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**TECHNICAL MANUAL**  
**OPERATION AND SERVICE INSTRUCTIONS**  
**GROUND AND AIRCREW**  
**BODY ARMOR**

**THIS TECHNICAL MANUAL IS A REPRINT OF AIR FORCE  
T.O. 14P3-1-102, 15 DECEMBER 1970, INCLUDING CHANGES 1 AND 2.**

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**DEPARTMENT OF THE ARMY**  
**16 JANUARY 1984**

**OPERATION AND SERVICE INSTRUCTIONS**

**GROUND AND AIRCREW  
BODY ARMOR**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve the publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Aviation Systems Command, ATTN: DRSAV-MPSD, 4300 Goodfellow Blvd. St. Louis, MO 63120. A reply will be furnished directly to you.

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## SECTION I INTRODUCTION

### 1-1. PURPOSE.

1-2. This technical manual provides basic information which will be used as a general reference and guide to personnel using ground or aircrew body armor. This manual also includes use, inspection, repair and maintenance of various assemblies and components.

1-3. The data contained herein pertains to equipment and methods considered standard by the Air Force and approved by the responsible development agencies

1-4. The ground or aircrew body armor and components when issued as authorized in Table of Allowance 016. will be retained by ground or air-crew member as a personal retention item as long as assigned mission or duties require item usage.

## SECTION II DESCRIPTION

### 2-1. GENERAL.

2-2. The effectiveness and complexity of modern weapons pose challenging problems in providing adequate body protection for the aircrewman. Weight limitations of the aircraft, available space, individual maneuverability, and performance of duties limit the area coverage and type of body armor which aircrewman can effectively use.

2-3. To achieve the maximum body protection possible within these limitations, anatomically shaped body armor has been developed to provide small arms fire protection for the aircrewman. This armor is designed to give more effective protection to vital body areas with little added weight and to improve the comfort of the aircrewman. Based upon its use in combat, the armor has proven both physically and psychologically acceptable.

### 2-4. DETAILDESCRIPTION.

2-5. Body armor for the aircrewman consists of front and back armor plates and a cotton and nylon outer shell to accommodate the plates. The outer shell has adjustable shoulder straps and waist bands and ballistic nylon felt shoulder pads give additional comfort and fragmentation protection. The armor plates are made of rigid ballistic-defeating material and are worn selectively to protect the front and back torso from the lower neck to the waist.

### 2-6. BODY ARMOR, SMALL ARMS PROTECTIVE.

2-7. Body Armor, aircrewman, small arms protective (see figure 2-1) is currently available in Southeast Asia (SEA) for USAF aircrew. This armor (sizes as shown in Table I) was designed primarily for Army Helicopter aircrew, though it has

Change 1

1-1/2-1



Figure 2-1. Armor, Small Arms Protective

Figure 2-1. Armor, Small Arms Protective  
2-2

been tested for use with parachutes and is usable in other aircraft that do not employ ejection seats. This body armor consists of a nylon cotton cloth outer cover with fragmentation protective nylon felt shoulder pads. Pockets in the front and back of the carrier accommodate rigid ceramic armor plates. The plates have a covering of ballistic nylon for use as a spall shield. Additional spall protection is provided by a 1/2 inch layer of ballistic nylon felt which is permanently affixed inside the shell to cover the ceramic plate. Non-mobile crew members, such as pilots and copilots normally use the outer shell with armor plates in the front pockets only. Mobile crew members, such as gunners, crew chiefs, etc., use both front and back armor plates. Three different types of ceramic armor plates are available for this vest (see Table I):

- a. Aluminum Oxide.
- b. Silicon Carbide.
- c. Boron Carbide.

2-8. All three ceramics offer the same level of protection; .30 caliber armor piercing or equivalent at 0 degree obliquity, 100 yards range. However, boron carbide is the lightest material, while aluminum oxide is the

heaviest. Maximum weight difference is approximately three pounds per plate, between the aluminum oxide and the boron carbide. Silicone carbide is an intermediary material in weight. This item is available in three sizes as shown in Table I: Short, regular and long. Weight varies from approximately 13 pounds to 30 pounds depending upon size, type of ceramic and whether protection is for front only, or front and back.

### **2-9. BODY ARMOR, FRAGMENTATION PROTECTIVE WITH 3/4 COLLAR.**

2-10. This armor was designed for ground troops (see figures 2-2) although, it has been used by both Army and Air Force crew members in various aircraft in SEA. The vest consists of a ballistic filler consisting of 12 plies of ballistic nylon cloth in the front, 10 plies of ballistic nylon in the back and 6 plies of ballistic nylon in a collar around the neck. The ballistic filler is sealed in a vinyl envelope for protection against moisture (which causes a loss of protective qualities in "soft" armor). The vest is a front closure, slide fastener design and has elastic laces on both sides.

2-11. This item is available in four sizes: Small, medium, large and extra large, see Table II.