2 emergency oxygen bailout bottle, and an F-1A or F-1B, class 2, automatic parachute ripcord release.

The modified C-9 canopy replaces the C-11 canopy to obtain better low altitude ejection capabilities. The canopy, when coupled with the F-1B release and a special lanyard, provides this capability. (See T.O. 14D1-2-81 and the -1 Flight Safety Supplements on low altitude escape).

Identification: P/N 50C7024-15 (Stock No. 1670-554-6412) uses the modified C-9 canopy and F-1B release and replaces the following assemblies which are now limited standard: P/N 50C7024-13 (S/N 1670-516-9305) contains a C-11 canopy and F-1B release. P/N 50C7024-12 (S/N 1670-516-8835) contains a C-11 canopy and F-1A release. P/N 50C7024-9 and 10 (figs. 72 and 73) contain C-9 canopies and F-1A releases (class 3). This assembly is the automatic version of the assembly described below.

Parachute, Nonautomatic, Back Type

This assembly (sometimes called the "B-4") has been in use since 1950. The parachute is equipped with a quickly adjustable class III nylon harness containing two canopy releases. The parachute pack contains a type C-9, 28-foot, flat circular canopy. (See T.O. 14D1-2-61)



Figure 70. Front view of the back type automatic parachute.



Figure 71. Back view of the back type parachute.



Figure 72. Front view of the back type parachute.

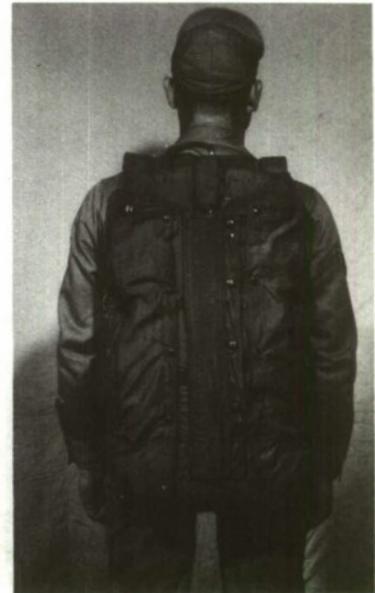


Figure 73. Back view of the back type parachute.

The nonautomatic parachute is primarily for use with liaison and rotary wing type aircraft and other nonejection seat equipped aircraft having mission profiles under 25,000 feet and 300 knots indicated air speeds.

Status: Standard

Identification: Part No. 50C7024-8



Figure 74. Front view of the seat type parachute.



Figure 75. Back view of the seat type parachute.

Parachute, Automatic, Seat Type

The automatic seat type parachute (figures 74 and 75) is designed only for use in the B-57 and T-33 aircraft because of space limitations. (See T.O. 14D1-2-101).

It consists of a basic class IV harness equipped with one canopy release. Future designs will incorporate two canopy releases. The pack is designed to include a C-11 guide surface canopy. Part No. 50C7025-20 will replace this assembly and will incorporate a new harness with two canopy releases and a modified C-9 canopy. This canopy coupled with the F-1B release and a special lanyard will provide a low altitude escape capability. A nonautomatic seat style parachute P/N 50C7025-16 (S/N 1670-516-8863) is available for low mission profile aircraft.

Identification: Stock No.
1670-516-8862
Part No.
50C7025-17



Figure 76. The chest type automatic parachute.

Parachute, Automatic, Chest Type

The chest type automatic parachute (figure 76) is used only where there is no room for a back or seat type parachute. The harness can be worn separately from the parachute pack allowing more comfort and less bulk. (See T.O. 14D1-2-93).

The harness assembly, QAC, type ME-1, consists of a lightweight, flexible nylon webbing framework mounted on a nylon cloth vest and has a sectional main sling. It is designed for quick adjustment and has a universal sizing range. Two canopy releases are attached to the harness.

The parachute pack contains a C-9, 28-foot, flat, circular canopy and an F-1A, class II, automatic parachute release.

This assembly is replaced by P/N 50C7023-9 which contains the F-1B release (S/N 1670-1554-1007) A nonautomatic chest style parachute P/N 50C7023-6 (S/N 1670-516-8865) is available for low mission profile aircraft.

Identification: Stock No. 1670-516-8864
Part No. 50C7023-8



Figure 77. The harness configuration of the separable back pack.

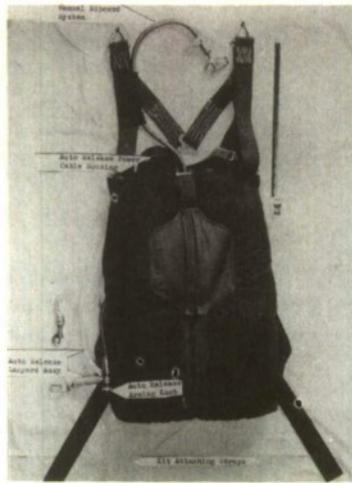


Figure 78. Front view of the separable back pack.



Figure 79. Back view of the separable back pack.

Parachute, Separable, Back Type

The separable, back type parachute assembly (figures 77, 78, 79) is undergoing operational flight testing by the Strategic Air Command.

The harness is so designed to afford the wearer better fit, more comfort, and less weight and bulk prior to flight.

The parachute pack and survival kit will be pre-installed in the aircraft ejection seat. The crewmember will have only to seat himself, make four attachments to connect his parachute, survival kit, shoulder harness and lap belt. The parachute will be used in all aircraft having ejection seats with the special attaching hardware required to accept this assembly.

Status: Tentative Standard

CANOPY RELEASE

Canopy Release, Type J-1

The canopy release is designed primarily to release the parachute canopy from the parachute harness in order to prevent high winds from dragging the aircrew member on land or in water. Parachutes procured in the future will be equipped with two canopy releases. The canopy release also serves as the method of accomplishing shoulder restraint and parachute pack attachment for the separable back style parachute.

Status: Standard

Identification: Stock No. 2010-643090

AUTOMATIC RELEASE

Parachute Ripcord, Automatic, Type F-1B

The F-1B release (figure 80) is designed to provide automatic time and altitude delays for

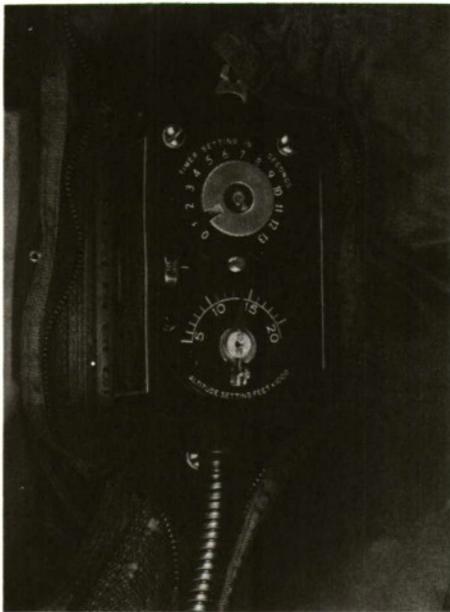


Figure 80. The F-1B automatic parachute ripcord release.

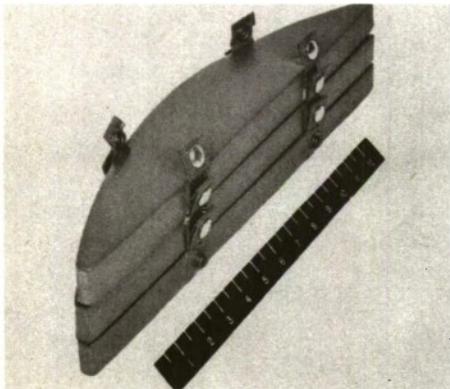


Figure 81. The parachute support spacer for all ejection seat aircraft.

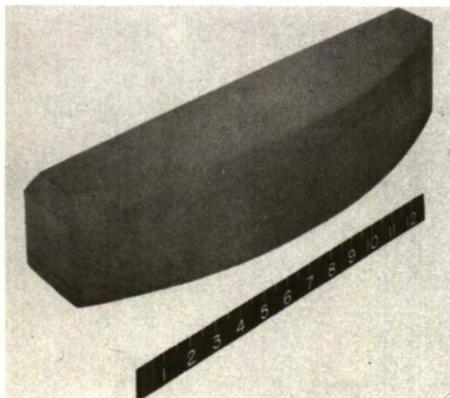


Figure 82. The parachute support spacer for B-47 and B-52 aircraft.

safe, high speed and/or high altitude bailout. The automatic release, when activated, will open the parachute at the pre-set altitude of 14,000 feet. If below 14,000 feet, the parachute will open at the pre-set time. The F-1B release can be set for one (1) second.

The F-1B release replaces the F-1A release.

The F-1B release is similar to the F-1A release except that the F-1B release has a 13-second time dial which can be set at one second for low altitude ejections.

Status: Standard

Identification: Specification MIL-R-25565

PARACHUTE SUPPORT SPACER

Spacer, Parachute Support

The parachute support spacer has been designed to fill the 2-to-3-inch gap between the top of the ejection seat support shelf and the bottom of the back-type parachute. This space evolved over a period of years with increase in depth of the seat-type survival kit, forcing the pilot to carry the full weight of the parachute on his back. This has caused back strain, discomfort and fatigue.

There are two types of parachute support spacers. Each is made of a compressible synthetic material, "Ensolite".

The first type (figure 81) has universal application and is designed to fit all ejection seats, where needed, except for those in the B-47 and B-52 aircraft. It consists of three separate blocks, each 1-inch thick, which snap together to give the desired height.

The second type (figure 82) is designed specifically for use in B-47 and B-52 aircraft. It is a solid block, 3-5/8 inches high.

Identification: Specification MIL-S-6326

Type 1 - Air Force Drawing 56-B-1173

Air Force Drawing 56-B-1174

Air Force Drawing 56-D-1175

Type 2 - Air Force Drawing 57-E-3549

SECTION V

FEEDING SYSTEMS, FOOD PACKETS AND FOOD SERVICE EQUIPMENT

FEEDING SYSTEMS AND FOOD PACKETS

There are two categories of feeding with which aircrews are most concerned -- in-flight feeding systems and survival food packets.

IN-FLIGHT FEEDING SYSTEMS

Sandwich Snack Meal

The sandwich snack meal (figure 83), or box lunch, has been developed for flights of short duration requiring only one meal; or for the first meal on longer flights.

The sandwich snack meal consists of

Beverage:	Soup, milk, tea, chocolate drink, fruit juice, vegetable juice.
Meat:	Sandwiches and/or fried chicken.
Dessert:	Fruit (fresh or canned), cookie.
Optional Items:	Candy, chewing gum, vegetable relishes, dried fruit, ready-to-eat cereal, cream, nuts, salt, pepper, and sugar packets.



Figure 83. The sandwich snack meal.

No special equipment is required aboard the aircraft for processing or storing the sandwich snack meal.

Since refrigeration is not available on most types of aircraft, this perishable meal must be consumed within 5 hours following preparation.

The sandwich snack meal is prepared in flight kitchens from readily available items.

Status: Standard

Identification: Air Force Regulation No. 146-16, "Flight Meals".
Air Force Regulation No. 145-11, "General Rules Governing Issue and Sale of Subsistence Items".



Figure 84. Packaging arrangement of the compact box lunch.

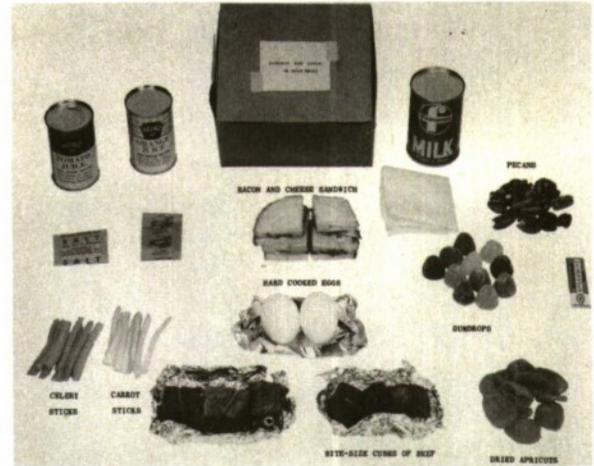


Figure 85. Components of the compact box lunch.

Compact Box Lunch

The compact box lunch (figures 84 and 85) is a modified snack meal designed to conform to the critical weight, space and operational limitations peculiar to jet bomber aircraft.

This feeding system is comprised of six menus. Three are designed for consumption within five hours after preparation. The remaining three are composed of more stable items which may be consumed up to 20 hours from the time of preparation.

A variety of 38 foods are included in the six menus. These are sandwiches, bite size cubes of beef, hard cooked eggs, raw vegetables, beverages, and dessert items such as cookie, crackers, candy, nuts, and dried fruits.

The bite size foods and convenient packaging permits consumption of the lunch under restricted flight conditions and when aircrews are required to wear an oxygen mask.

The compact box lunch is prepared in flight kitchens.

Status: Developmental

Identification: WADC TR 57-363, "Evaluation of the Improved Compact Box Lunch".

Food Packet, In-Flight, Individual

This packet (figures 86 and 87) has been developed for use aboard long range cargo, passenger and bomber type aircraft during emergency flights where more than one meal is required. It is not acceptable for fighter and jet bomber type aircraft because of oxygen mask and helmet facepiece restrictions.

The food packet consists of:

- a. Canned meat, fruit, bread and dessert; and

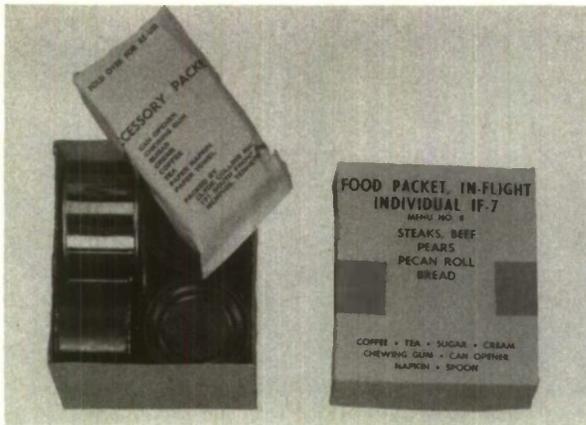


Figure 86. The packaging arrangement of the in-flight food packet.

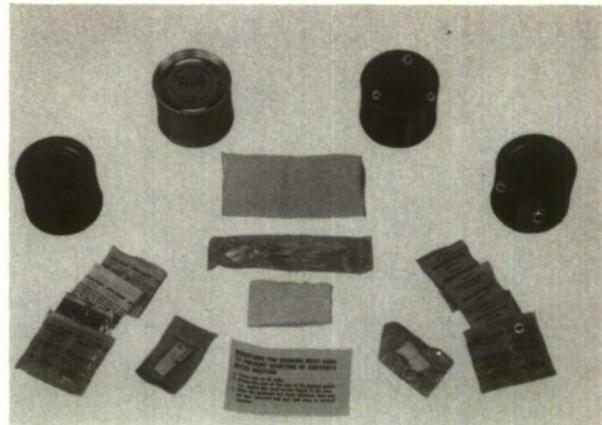


Figure 87. Components of the individual flight food packet.

- b. An accessory packet containing soluble tea, soluble coffee, soluble cream, chewing gum, a folding can opener, a plastic spoon and paper napkins.

Ten menus are available. Each packet contains a complete meal and provides approximately 1200 calories. Heating of the meat component is recommended to increase palatability. This can be accomplished in a hot cup or oven. Hot water is essential for preparation of the beverages.

Because of its stability, this food packet lends itself to stockpiling for emergency, or wartime, use.

The items in this packet are procured individually from various sources and are assembled by the Army or a separate contractor.

Status: Standard

Identification: Specification MIL-F-3764
Stock No. 8770-163-8871

Meal, Precooked, Frozen

The precooked frozen meal (figure 88) is designed to provide a hot meal aboard large, long range aircraft. Refrigerated storage and an oven for heating purposes are required for this meal. Hot cups and insulated liquid containers are necessary for the preparation of beverages.

Twelve menus are available. Ten are tray meals consisting of meat, potato, and dried vegetable; two are casserole dishes. The meals are supplemented with a drink, bread and dessert.

The precooked frozen meal, commercially procured, can be assembled on short notice.

Status: Standard

Identification: Specification MIL-M-13966
Stock No. 8970-299-1378



Figure 88. Casserole and tray types of precooked frozen meals.



Figure 89. The foil pack meal ready for serving.

Foil Pack In-Flight Feeding System

The foil pack in-flight feeding system (figure 89) has been developed for large aircraft where space and power are available and where weight is not a limiting factor.

Raw and partially cooked foods are packed individually into rectangular covered aluminum foil containers in flight kitchens. The meals are taken aloft in a refrigerator and cooked during flight in a standard Air Force oven. Meals are served in the foil containers on lap trays and are supplemented with beverages.

A variety of menus are available.

Status: Standard

Identification: WADC TR 55-183, "Foil Pack Meal Guide" and WADC TR 55-400, "Field Test of Foil Pack In-Flight Feeding System".
Air Force Regulation No. 145-11, "General Rules Governing Issue and Sale of Subsistence Items".

SURVIVAL FOOD PACKETS

There are three survival food packets, each consisting of concentrated foods designed to (a) occupy a minimum of space; (b) to sustain life under different climatic conditions; (c) for general storage stability exceeding 2 years; (d) and to maintain physical condition and morale over the longest possible period of time.

Food Packet, Survival, ST

This packet (figure 90) provides food for three men for one day or one man for three days. It contains starch jelly bars, coffee, tea and sugar.

This pack should be used when:

- a. Less than 2 pints of water or other liquid are available per day;
- b. Less than one-half food packet per man/per day is available; or
- c. Light work or no work is required.

The foods in this packet are carbohydrates and provide approximately 1700 calories.



Figure 90. Survival food ration for tropical conditions.

Components of this food packet are procured from various sources and are assembled centrally by the Army.

Status: Standard

Identification: Specification MIL-F-2409
Stock No. 8970-163-8870

Food Packet, Survival, Arctic, SA

This packet (figure 91) provides food for one man for one day. It is composed of cereal bars, fruitcake bars, cheese bars, chocolate bars, starch jelly bars, coffee, tea, cream and sugar. It should be used when:

- a. 2 pints or more of water or other liquids are available per day;
- b. One food packet per man/per day is available; and
- c. Moderate work is required.

The food in this packet has a protein-carbohydrate-fat ratio of 8-52-40. The approximate caloric value is 2100.

Components of this packet are procured from various sources and are assembled centrally by the Army.

Status: Standard

Identification: Specification MIL-F-2413
Stock No. 8970-163-8869

Ration, Survival, Individual

This ration (figures 92 and 93) contains two cans of food for one man for one day under arctic survival conditions involving hard work where the water supply is ample.

It contains meat food product bars, cereal bars, fruitcake bars, tea, sugar and seasonings. The meat food product bars make this ration high in protein and fat. The caloric value is approximately 3500.

Components of this ration are procured from various sources and are assembled by the Army.

Status: Standard

Identification: Interim Quartermaster Corps Purchase Description, 15 March 1957
Stock No. 8970-132-6353



Figure 91. SA-4 arctic survival food packet.



Figure 92. Individual survival ration.

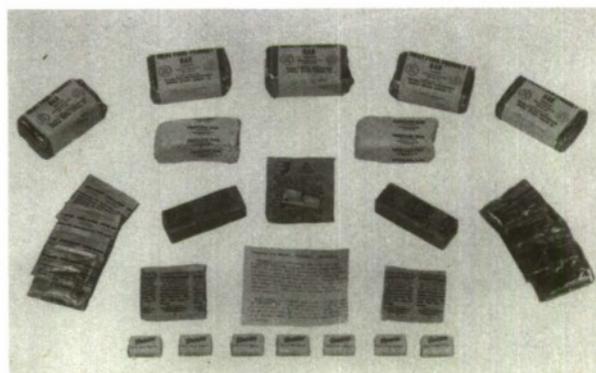


Figure 93. Components of the individual survival ration.

FOOD SERVICE EQUIPMENT

The following equipment for the storage, preservation, and preparation of food is recommended for long range flights where more than one meal or beverage will be desired.

GALLEYS

An aircraft food galley (figure 94) is essentially a framework incorporating storage space, a work surface, and various items of insert equipment for the storage and preparation of food for in-flight feeding.

Each galley is individually designed in accordance with the physical space available and the feeding requirements of each type aircraft. Specifications MIL-G-25608 and MIL-G-25607 describe the general requirements for the design and testing of galleys.

Insert equipment in the galley may include the following items:

1. Rectangular liquid containers in accordance with MIL-J-25718.
2. Type B-4 ovens in accordance with MIL-O-6438.
3. Hot cup brackets in accordance with MIL-B-7525, MIL-B-7526, MIL-B-7527, or MIL-B-7528; (Hot cup brackets may be designed into the galley with the approval of the procuring activity.).
4. Hot cups in accordance with MIL-C-7561 or MIL-C-7615.
5. Drinking cup dispensers.
6. Refuse containers and disposal facilities.
7. Swing-away or equal type can opener.
8. A refrigerator (mechanical, dry ice, or other approved type); and
9. Any other approved insert equipment.

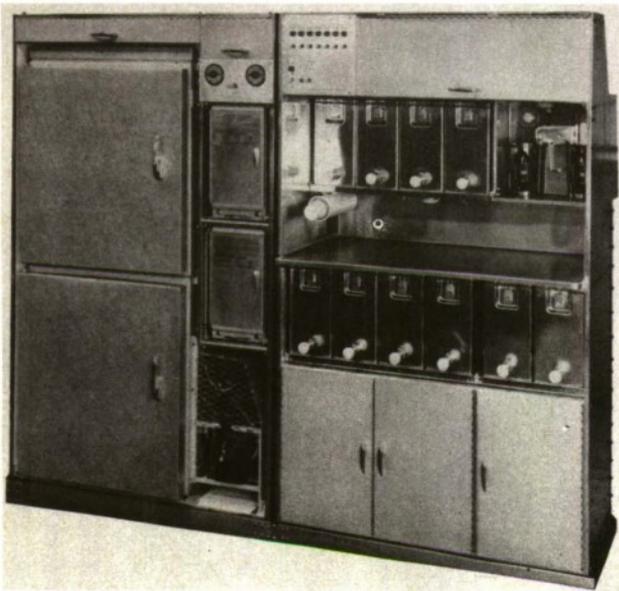


Figure 94. An aircraft food galley.

A water tank, sink or drainage facilities, and other accessory plumbing may also be included in the galley.

Identification: Specification MIL-G-25608 Galley, Aircraft, Design of,
Specification MIL-G-25607 Galley, Aircraft, General Specification For

JUGS AND VACUUM BOTTLES

Jug, Insulated, Type CNU-2/C

The CNU-2/C insulated jug (figure 95) is a 2-gallon dispensing and storage container for hot and cold liquids. It is stainless steel insulated with heating elements which operate on either 28 volts D. C. or 115 volts A. C., maintaining hot liquids between 170° and 190°F.

The container can be used without power connections to maintain liquids hot for approximately 6 hours at an ambient temperature of 80°F; or it can be used with ice to keep liquids cool for a period of 16 to 25 hours at an ambient temperature of 90°F.

The electrical plug on the jug connects with a receptacle, Cannon Electrical Co., part number 16707, which is wired to the 28 volt D. C. or 115 volt A. C. power source on the aircraft.

This unit is used singly or is incorporated as an item of insert equipment in aircraft galleys.

The CNU-2/C jug replaces the 2-gallon rectangular J-1 container with dry ice well and the 1- and 2-gallon cylindrical type III, grade A, class 2 insulated jugs covered by Specification MIL-C-3164.

A change of materials has eliminated a number of problems inherent in previous jugs; i. e., tackiness of lid gaskets after use and swelling of spigot washers causing blocking of the spigot orifice.

Effort is presently being made to improve the insulation of the container in order to keep liquids hot over a longer period of time when power is not available, and several new spigot designs are being studied.

Status: Standard

Identification: Specification MIL-J-25718



Figure 95. The CNU-2/P insulated jug.

Bottle, Vacuum

The purpose of these assemblies (figure 96) is to store and dispense hot or cold liquids in aircrafts to crew members who must remain in fixed positions for an extended period of time.

The components of the various assemblies are shown in the table on page 54. Assemblies with rubber vent tubes are intended for use with special equipment for feeding through pressure helmet ports when a high differential pressure exists between helmet and cabin atmosphere. The single tube assemblies are intended for use where pressure helmets are not used or through pressure helmets when a low differential exists between helmet and cabin pressures. The bottles keep liquids above acceptably warm temperature for a period of at least 6 hours at an ambient temperature of 77°F.

The assemblies are designed for mounting the bottle in either a horizontal or vertical position so that the liquid will flow by gravity to the point of consumption. A bracket is necessary for mounting each bottle, the type of

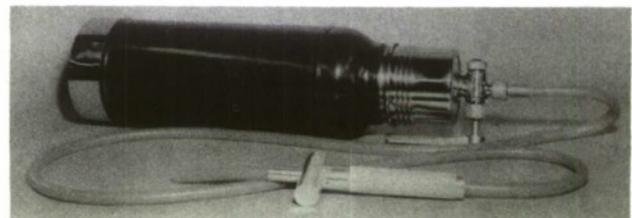


Figure 96. A horizontal bottle for hot or cold liquids.

bracket depending upon the space available in each aircraft.

The handset valve has recently been modified to completely shut off the flow of liquid at low temperatures and development is now under way to improve the sanitary construction of the inner shell seams of the bottles. Also, a newer type spigot, able to withstand 15 pounds per square inch of pressure, is now required. An air line from the spigot to the vent tube will be provided shortly to allow the assembly to be used by personnel wearing the pressure helmets.

Status: Standard

Part Numbers of Assemblies	57D3569-1	57D3569-2	57D3569-3	57D3569-4	57D3569-5	57D3569-6	57D3569-7	57D3569-8
Bottle-Vacuum, CNU-3/A 1 qt vertical (Dwg 57C3570)	1				1			
Bottle-Vacuum, CNU-4/A 1 qt horizontal (Dwg 57C3571)		1				1		
Bottle-Vacuum, CNU-5/A 2 qt vertical (Dwg 57C3572)			1				1	
Bottle-Vacuum, CNU-6/A 2 qt horizontal (Dwg 57C3573)				1				1
Valve-Liquid Dispensing (Hand Valve) (Dwgs 57B3601, 55B3650)	1	1	1	1				
Tube - Drinking, Rubber, Bottle-Vacuum (Dwg 57B3602)	1	1	1	1	1	1	1	1
Probe, In-Flight Feeding (Dwg 57A3650)	1	1	1	1				
Tube-Vent, Rubber, Bottle- Vacuum (Dwg 57B3603)					1	1	1	1

HOT CUPS AND BRACKETS

Hot cup installations (figure 97) are designed:

- a. To provide hot water for reconstituting beverage concentrates;
- b. To heat two unopened 211 by 304 single strength soup cans or three 300 by 200 I.F. ration cans in boiling water; and
- c. To warm semi-solid foods directly.

There are two types of cups, each with a capacity of 37 fluid ounces. The A-1 hot cup operates on 28 volts D.C. and the B-1 hot cup operates on 115 volts A.C.



Figure 97. The A-1 and B-1 hot cup inserted in the bracket and receptacle.

When filled to the brim with water at 70°F, the cups will heat the water to 212°F within 10 minutes at an ambient air temperature of 77°F.

One and four unit brackets with receptacles, timers, and indicating lights are available for both the 28 and 115 volt cups.

The A-1 hot cup is to be used with either the A-1 or A-2 bracket and receptacle; and the B-1 hot cup is to be used with either the B-1 or B-2 bracket and receptacle.

The B-4 oven can also be used to heat canned foods; and the CNU-2/C 2-gallon jug can be used used, where weight and space permit, to provide the hot water for beverages instead of heating water in the hot cups.

The hot cups can be used as single installations or as insert equipment in galleys.

Action is now being taken to eliminate a number of problems in the usage of hot cups, such as:

- a. Distortion of the inner liner due to heating when the cup is dry;
- b. Breaking of the lid hinge;
- c. Wearing away of the nickle-chrome plating from the copper inner liner; and
- d. The forcing off of terminal prongs due to vibration in flight.

Other improvements now being incorporated into the hot cups include:

- a. A thermostatically controlled power cut-off built into the hot cup to prevent damage caused by heating the cup dry; and
- b. A wire rack to permit cans of food to be removed from the hot cups without having to dump out the water.

Status: Standard

Identification: Cup, Food Warming, Electrically Heated, Aircraft,
Type A-1 (28 Volts D.C.), Specification MIL-C-7615.

Cup, Food Warming, Electrically Heated, Aircraft,
Type B-1 (115 Volts A.C.), Specification MIL-C-7561.

Bracket and Receptacle, Hot Cup, Single Unit,
Type A-2 (28 Volts D.C.), Specification MIL-B-7526.

Bracket and Receptacle, Hot Cup, Four Unit,
Type A-1 (28 Volts D.C.), Specification MIL-B-7528.

Bracket and Receptacle, Hot Cup, Single Unit,
Type B-2 (115 Volts A.C.), Specification MIL-B-7525.

Bracket and Receptacle, Hot Cup, Four Unit,
Type B-1 (115 Volts A.C.), Specification MIL-B-7527.

OVEN, FOOD WARMING, ELECTRICALLY HEATED, TYPE B-4

This aircraft oven (figure 98) has been designed to heat precooked frozen meals, foil pack meals, and I.F.-7 canned rations. In a period of approximately 30 minutes, the oven can warm six foil pack meals, or 18 I.F. canned meat components. The time for six precooked frozen meals varies from 30 to 90 minutes.

The B-4 oven has six (6) removable shelves, each with a 375 watt heating element. The shelves can be replaced or heated separately. There is also a 175 watt heating element in a side wall to keep foods within the oven warm at 150°F to 160°F. The maximum power drain of the oven is 2425 watts.

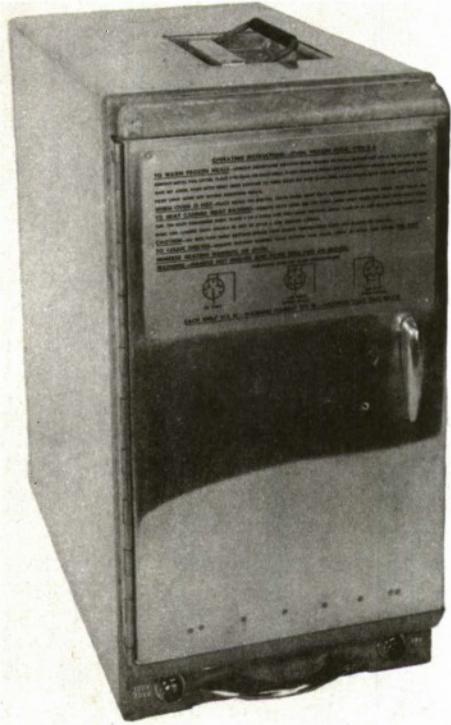


Figure 98. The B-4 oven.

The oven operates on 28 volts D.C., 120 volts single phase A.C., or 208 volts three phase A.C.

The plug at the rear of the oven is designed to mate with a receptacle, Cannon Electrical Co. part number 18471-1. The receptacle is wired to the power source of the aircraft.

The B-4 oven is used as a single installation or as an item of insert equipment in an aircraft galley.

The problems encountered in the use of the B-4 oven primarily involve the thermostatically controlled heating cycle and the design and function of the element tray. It is expected that the B-4 oven will be replaced by a forced air type oven.

A 12 meal forced air circulation type oven is now being used in the Air Force to heat precooked frozen meals. This oven can be modified to also heat foil pack meals and I.F. cans. It is faster than the B-4 oven, permits frozen meals to be handled with less danger of burning crew members, and is easier to clean and service. The B-4 oven can operate from one of three power sources.

Status: Standard

Identification: Specification MIL-O-6438



Figure 99. The B-1 dry ice refrigerator.

REFRIGERATORS

Dry Ice Refrigerator, Type B-1

The insulated chest (figure 99) is intended for the storage of precooked frozen meals and other frozen meals aboard aircraft. It holds 60 pounds of dry ice in a center well and 32 frozen meals at the sides. When packed in this manner, the B-1 refrigerator will maintain the meals between 0 and 20°F for 48 hours at an outside ambient temperature of 90°F.

Status: Alternate Standard

Identification: Weber Aircraft Drawing No. R72202

Contractor: Weber Aircraft Co., Burbank, California

Refrigerator, Mechanical, Non-Frozen Storage

The mechanical refrigerator provides refrigeration aboard aircraft for precooked frozen meals, foil pack meals, and for other foods. It will maintain the food at a temperature range of 32°F to 45°F.

The SR-4 or 4 cubic foot model measures 34-1/2 inches high by 24 inches wide by 24 inches deep and has a small ice cube compartment.

The SR-6 or 6 cubic foot model (figure 100) accommodates 52 foil pack meals. A forced air circulation system provides rapid pull down and even distribution of the temperature. The outside dimensions of the refrigerator are 33 inches high by 27 inches wide by 18-5/8 inches deep. A refrigeration unit, 12-9/16 inches wide by 20-1/2 inches high by 18-5/8 inches deep, extends from either the left or right side or from the rear panel of the box. There is no ice cube compartment.

The plug on the refrigeration unit connects with AN part number AN-3106-16-11S or AN-3108-16-11S, which in turn is wired to the electrical power source of the aircraft.

The SR-6 refrigerator replaces the C-1 refrigerator.

The SR-6A refrigerator (figure 101), formed by adding an auxiliary section between the basic section and the removable top of the SR-6 refrigerator, has a 12 cubic foot volume. It will hold 104 foil pack meals. The SR-6A refrigerator has the same rapid temperature pull down characteristics as the SR-6 models.

The outside dimensions of the SR-6A refrigerator are 63 inches high by 27 inches wide by 18-5/8 inches deep. A refrigeration unit, 12-9/16 inches wide by 20-1/2 inches high by 18-5/8 inches deep extends from either the left or right side or from the rear panel of the refrigerator. This refrigerator connects to the same AN part number as does the SR-6 model. The SR-6A refrigerator replaces the C-1 sectional refrigerator.

The three refrigerators operate on a 28 volt D.C. power source. 115 volt A.C. variations of the SR-6 and SR-6A refrigerators are now under consideration.

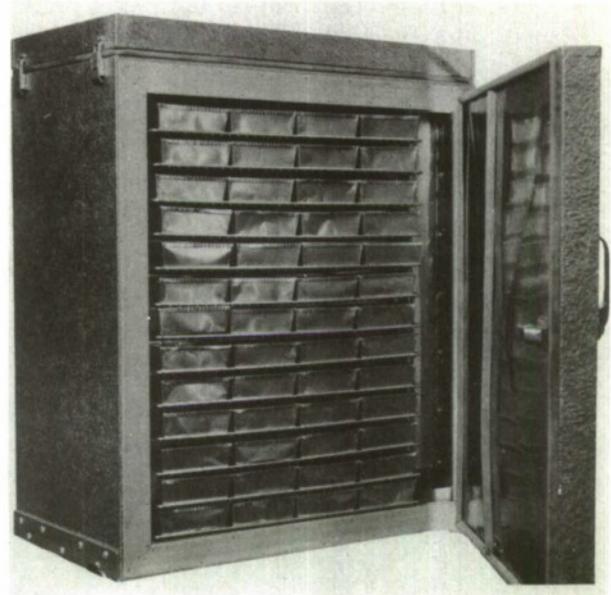


Figure 100. The SR-6 mechanical refrigerator showing foil packs in place.

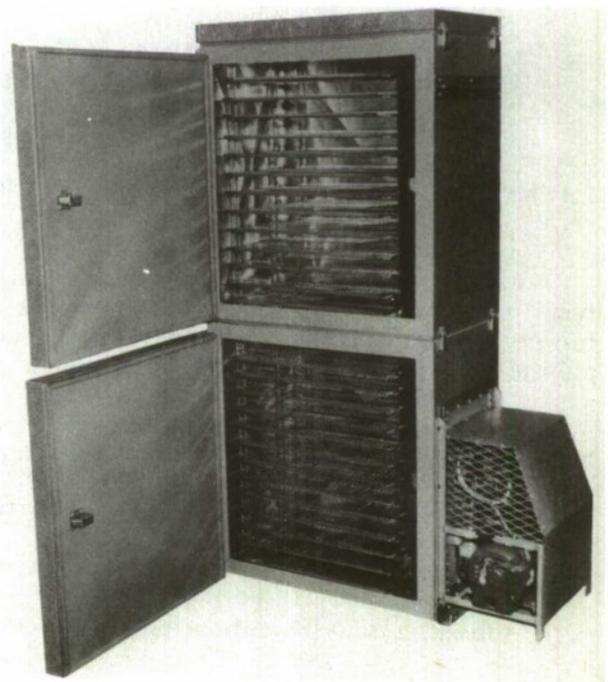


Figure 101. The SR-6A mechanical refrigerator.

consideration.

The three refrigerators may either be used singly or as a component of an aircraft galley.

Status: Commercial Standard

Contractor: Dale Sales, Inc., Los Angeles, California

Refrigerator, Mechanical, Frozen and Non-Frozen Storage

The SR-10 or 10 cubic foot mechanical refrigerator provides refrigeration aboard aircraft for precooked frozen meals, foil pack meals, or other foods.

It is a dual temperature refrigerator operating from a 28 volt D.C. power source. The 6 cubic foot upper chamber can be regulated for +40°F or -10°F and will hold 126 precooked frozen or 98 foil pack meals. The lower 4 cubic foot section is adjusted for +40°F only and is designed for storage of milk, butter, fruits, bread, etc.

The outside dimensions of this refrigerator are 50 inches high by 24 inches wide by 24 inches deep. The refrigerator unit, 25 inches high by 24 inches wide by 11 inches deep, joins the box on either the right or left side or on the rear panel.

A receptacle must be furnished to connect the refrigerator with the power supply of the aircraft.

The SR-10 mechanical refrigerator is the only model used by the Air Force which provides frozen storage for foods. The SR-4, SR-6 and SR-6A models only provide non-frozen refrigerated storage.

The SR-10 model may be used singly or may be incorporated in an aircraft galley.

Status: Commercial Standard

Contractor: Dale Sales, Inc., Los Angeles, California

PACKET, ACCESSORY, IN-FLIGHT FEEDING

There are two types of in-flight feeding accessory packets. The type I packet (figure 102) is intended for use with precooked frozen or foil pack meals. This packet contains salt, pepper, plastic knife, plastic fork, plastic spoon and paper napkin.

The type II packet is intended for use with sandwich snack meals. It contains salt, pepper, plastic spoon and paper napkin.

Both types of packets are local procurement items.

Status: Standard

Identification: Specification MIL-P-25865



Figure 102. The in-flight feeding accessory packet.

DISPENSING KIT, LIQUID CAN PIERCING

The liquid can piercing dispensing kit (figures 103 and 104) provides a means of piercing and drinking directly from juice cans and other beverage cans.

Each kit contains a piercer-drinking device, four plastic mouthpieces for the device, a plastic drinking tube, and two brushes for cleaning out the piercer-drinking device, mouthpieces, and tube ends. The drinking tube can be connected between the drinking spout and air vent nipple to prevent spillage from partially emptied cans.

Status: Standard

Identification: Air Force Drawing 54B3827
Stock No. 7330-33600263

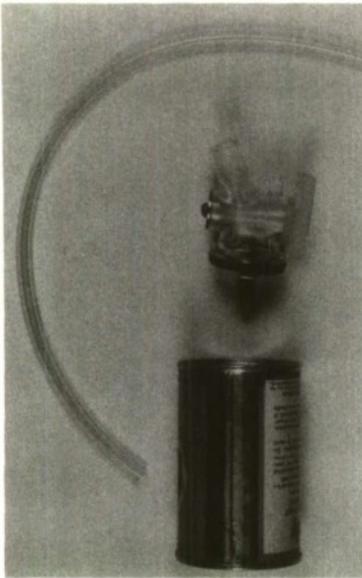


Figure 103. The can-piercing drinking device showing the disposable mouthpiece and plastic drinking tube.



Figure 104. The complete can-piercing drinking device, "Canmaster".

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