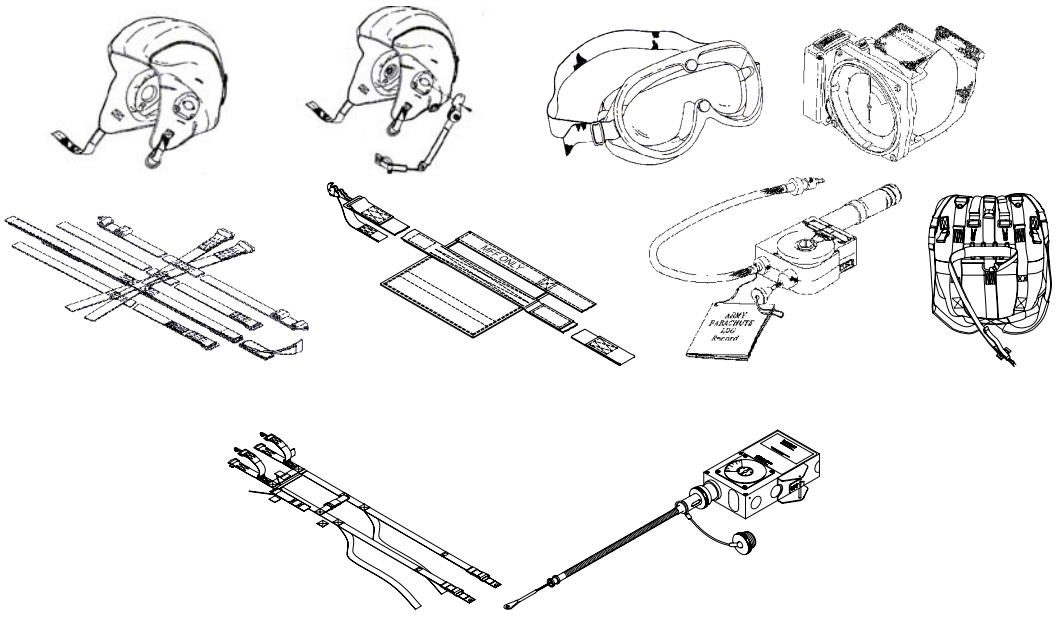
***ARMY TM 10-1670-300-20&P**
AIR FORCE TO 14D1-2-469-2
NAVAIR 13-1-42

UNIT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)
FOR
ANCILLARY EQUIPMENT FOR: MILITARY FREE-FALL SYSTEM

HELMET, FREE-FALL, PARACHUTISTS, TYPE I
(NSN 8415-01-018-4911, 8415-01-018-4912)
HELMET, FREE-FALL, PARACHUTISTS, TYPE II
(NSNS 8415-01-018-4913, 8415-01-018-4914, 8415-01-018-4915)
GOGGLES (NSN 8465-01-328-8268)
ALTIMETER, PARACHUTISTS (NSN 6660-01-213-9035)
SLING ASSEMBLY, EQUIPMENT ATTACHING (NSN 1670-01-008-7755)
LINE, EQUIPMENT LOWERING (P/N 11-1-2530-2)
RELEASE ASSEMBLY, RIPCORD, AUTOMATIC, TYPE FF2
(NSN 1670-01-213-8145)
RELEASE, AUTOMATIC RIPCORD, AR2, MODEL 451
(NSN 1670-01-369-7914)
DROP BAG, PARACHUTE W/7-FOOT LOWERING LINE
(1670-01-508-9051)
DROP BAG, PARACHUTE W/15-FOOT LOWERING LINE
(1670-01-508-9053)
HARNESS, SINGLE POINT RELEASE ASSEMBLY
(NSN 1670-01-227-7992)



* This manual supersedes TM 10-1670-300-20&P dated 31 July 1995

HEADQUARTERS, DEPARTMENT OF THE ARMY

31 JULY 2004

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation of this equipment. Failure to observe these precautions could result in serious injury or death to personnel. Also included are explanations of safety and hazardous materials icons used within this technical manual.

• Acetone and Methyl Ethyl Ketone are hazardous chemicals! Repeated or prolonged contact with liquid or inhalation of vapor can cause skin and eye irritation, dermatitis, narcotic effects, and damage to internal organs. Avoid contact with skin and eyes and do not breathe vapors. Always wear protective goggles and gloves, and use only in well-ventilated areas. Do not use near open flame or excessive heat. If you become dizzy while using one of these solvents, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical help. In case of skin contact, wash contacted area thoroughly with soap and water.

• Use of compressed air can create airborne particles that may enter the eyes or penetrate skin. When used for cleaning and drying, compressed air shall not exceed 30 psig. Adequate chip guards and eye protection shall be used. Do not direct compressed air against skin.

• Do not attempt to cock the FF-2 release if the two white marks in the reset indicator are not aligned. Inaccurate time delay and operating altitude will result. Failure to observe this warning may result in severe injury or death to parachutist using the FF-2 release.

• Premature withdrawal of FF-2 release arming cable prior to reaching 2500 feet of altitude above desired opening altitude will result in inaccurate time delay and opening altitude.

• After calculating FF-2 release opening altitude, the minimum arming altitude (opening altitude plus 2500 feet) should be ascertained. It is imperative that all concerned parachutists and aircrew members be aware of this minimum arming altitude.

• Do not remove test arming pin and keep open end of barrel pointed in a safe direction towards ceiling or floor. Removal of test arming pin will release main spring, expelling plunger with sufficient force to cause serious injury to personnel.

• Position shield over glass bell jar prior to operating test set. Failure to do so may result in serious injury to personnel.

WARNING

DEATH could result if inspections are not performed as specified in this manual. Perform all inspections as specified.

WARNING

For First Aid treatment, refer to FM 4-25.11.

WARNING

Exercise extreme care when using petroleum products to destroy equipment by fire, as these materials are highly flammable. Improper handling may cause injury to personnel.

WARNING

Failure to detect areas of damage may result in malfunction of the equipment and injury or loss of life to personnel.

WARNING

When attaching the power cable assembly to the AR2, always verify proper engagement of ball end of power cable with piston rod of AR2 by looking through transparent plastic cable seal retainer. Cable seal and power cable seal must be present to ensure seating of power cable ball. If ball is not engaged with piston rod, or if cable seal retainer is missing, actuation of AR2 will fail to pull ripcord pins, which may result in death of parachutist.

WARNING

If there is any indication of a leak in the aneroid, remove the AR2 from service. A leaking aneroid may cause a malfunction which may result in death of parachutist.

WARNING

The altitude dial indicates thousands of feet above mean sea level (not above ground level). If the altitude dial is incorrectly set, two parachutes may deploy and become entangled, which may result in death of parachutist.

WARNING

Do not move the JUMP/OFF switch to jump unless the (equivalent pressure altitude inside the) aircraft is at least 1,500 feet above the altitude set on the dial. It is imperative that the AR2 remains well above its actuation altitude at all times after the JUMP/OFF switch has been moved to jump. If there is a temporary reduction in aircraft altitude, and the AR2 switch is not recycled back to jump after again rising above the actuation altitude, the AR2 will activate prematurely during the jump, possibly causing deployment of the two parachutes which may become entangled, which may result in death of parachutist.

WARNING

When the AR2 is used on the reserve parachute, the main parachute must be activated at an altitude high enough to obtain a fully deployed canopy at least 1,500 feet above the actuation altitude for the AR2. If the main parachute opens within only a few hundred feet of the AR2 actuation altitude, the AR2 may deploy the reserve parachute. The two parachutes may become entangled, which may result in death of parachutist.

WARNING

The JUMP/OFF switch must be set to OFF immediately after every jump. Setting the JUMP/OFF switch to OFF repositions the mechanisms for the next jump and prevents inadvertent actuation on the ground or during transport. If the switch is left in JUMP position, the next jump will cause the AR2 to actuate prematurely. Two parachutes may deploy and become entangled, which may result in death of parachutist.

WARNING

Do not open or remove screws of AR2 housing. No internal maintenance is authorized. Unauthorized disassembly may cause a malfunction which may result in death of parachutist.

WARNING

The power housing (outer flexible metal casing) must be inspected for looseness between its convolutions. Looseness indicates either damage or a loss of interference fit between the outer housing and Teflon liner, which maintains the housing length. Changes in housing length will affect the pulling stroke of the AR2 and could result in incomplete extraction of ripcord pins, which may result in death of parachutist.

WARNING

Make sure the JUMP and OFF decals are replaced on the correct sides of the switch lever. Incorrectly placed decals will give you a false indication of AR2 condition and may result in death of parachutist if the AR2 is used in a jump.

WARNING

The limitations prescribed for patching will be stringently adhered to under all circumstances and without any deviations. Failure to do so may result in failure of an ancillary item causing death or serious injury to personnel.

INSERT LATEST CHANGED PAGES / WORK PACKAGES. DESTROY SUPERSEDED DATA

LIST OF EFFECTIVE PAGES / WORK PACKAGES

NOTE: The portion of text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages / work packages are:

Original: …….. 0 …… 31 July 2004

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER ARE 28 AND TOTAL NUMBER OF WORK PACKAGES IS 47 CONSISTING OF THE FOLLOWING:

Page / WP No.	*** Change No.**
Front Cover	0
a-c/(d Blank)	0
A-(B Blank)	0
i-v(vi Blank)	0
WP 0001 00 – 0047 00	0
Index 1- Index 4	0
Authentication Page	0
Electronic 2028 Inst	0
Sample DA Form 2028	0
Blank DA Form 2028s	0
Back Cover	0

*Zero in this column indicates an original page or work package

**HEADQUARTERS,
DEPARTMENTS OF THE ARMY,
AIR FORCE, AND NAVY
WASHINGTON, D.C., 31 July 2004**

UNIT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST FOR ANCILLARY EQUIPMENT FOR: MILITARY FREE-FALL SYSTEM

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

ARMY

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures please let us know. Mail your letter, DA form 2028 (Recommended Changes to Publications and Blank Forms or DA form 2028-2, located in the back of this manual) directly to Commander, U.S. Army Tank-automotive & Armament Command, ATTN: AMSTA-LC-CECT, Kansas St., Natick, MA 01760. You may also submit your recommended changes by E-mail directly to: amssbriml@natick.army.mil. A reply will be furnished directly to you. Instructions for sending electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

AIR FORCE

Reports by U.S. Air Force units should be submitted on AFTO Form 22 (Technical Order Publication Improvement Report and Reply) and forwarded to the address prescribed above for the Army. An information copy of the prepared AFTO Form 22 shall be furnished to WP-ALC/TILTA, 420 2nd Street, Suite 100, Robins AFB, GA 31098-1640.

MARINE CORPS

Marine Corps personnel submit NAVMC 10772 form to commander, ATTN: (Code 850), Marine Corps Logistics Bases, 814 Radford Blvd., Albany, GA 31704-1128.

NAVY

Submit NAVSEA Form 4160/1 (REV 2-99) to Commander, NSDSA Code 5E30, NAVSURFCENDIV, 4363 Missile Way, Port Hueneme, CA 93043-4307. A reply will be sent to you.

*This manual supercedes TM 10-1670-300-20&P dated 31 July 1995.

TABLE OF CONTENTS

TABLE OF CONTENTS - continued

HOW TO USE THIS MANUAL

This manual contains General Information, Preventive Maintenance Checks and Services (PMCS), and Maintenance Information for the Ancillary Military Free-Fall Equipment.

Chapter 1 contains introductory information on the Ancillary Military Free-Fall Equipment and any associated equipment as well as Equipment Description and Data. Chapter 2 details Unit Maintenance Procedures. Chapter 3 contents contains Supporting Information.

Manual Organization and Page Numbering System. The manual is divided into three major chapters that detail the topics mentioned above. Within each chapter are work packages covering a wide range of topics. Each work package is numbered sequentially starting at page 1. The work package has its own page numbering scheme and is independent of the page numbering used by other work packages. Every work package has an even number of pages so that it does not interfere with any other work package. Each page of a work package has a page number of the form XXXX YY-ZZ where "XXXX" is the work package number (e.g. 0010 is work package 10). "YY" is a number that allows for a work package to be inserted between two existing work packages without disturbing the remainder of the TM (e.g WP 0010 01 would fall between WP 0010 and WP 0011). "ZZ" represents the number of the page within that work package. A page number such as 0010 00-1/(2 Blank) means that page 1 contains information but page 2 of that work package has been intentionally left blank. A page number such as 0010 00-(1 Blank)/2 means that page 1 of that work package has been intentionally left blank but page 2 contains information.

Illustrations. Illustrations for procedures in this manual always follow the procedure. For example, if given a procedural instruction such as "1. Locate the pump assembly **(1)**.", the **(1)** references the photo or illustration immediately *following* the procedure.

Finding Information. The Table of Contents permits the reader to find information in the manual quickly. The reader should start here first when looking for a specific topic. The Table of Contents lists the topics contained within each chapter and the work package sequence number where it can be found.

Example: If the reader were looking for instructions on cleaning and drying which is a unit maintenance topic, the table of contents indicates that unit maintenance information can be found in Chapter 2. Scanning down the listings for Chapter 2, Cleaning and Drying can be found in WP 0012 00 (Work Package 12).

An Alphabetical Index can be found at the back of the manual. It lists specific topics with the corresponding work package.

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
GENERAL INFORMATION

SCOPE

This Technical Manual provides Unit maintenance instructions for Ancillary Military Free-Fall Equipment. This equipment is used by Military Free-Fall qualified personnel.

MAINTENANCE FORMS AND PROCEDURES

Department of the Army forms and procedures used for equipment maintenance shall be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS) (Maintenance Management Update).

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Objective. Methods of destruction used to inflict damage on air delivery equipment should make it impossible to restore equipment to a usable condition in a combat zone, by either repair or cannibalization.

Authority. Destruction of air delivery equipment that is in imminent danger of capture by an enemy is a command decision that must be made by a battalion or higher commander, or the equivalent.

Implementation plan. All units that possess air delivery equipment should have a plan for the implementation of destruction procedures.

Training. All personnel who use or perform such functions as rigging, packing, maintenance, or storage of air delivery equipment, should receive thorough training on air delivery equipment destruction procedures and methods. The destruction methods demonstrated during training should be simulated. Upon completion of training, all applicable personnel should be thoroughly familiar with air delivery equipment destruction methods and be capable of performing destruction without immediate reference to any publication.

SPECIFIC METHODS

Specific methods of destroying Army materiel to prevent enemy use shall be by mechanical means, fire or by use of natural surroundings.

Destruction by Mechanical Means. Air delivery equipment metal assemblies, parts, and packing aids shall be destroyed using hammers, bolt cutters, files, hacksaws, drills, screwdrivers, crowbars, or other similar devices used to smash, break, bend or cut.

WARNING

Exercise extreme care when using petroleum products to destroy equipment by fire, as these materials are highly flammable. Improper handling may cause injury to personnel.

Destruction by Fire. Items that can be destroyed by fire shall be burned. The destruction of equipment by use of fire is an effective method of destroying low-melting-point metal items (e.g., side rails, threaded portions of nuts and bolts, and platforms). However, mechanical destruction should be completed first, whenever possible, before initiating destruction by fire. When items to be destroyed are made of metal, textile materials (or some comparable low combustible material) should be packed under and around the items, then soaked with a flammable petroleum product and ignited. Proper concentration of equipment that is suitable for burning will provide a hotter and more destructive fire.

Destruction by Use of Natural Surroundings. Small vital parts of assemblies, that are easily accessible, may be disposed of as follows: Disposal or denial of equipment to an enemy may be accomplished through use of natural surroundings. Accessible vital parts of assemblies may be removed and scattered through dense foliage, buried in dirt or sand, or thrown into a lake, stream or other body of water. Total submersion of equipment in a body of water will provide water damage as well as concealment. Salt water will inflict extensive damage to air delivery equipment.

PREPARATION FOR STORAGE AND SHIPMENT

For storage and shipment, refer to TM 10-1670-201-23/T.O. 13C-1-41/NAVAIR 13-1-17, and WP 0009 00; for shipment, refer to WP 0010 00 of this manual.

QUALITY ASSURANCE (QA)

Ancillary Military Free-Fall Equipment is inspected in accordance with MIL-STD-105 at government acceptance.

NOMENCLATURE CROSS-REFERENCE LIST

Official Nomenclature	Common Name
Release, Ripcord, Automatic, Type FF-2	FF-2
Release, Automatic, Ripcord, AR2, Model 451	AR2
Helmet, Free-Fall, Parachutist's, Type I	Bunny Helmet
Helmet, Free-Fall, Parachutist's, Type II	Jumpmaster's Helmet
Line, Equipment, Lowering, 8-Foot	Lowering Lines
Sling Assembly, Equipment, Attaching	Spider Harness
Bag, Drop, Parachute	Drop Bag
Harness, Single Point Release Assembly	Single Point Release

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your Ancillary Military Free-Fall Equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to Commander, U.S. Army Tank-automotive and Armament Command. ATTN: AMSTA-LC-R, Kansas Street, Natick, MA 01760-5052. We will send you a reply.

CORROSION PREVENTION AND CONTROL

Corrosion Prevention and Control (CPC) of U.S. Army materiel is a continuing concern. It is important that any corrosion problems with these items be reported so that the problem can be corrected and improvements made to prevent the problem in future items. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling or breaking of these materials may be considered a corrosion problem.

If a corrosion problem is identified, it can be reported using a Standard Form 368 Product Quality Deficiency Report. Using keywords such as “corrosion,” “rust,” “deterioration,” or “cracking” will assure that the information is identified as a CPC problem.

This form should be submitted to the address specified in DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS).

WARRANTY INFORMATION

The Ancillary Military Free-Fall Equipment does not contain warranty provisions except for the Parachute Drop Bag (PDB) which is warrantied as follows:
Eagle Industries warranties the PDB for 5 years or 125 jumps on material and workmanship from the time the PDB is first used. Shelf life will be for a period of 5 years. Eagle Industries will pay two way shipping cost if the PDB is found to have faulty material or workmanship. All other freight expense related to repairs is the customer’s responsibility. Eagle’s PDB is designed to meet or exceed the specifications called out in Natick’s bid contract. If the PDB is abused or neglected by the Government in normal use, the warranty may or may not apply. This will be at Eagle Industries discretion, and a written report will be provided to Natick for evaluation and rebuttal. If a PDB is found to have problems in material and workmanship, Eagle Industries will repair the PDB at no charge. It is Eagle Industries full intent to provide Natick with the highest quality, both in material and workmanship, and the safest PDB possible. Eagle has, and always will stand behind it’s workmanship and materials used.

LIST OF ABBREVIATIONS/ACRONYMS

BER	Beyond Economic Repair
BOI	Basis of Issue
CAGEC	Commercial and Government Entity Code
Cm.	Centimeter
CPC	Corrosion Prevention and Control
DA	Department of the Army
DS	Direct Support
Dtd.	Dated
EA	Each
EIR	Equipment Improvement Recommendation
EDS	Electrostatic Discharge Sensitive
ESC	Equipment Serviceability Criteria
F	Fahrenheit
FSCM	Federal Supply Code for Manufacturer
FSC	Federal Supply Classification
ft.	Feet
HAHO	High Altitude High Opening
HALO	High Altitude Low Opening
in.	Inches
Ltrs.	Liters
LG	Long
Lbs	Pounds
MAC	Maintenance Allocation Chart
MTOE	Modified Table of Organization and Equipment
MTG	Mounting
MWO	Modification Work Order
NF	National Fine (Thread)
Ni-Cad	Nickel Cadmium
NIIN	National Item Identification Number
No.	Number
NBC	Nuclear, Biological and Chemical
NSN	National Stock Number
OD	Olive Drab
oz.	Ounces
PMCS	Preventive Maintenance Checks and Services
PDQR	Product Quality Deficiency Report
psi.	Pounds per square inch
RPSTL	Repair Parts and Special Tools List
SMR	Source, Maintenance and Recoverability
TAMMS	The Army Maintenance Management System
TB	Technical Bulletin
TMDE	Test Measurement and Diagnostic Equipment
U/M	Unit of Measure
UOC	Usable on Code
WP	Work Package

END OF WORK PACKAGE

CHAPTER 1

DESCRIPTION AND THEORY OF OPERATION

ANCILLARY MILITARY FREE-FALL EQUIPMENT

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

Characteristics

Lightweight

Rugged

Capabilities and Features

Provides parachutist communication with aircraft.

Automatically deploys parachute at preset altitude.

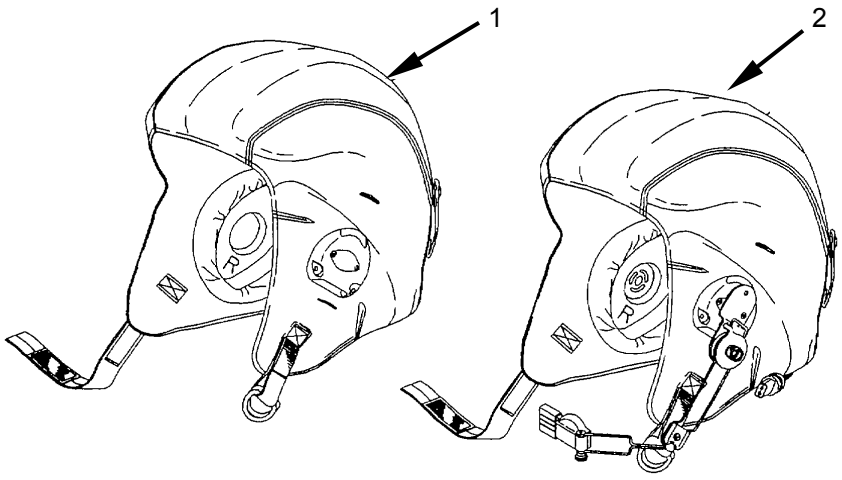
Allows for carriage of individual equipment.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. The ancillary military free-fall equipment is not issued as a set; all components can be requisitioned separately. The equipment consists of the following components depicted and described by the following paragraphs and illustrations.

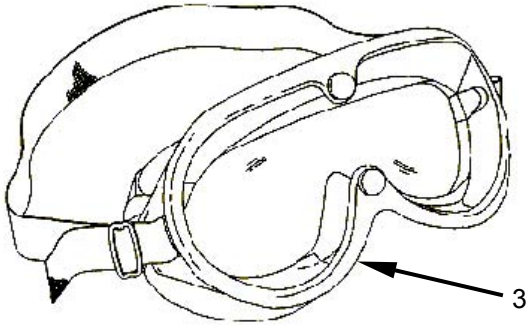
Helmet, Free-Fall Parachutist.

(1) Type I; Without Communication Equipment. The Type I Free-fall Parachutist Helmet **(1)** is a leather helmet that provides protection to the parachutist, but no communication capabilities.

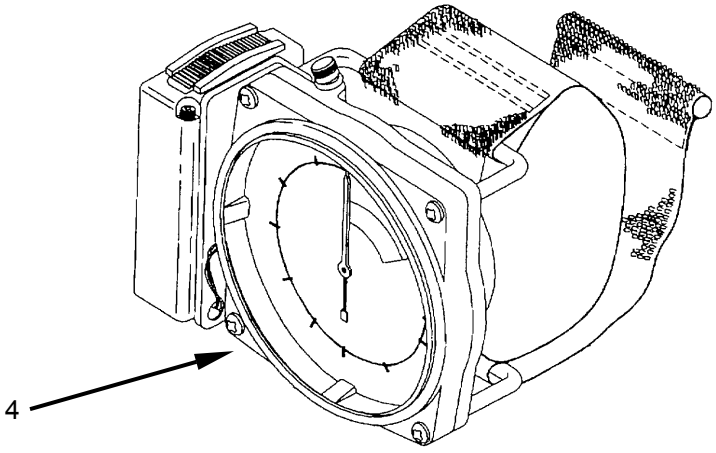
(2) Type II; With Communication Equipment. The Type II Free-fall Parachutist Helmet II **(2)**, also called Jumpmaster's Helmet, is identical to the Type I, but adds a boom microphone and ear phones.



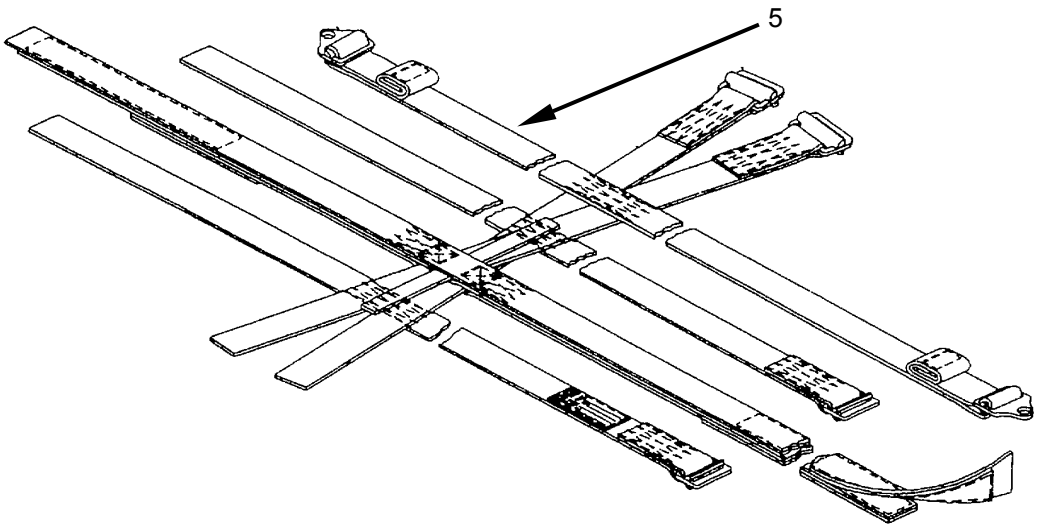
Goggles, Sun, Wind and Dust
Sun and Wind Goggles **(3)** are constructed with clear one piece plastic lenses. The frame is made from synthetic rubber and a carrying case is provided. May be worn with or without eyeglasses. Use of commercially procured goggles is authorized provided they are compatible with the helmet and issued oxygen mask. All goggles used for eye protection shall be made of shatterproof materials and should be made of clear plastic for oxygen jumps. Local approval may be granted by Commanding Officers on a case-by-case basis to use similar items not listed. Such approval should be based on sound, experienced judgment that the equipment would not endanger the parachutist and that it would enhance the support of mission requirements.



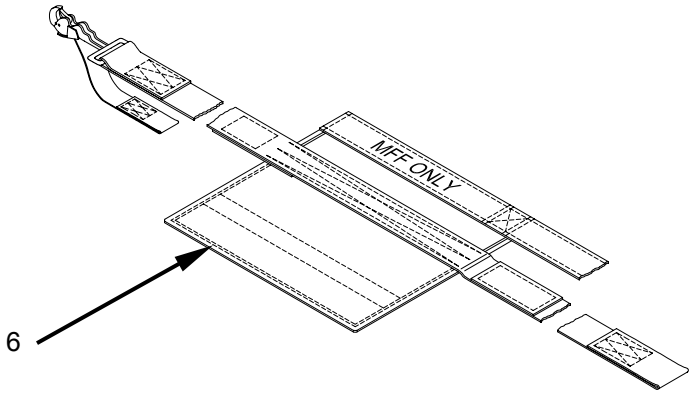
Altimeter, Parachutists. (4) The MA2-30 is used as a military parachuting altimeter for high altitude, low opening (HALO) and high altitude, high opening (HAHO) operations. The MA2-30 is tested to 30,000 feet Mean Sea Level (MSL) with an accuracy of +/- 500 feet from 20,000 to 30,000 feet, +/- 400 feet from 10,000 to 20,000 feet, +/- 350 feet from 2,500 to 5000 feet and +/- 300 feet from 0 to 2,500 feet. The unit reads 0 to 30,000 feet in 2 ½ revolutions in 250-foot increments. The dial has a red warning segment from 0 to 2,500 feet for daylight operations and a black warning segment from 0 to 2,500 feet for proper contrast in lighted operation. The MA2-30 has a temperature compensated 17-jewel Swiss mechanism. There is a complete 4 red bulb self-contained lighting system for night operations powered by size AA nickel cadmium or lithium batteries. The MA2-30 has a white face, black numbers and colored arc. The MA2-30 has a shipping weight of one pound. The unit comes with a hook & pile wrist mount but may also be panel mounted if necessary.



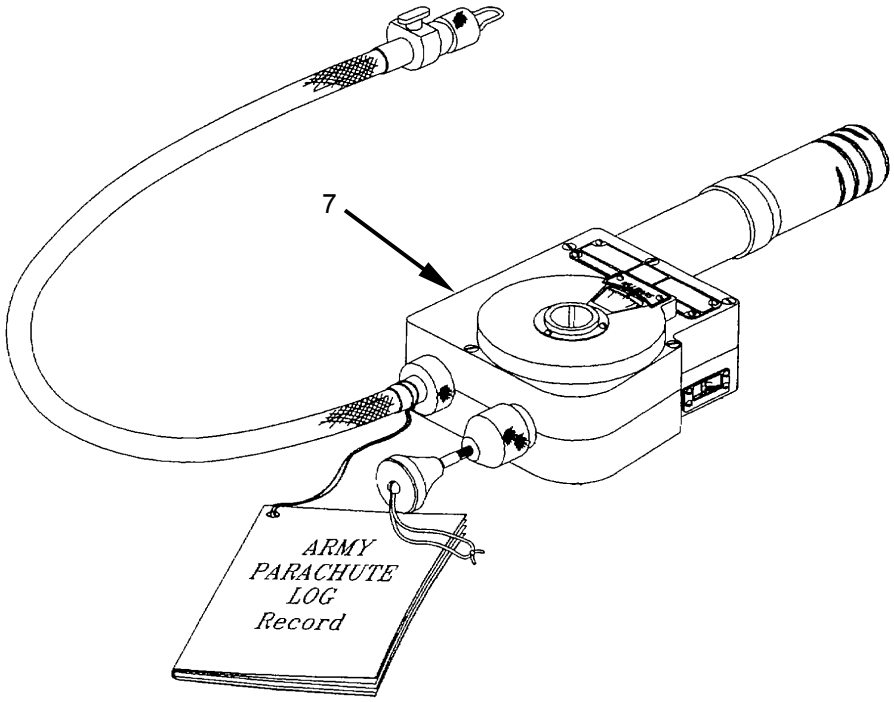
Sling Assembly, Equipment Attaching. (5) The Sling Assembly, Equipment Attaching is a nylon webbing device of spider type harness design with two metal quick releases. The sling is modified by removing the leg straps with hook and pile tape closures or folds and taping the leg straps so that the parachutist cannot use them. This sling is used to rig combat packs to the parachute harness during free-fall operations.



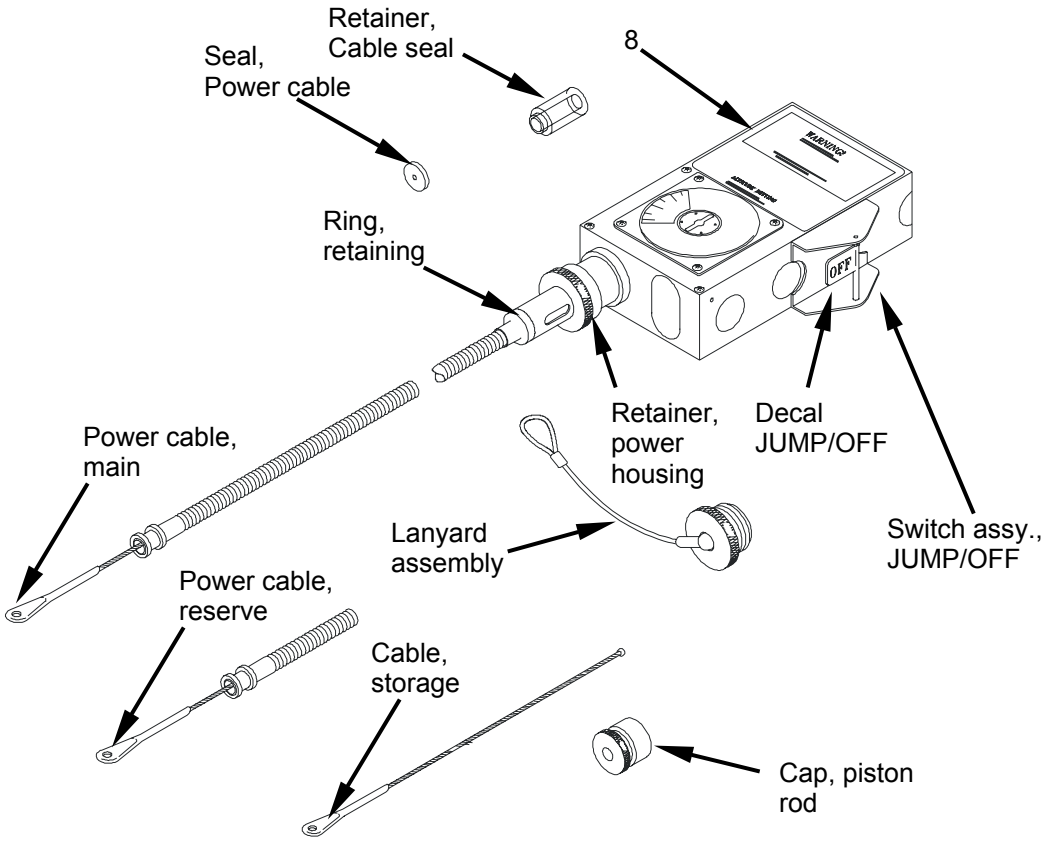
Line, Equipment Lowering. Line, equipment lowering **(6)** is a length of nylon web, attaching hardware, and a pocket into which the folded line is stored. The lowering line is constructed of PIA-W-5625 webbing, 1-inch wide, with a snap hook at one end. The lowering line is used on air delivery equipment. Part of the assembly is a 9-by 7-inch nylon duck retainer (stow pocket) sewn to the upper end. The flaps have Hook-Pile Tape Sewn to the edges. The lowering line is modified to an 8-foot length for use with Military Free-Fall Ram Air Parachute Assemblies.



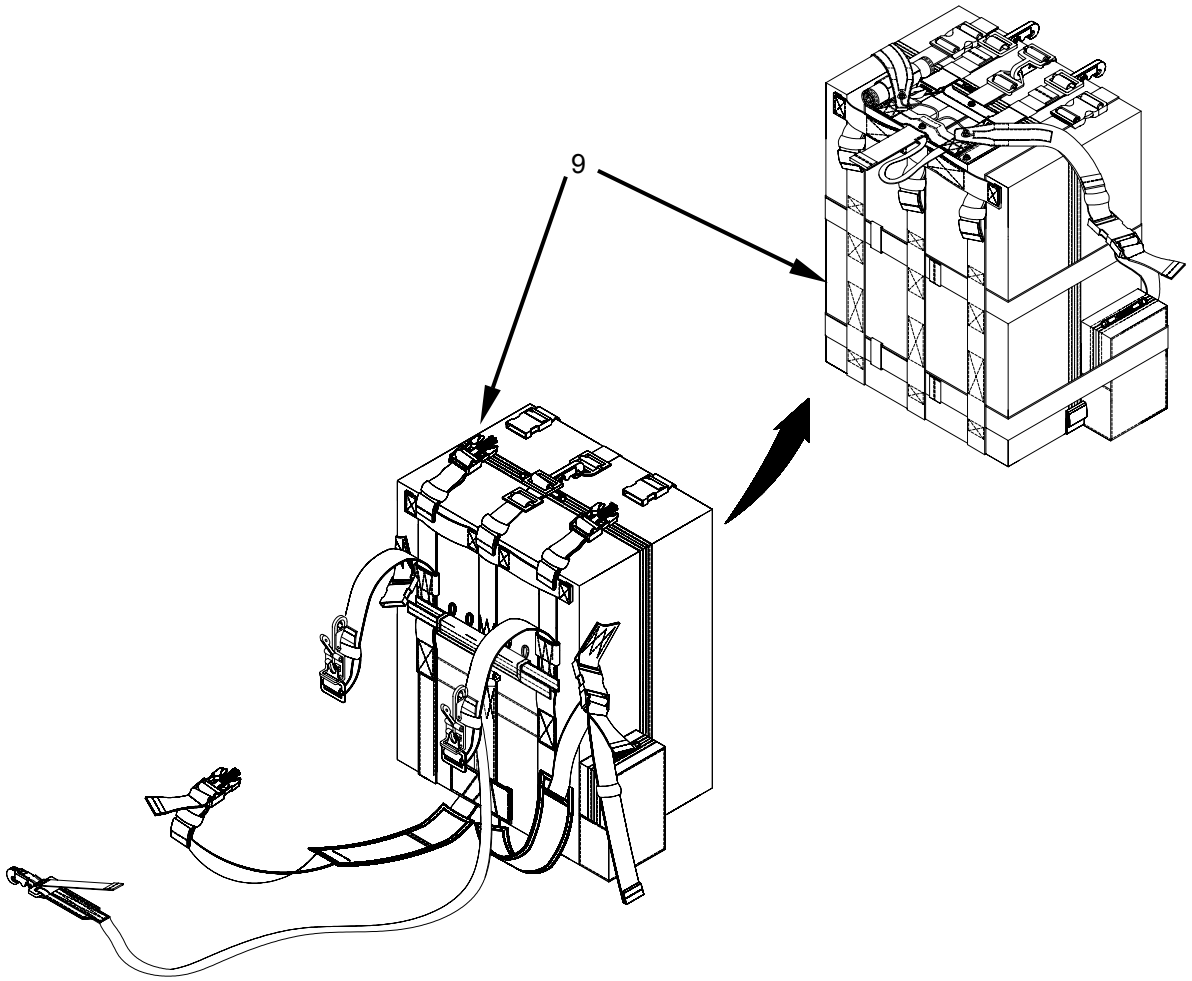
Release Assembly, Ripcord, Automatic,Type FF-2. This Automatic Ripcord Release (ARR), the Hite Finder (7), is designed to open a free-fall personnel parachute automatically at a safe altitude should the parachutist fail to pull the manual ripcord. The functional response of the assembly mechanism in the automatic time delay mode at the specified altitude is dependent upon the presetting of the FF-2 ARR according to the barometric pressure, computed in millibars, above the intended dropzone (DZ). The FF-2 ARR is installed in a stowage pocket on the parachute pack/harness.



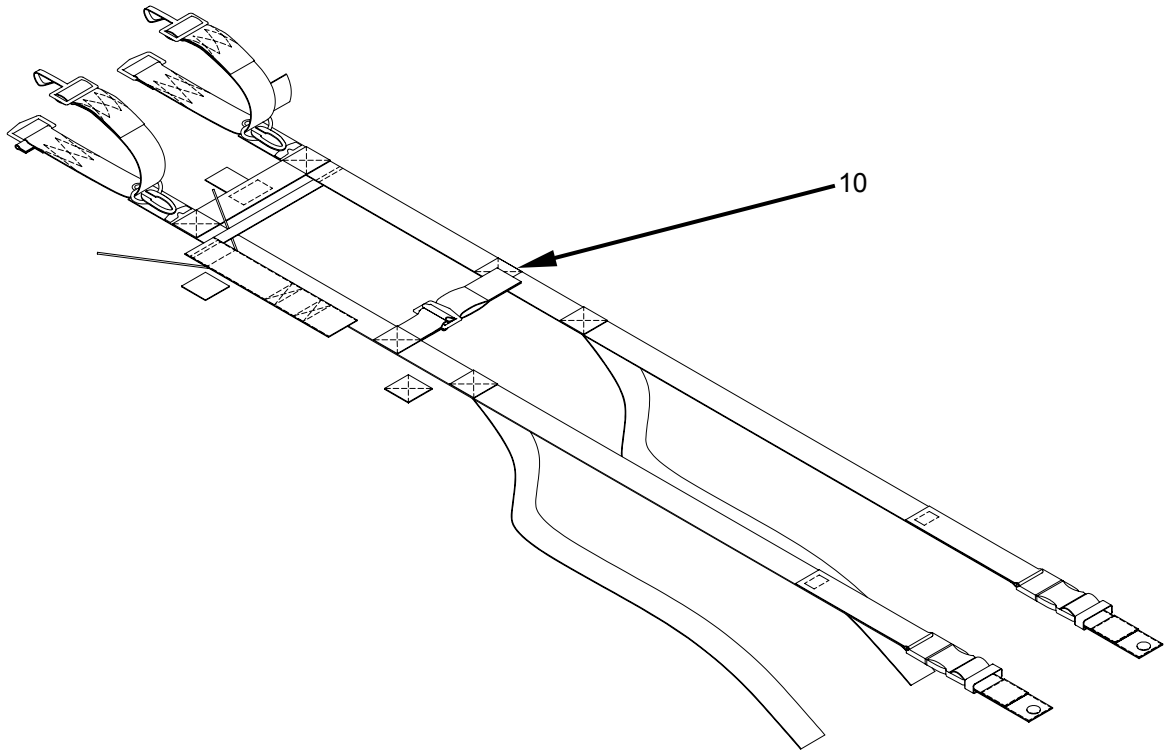
Release, Automatic Ripcord, AR2, Model 451. (8) The AR2 consists of an aneroid with associated mechanism, rate-of-fall sensing chamber, and a spring-loaded power cable. All components except the power cable and its flexible conduit are contained in a housing. The housing provides all required chamber, passages and mounting pads for each component. An altitude setting dial and JUMP/OFF switch are mounted on the housing. The power cable ends in a fixed eye that connects to the parachute (main or reserve) ripcord pin. A lanyard assembly is attached to the power cable to protect the open end of the power housing when detached from the AR2.



Parachute Drop Bag (PDB) Description. (9) The Parachute Drop Bag is a fast, easy and secure way of carrying the jumper's rucksack and Load Bearing Equipment during Military Free Fall or Static Line deployment operations. The PDB is made from textured nylon, cloth duck material. The PDB has shoulder straps on both inside and outside the bag. It will be a Woodland or Desert camouflage on the outside with the inside being a darker gray color so it will have a lower profile when transporting through airports and high secure areas. An integrated lowering line (7-ft or 15-ft) is used for lowering of equipment during Military Free-Fall and Static Line operations. The PDB has duel mounting capabilities that will allow the jumper to attach the bag to the front for Static Line operations, and rear or front configurations for Military Free-Fall operations. Incorporated in the PDB is a single point release system, which will allow for the jumper to lower their equipment easily while descending to the drop zone. Parachute grade hardware is used on this system for safety and durability. The PDB comes in a regular size which will be incorporated into jump operations whether MFF or Static Line. The regular PDB weighs 7 lbs and has approx. 5520 cubic inches of storage space with a minimum 35 lbs and maximum 120 lbs rigged for jump operations.



Harness, Single Point Release Assembly. The Harness, Single Point Release Assembly is a general purpose item used by the parachutist to jump the rucksack/field packs, with or without frame, during airborne operations. It is of the “H” type design, made of a network of Type VIII nylon webbing equipment retainer straps, cross straps, adjustable leg straps (with plastic Fastex releases), leg strap release assemblies, attaching harness straps, and a single point release Handle assembly that simultaneously releases the load and leg straps from the parachutist and parachute harness. The harness is intended for use by individual parachutists for securing individual combat equipment during military free-fall or static line airborne jump operations. The harness with the secured load is attached to the parachutist harness D-rings with the attaching strap rings.



EQUIPMENT DATA

The following technical and identification data pertains to the Ancillary Military Free-Fall Equipment.

Free-Fall Parachutist Helmet.
Sizes: Medium, Large
Type I: without communications equipment
Type II: with communications equipment

Goggles.
Sizes: one only

Equipment Lowering Line.
Length: 8-ft

AR2

Table 1. AR2 Upgraded Unit Information.

Equipment Description	Altitude Dial Increments	Leak Check Indicator	Overtravel Switch Pin
Original Issue	500 feet	6000 feet	N/A
ECP-8 Upgrade	250 feet	10,000 feet	X
ECP-13 Upgrade	250 feet	10,000 feet	X

Upgraded units are marked ECP-8, ECP-8/13 or ECP-13 on service record decal.

Operational Data

Operating Range (altitude)	1,500 (feet) to 25,000 (feet) above MSL
Accuracy	± 300(feet) less than 10,000-feet above MSL ± 500 feet at 10,000-feet or more above MSL

NOTE

Cable measurements are from center of ball to farthest distance from the eye hole.

Power Cable, Main	33.12-in. long
Power Cable, Reserve	26.19-in. long
Storage Cable	7.25-in. long

Environmental Conditions

Operational

Altitude	1,000 (feet) to 35,000 (feet) above MSL
Temperature	-60°F (-51°C) to +122°F (+50°C)

Storage

Altitude	-1,000 (feet) to 30,000 (feet) above MSL
Temperature	+41°F (+5°C) to +122°F (+50°C)

Physical Characteristics

Dimensions	1.6-in. H x 5.2-in. W x 3.1-in. D
Weight	1.9 lbs (without power cable)

Parachute Drop Bag

Table 2. Equipment Data for Parachute Drop Bag.

Item	Material	Specification
PDB-Body	Cloth, duck	Cloth, duck, Textured Nylon, Class III CG 483 MIL -C-43734
PDB-Body	Nylon Thread	Anefil Nylon. Tex 70, 453G, BT-69E, V-T-295-MIL T-7807, Tensile Strength 8.5 lbs. Size- 5 Cord. Tensile Strength 40 lbs.
PDB-Harness seatbelt, Lt. 2”	Nylon Webbing	MIL-W-4088-T4,T8,T12,T13, MIL-W-4088-2/2 HB Twill. Type 24
PDB/SPR	Nylon Tubular	MIL-W-5625, ¼-in Black
Keepers	Cotton Elastic	MTL-W-5664, Class 1.1-in
PDB/SPR Cover (Snaps)	Lift-the-dot	MS-27983, Style 2, Durable-Dot, Black
PDB/SPR Cover (Grommets)	Grommets	Spur-Type Grommets & Washer. Stainless Steel. SS-OL ¼-in
PDB/SPR (Soft Loops)	Nylon Parachute Cord	Type III Nylon Cord. 550 lbs.Red/White
PDB/SPR	Nylon Webbing,Type IV	7603-3-in Nylon part #8962 —MIL-W-4080 Type IV
Main Body	Nylon Tape	MIL-W-5038, T3
Snap	Center Vertical Strap	MS-22-43 or 48B707. 2500#
“V” Quick Fit	Center Vertical Strap	MS-70113-1-2
Quick Release Adaptor	Center Vertical Strap	MS-44A-9360
SR Male Trovato 2” SR Female	Outside Vertical Strap	Plastic Buckles. Engineering Closures & Components 5614/Set
SR Female Trovato 2”	Outside Unattached Cross Strap	Plastic Buckles, Engineering Closers & Components
Triangle Ring	Harness to Connector Strap 1	MIL-22020-2, 2500#
Accessory Attaching Ring	Lowering Line Attach	MIL- 701223-2
Reversible Quick-Fit Adapter	Inside Shoulder Strap	MIL-70101-2, 500#
Quick- Fit Release Adapter	Outside Shoulder Strap	MIL-22040-2, 2500#
Adapter	Hook-up Webbing Buckle	MS-11-1-183, 2500#
Quick Release Snap	Hardware Quick Release	MIL-70079-1, 2500#
Ejector Snap	Lowering Line	MIL-22017-1, 2500#
A.L.M. 1/8-in	Shoulder Straps Pad	Foam EVA 1/8-in
YKK	Zippers for Main Body & Utility Pockets	U-F-106
Hook & Pile (Velcro)		MIL-F-21840

EQUIPMENT CONFIGURATION
Exact usage of Ancillary Military Free-Fall Equipment is dictated by the mission. Refer to applicable field manual for guidance.

COMMON TOOLS AND EQUIPMENT
For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, or CTA 8-100, as applicable to your unit.

THEORY OF OPERATION

GENERAL. The Ancillary Military Free-Fall Equipment is used on High Altitude Low Opening (HALO) and High Altitude High Opening (HAHO) parachute operations. The equipment is to provide safety to parachutists, a means of communication between parachutists and supporting aircraft, determination of jump/opening altitude, and a means of lowering personal equipment prior to landing. The FF-2 and AR2 automatically activates a ripcord when a predetermined altitude is reached.

The AR2 senses rate of fall and altitude above mean sea level (not above ground level). When the AR2 falls through the altitude set on the altitude dial at a rate of fall of over 80 ft/sec, the power cable will retract two inches (minimum) and at an initial force of 70 pounds. If the rate of fall is at a slower speed, such as 70 ft/sec, the AR2 will not actuate.

When the AR2 is used on the reserve parachute, the main parachute must be fully deployed at least 1,500 feet above the actuation altitude for the AR2. While in free fall, if the main parachute opens within only a few hundred feet above the actuation altitude, the fall rate mechanism may not have sufficient time to equalize pressure and deactivate. This could result in the deployment of two parachutes, leading to problems associated therewith. **If the fall is initiated below the altitude set on the altitude dial, the AR2 will definitely actuate, and generally within 1,000 feet of free fall.**

THEORY OF OPERATION FOR THE PARACHUTE DROP BAG

Parachute Drop Bag (PDB). The PDB is a lightweight nylon bag used to carry mission essential equipment to include current field packs (Alice Pack, Molle Pack, Spear Pack, and Field Pack w/internal Frame) during Military Free-Fall (MFF) jumps. The PDB is mounted to the d-rings on the main harness assembly of the free-fall parachute system. When the jumper wears the PDB in the front mounting configuration the incorporated single point release will only be used. Mounting the PDB in the rear-mounting configuration the 2-point quick releases will only be used. Leg Straps assist in retaining the PDB bag to the parachutist during exit and main parachute deployment. Lowering line permits lowering the pack below the parachutist prior to landing to mitigate potential damage to personnel and equipment.

Lowering Line. The standard lowering line is used to lower a 7-ft or 15-ft assembly with a quick ejector snap fastener for attachment to the parachute harness. The line is used with the PDB when performing MFF jumps.

Harness, Single Point Release. This harness is a general purpose item used by the individual parachutist to jump the ALICE medium or large combat pack with or without frame. It is of an “H” type design with a network of equipment retainer straps, cross straps, leg straps, leg strap release assembly, attaching harness strap, and single point release handle.

CHAPTER 2

MAINTENANCE INSTRUCTIONS

ANCILLARY MILITARY FREE-FALL EQUIPMENT

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
SERVICE UPON RECEIPT

INITIAL SETUP:

Tools Needle, Tacking (WP 0031 00, Table 2, Item 11)	**Personnel Required** 92R (10) Parachute Rigger
Materials/Parts Tape, Lacing, and Tying (WP 0044 00, Table 1, Item 36)	**Equipment Condition** All equipment shall be serviceable and ready for use.

OVERVIEW

This chapter contains information necessary to maintain Ancillary Military Free-Fall Equipment, on the unit and direct support maintenance levels, in accordance with the Maintenance Allocation Chart (MAC) for the equipment. It includes the following:

1. Procedures for processing new or used equipment upon receipt.

2. Assembly of components prior to use.

3. Preventive maintenance procedures to ensure continued serviceability of all components.

4. As required inspections and maintenance procedures performed prior to use, such as cleaning and drying.

5. Repair methods and repair, or replacement, procedures for all components.

INITIAL RECEIPT

The following describes the procedures for processing Ancillary Military Free-Fall Equipment upon initial receipt.

General Procedures for Ancillary Military Free-Fall Equipment. When Ancillary Military Free-Fall Equipment is initially procured from a supply source and issued to a using unit, the item(s) will be unpacked from the shipping container(s) and inspected by a qualified parachute rigger (MOS 92R). The inspection preformed will be a technical/ rigger-type inspection and will be conducted as outlined in the Preventive Maintenance Checks and Services (PMCS) procedures. Upon completion of the inspection, the item(s) will be tagged as prescribed in DA PAM 738-751. Serviceable equipment may then be entered either into storage or into use in airdrop operations, as applicable. An unserviceable item will be held and reported, in accordance with DA PAM 738-750/ MCO 4855.10B.

Shipping Materials. Save the shipping cartons and crates for reuse when possible.

Inspection Personnel. Personnel other than parachute rigger personnel may assist in the unpacking process of initially received Ancillary Military Free-Fall Equipment, as directed by the local air delivery equipment maintenance officer. However, the maintenance officer will ensure the entire unpacking effort is conducted under the direct supervision of a qualified rigger (MOS 92R).

Checking Unpacked Equipment. Inspect each unpacked component for damage and completeness, and application of all pertinent Modification Work Orders (MWOs) as follows:

Damage. Check the equipment for damage incurred during shipment. Report any damage on DA Form 2404, Equipment Inspection and Maintenance Worksheet and initiate corrective maintenance procedures in accordance with this manual.

Completeness. Inspect the contents of shipment against the packing slip to see if any items are missing. Report any discrepancies in accordance with DA Pam 738-750. The equipment may be placed in service provided missing items do not affect function or safety of the equipment.

Modifications. Check DA Pam 25-30 to see if there are any MWOs applicable to the equipment you are unpacking. If any MWOs are listed, check DA Form 2408-5, Equipment Modification Record to see if MWOs have been applied to the equipment. The MWO number will be shown near the equipment nomenclature label. If a current MWO Is listed in DA Pam 25-30, but there is no evidence that it has been applied to the equipment you are unpacking, note discrepancy on DA Form 2404, Equipment Inspection and Maintenance Worksheet.

Configuration Condition. Acceptance of new equipment from the manufacturer is based upon inspections made of sample lots that have been randomly selected in accordance with military standards. It is incumbent upon the using activity personnel to bear this in mind whenever equipment is first placed in service. Changes will sometimes evolve from the original equipment design and sometimes contractors are authorized deviations in material and construction techniques. Ancillary Military Free-Fall Equipment that has been in the field cannot be expected to meet exacting manufacturing specifications; however, the equipment should closely reflect desired design characteristics. Since repairs, modifications, and/or changes can alter or detract from the configuration originally desired, such equipment shall be airworthy, safe, of the desired configuration, and adequate for intended use.

Marking Ancillary Military Free-Fall Equipment. Prior to being placed into service, Ancillary Military Free-Fall Equipment that has had no previous use will be marked to reflect the date of entry into service (as applicable). The marking will be made on the information data tag by stenciling. Other applicable Ancillary Military Free-Fall Equipment will be marked adjacent to existing data. The stenciled data will indicate IN-SVC followed by the date, which will indicate the month and calendar year, such as “Jan. 02”. Ensure the added marking does not infringe upon, or obliterate, any original data on the information data tag.

Parachute Log Record. The Army Parachute Log Record, DA Form 3912, AFTO 391, and NAVWPNCEN or NAWCWPNS CL 13512/11 (Premeditated Parachute Record) are history-type maintenance documents that accompany some of the Ancillary Military Free-Fall Equipment through the period of service of the individual assembly. The log record provides a means of recording maintenance actions performed on Ancillary Military Free-Fall Equipment. Normally, a log record is initiated and attached to the item by a using unit. However, if the item is subjected to alteration or modification by a maintenance activity during the interim period from date of manufacture to receipt by a using unit, the log record will be prepared by the activity performing the maintenance function. Once initiated, a log record will be attached to, and contained in, an area that would prevent the log record book from being destroyed or rendered unfit for further use or repair.

Additionally, should an item that requires a log record, be transferred from one unit to another, the log record for the item will accompany the item in the transfer action. A prepared log record will not be removed or separated from an item except as directed by the local air delivery equipment maintenance activity officer.

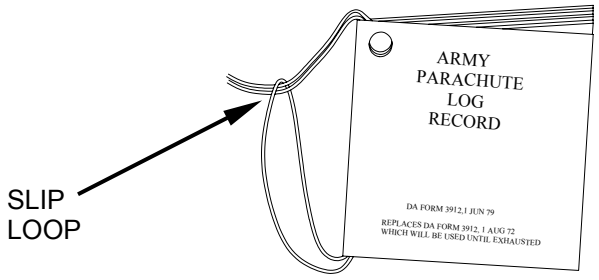
A log record that is illegible, lost, damaged, soiled, or precludes further entries due to lack of space, will be replaced upon the next inspection, as applicable, with a serviceable item from stock.

Installing Attaching Tie.

Install attaching tie as follows:

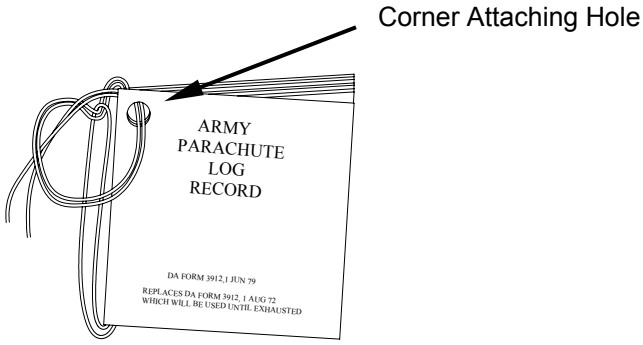
1. Cut a 30-inch length of tape, lacing and tying (super tack), and double the lacing length.

2. Pass the looped end, of the double laced length, around the centerfold of the log record and form a slip loop on the outside, at the log record top.



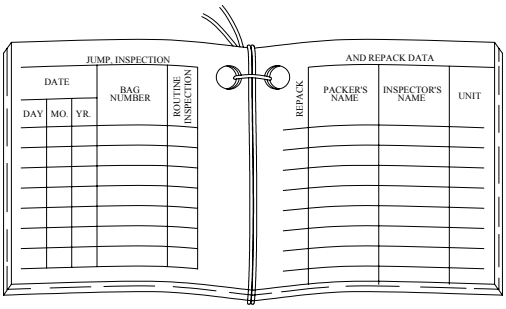
Forming Slip Loop on Log Record Outside

3. Pass the lacing length running ends through the corner attaching hole, from the front cover of the log record.



Passing Lacing Loose Ends Through Corner Attaching Hole

4. Ensure the running ends are routed over that part of the lacing length located along the log record centerfold.

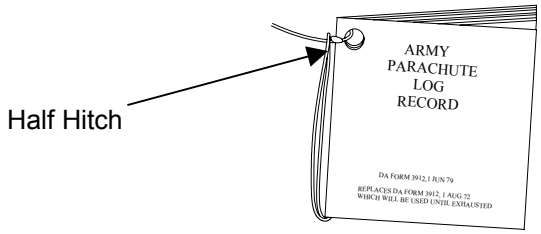


Routing Lacing Loose End Through Log Record Centerfold

5. Complete the attachment tie by making a half hitch on top of the slip loop made in 2., above.

6. Thread one running end of the log record attachment tie in a tacking needle and pass the tacking needle, with attached end, through the edge binding of the applicable parachute log record inspection data pocket.

7. Remove the lacing end from the tacking needle; make a finished 10-inch-long log record attaching loop by securing the two lacing ends together with an overhand knot.



Log Record Attachment Tie Completed

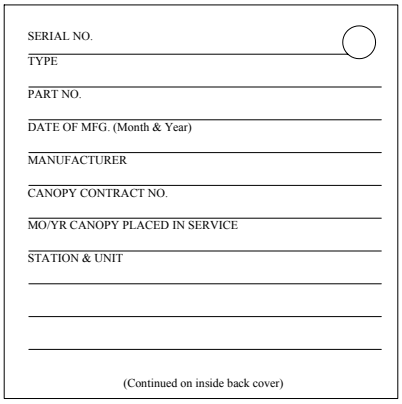
8. Attach the log record to the item as applicable.

Accomplishing a Log Record. Upon completion of the first technical/ rigger-type inspection, the individual performing the inspection will initially prepare a log record for an individual piece of equipment and accomplish subsequent record entries using the following procedures:

NOTE

Log record book entries will be made with a suitable type blue or black marking device that cannot be erased (no felt tip markers).

Inside front cover. Using the information provided on the parachute canopy data block, make the following entries on the inside front cover of the log record. Entries may be contained on the inside of the back cover, if necessary.



NOTE

A serial number is recorded in a log record as a method of establishing control for maintenance, Equipment Improvement Report (EIR) and Product Quality Deficiency Report (PDQR) documentation, and to ensure the correct original record is reattached should the record become detached. A serial number will not be used for property accountability, except in test projects or other special instances.

Serial Number. Enter the item serial number.

Type. Enter the item type.

Part number. Enter the item part number.

Date of Manufacture. Enter the month and year the item was manufactured.

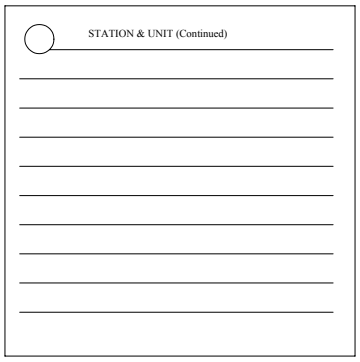
Manufacturer. Enter the name of the item manufacturer.

Contract Number. Enter the entire contract number specified for the item.

Station and Unit. Enter the name of the station and unit to which the item is currently assigned.

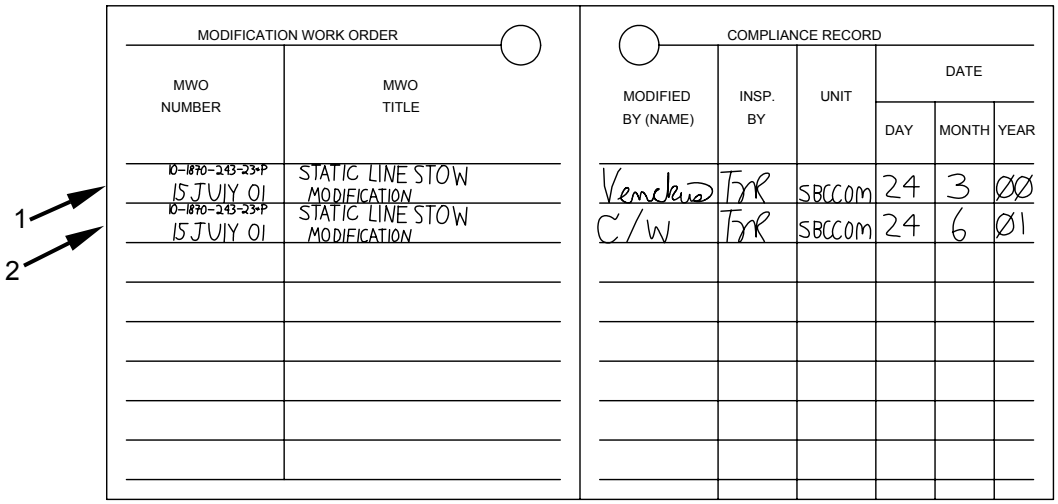
When an item is transferred permanently to another station, and/or unit, the original entry will be lined out and the name of the receiving station, and/or unit, will be entered.

Inside Back Cover. Entries may be continued on the inside back cover, if necessary.



Modification Work Order (MWO) Compliance Record Page. When a modification is performed on an item, the following entries will be made on the Modification Work Order Compliance Record pages of the log record, as follows:

MWO Number. Enter the publication number and date of the MWO that describes the MWO **(1)**.



1. **Modification Work Order Compliance Completed**.
2. **Modification Completed By Unknown Due To Lost Original Log Record.**

MWO Title. Enter a short, abbreviated title extracted from the MWO prescribing the work.

Modified by. Enter the last name of the individual who has performed the modification. If the original log record for the item has been lost, and it has been ascertained through inspection that a particular modification has been accomplished, the entry for this column will be C/W, complied with, which signifies the applicable MWO has been complied with.

Inspected by. The individual who accomplished the inspection, required after modification, will sign this entry with last name only.

Unit. Enter the unit designation responsible for performing the MWO or, in the event of a lost log record, the unit to which the inspector is assigned.

Date. Enter the day, month, and year the modification work was completed.

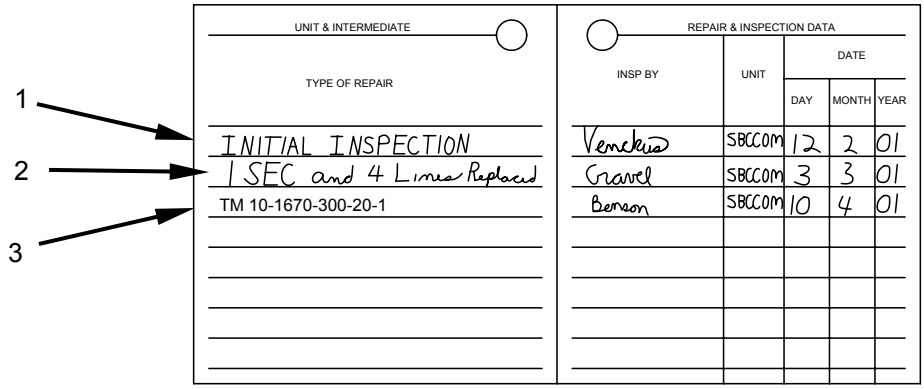
3. **Unit and Direct Support Repair and Inspection Data.** When an item is initially received from a supply source, and a technical/rigger-type inspection is performed, the inspection accomplishment will be documented on the Unit and Intermediate Repair and Inspection Data page of the item log record. Additional entries will also be made on this page each time the item is repaired, or is administered an inspection, in compliance with a one-time inspection dictated by a Maintenance Advisory Message (MAM) or Ground Precautionary Message (GPM). The page completion criteria are as follows:

Type of repair. Enter the type of repair, completion of initial inspection, repair accomplishment, and GPM/MAM inspection compliance.

Inspection by. The individual, who accomplished the inspection required, will sign this entry with last name.

Unit. Enter the unit designation responsible for performing the type of repair.

Date. Enter the day, month, and year the repair was performed.



1. **Completion Of Initial Inspection**
2. **Repair Accomplishment**
3. **GPM/MAM Inspection Compliance**

4. **Note page**. A page is provided at the back of a parachute log record to accommodate recording additional data pertinent to the serviceability of an item. This shall also include the month and year the item was placed in service.

NOTE

A parachute log record that is completely filled out, lost, illegible, or in an otherwise unserviceable condition, will be replaced with a serviceable log record.

5. **Replacing a filled out or unserviceable log record**.

   a. Using a suitable blue or black marking device, enter NEW BOOK on the outside front cover of the replacement log record.

   b. Transcribe the information from the inside front cover of the original log record to the inside front cover of the replacement log record. If the original data is illegible or missing, use the item information data block to collect the required data.

   c. In the replacement log record, transcribe the initial and last entry made on the Jump, Inspection, and Repack Data page of the original log record.

   d. Transcribe all data from the remaining pages of the original log record, to the appropriate pages of the replacement log record.

   e. After all original data has been transcribed, destroy the original log record.

6. **Replacing a lost log record**.

NOTE

Any time a log record is discovered missing from an item, a replacement log record will be initiated during inspection, as applicable.

a. Using a suitable blue or black marking device, enter NEW BOOK at the top of the inside front cover of the replacement log record.

b. Accomplish the log record inside front cover as prescribed above.

c. Enter IN, if the date placed in service is known. If not known, enter UNK.

d. If it can be ascertained by inspection that a previous MWO or GPM/MAM has been complied with, applicable entries will be made on the appropriate page of the replacement log record.

e. Attach the replacement log record to the item as applicable.

RECEIPT OF USED ANCILLARY MILITARY FREE-FALL EQUIPMENT
Upon initial receipt of used Ancillary Military Free-Fall Equipment, proceed as follows:

1. Follow procedures given in the General Procedures for Ancillary Military Free-Fall Equipment paragraph, above, and check each component for excessive wear and tear.

2. If defects or damages are discovered, process the Ancillary Military Free-Fall Equipment for maintenance at the maintenance level assigned by the Maintenance Allocation Chart (MAC), WP 0031 00.

AFTER USE RECEIPT
When Ancillary Military Free-Fall Equipment is received at the maintenance activity, following its use by the parachutist during air delivery, it must be cleaned (WP 0012 00) and tested if necessary, before it can be returned to service. If an item is issued but is not used, it must be given a routine inspection by a qualified parachute rigger (MOS 92R).

END OF WORK PACKAGE

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), INTRODUCTION

GENERAL
The following describe PMCS procedures on the unit and direct support levels. The PMCS table has been provided to ensure the equipment is in proper operating condition, and ready for its primary mission.

SCOPE
The following work packages (WP 0005 00 through WP 0028 00) contain maintenance procedures that are the responsibility of the specified technician, as authorized by the Maintenance Allocation Chart (MAC), and the Source, Maintenance, and Recoverability (SMR) coded items that are identified in the Repair Parts and Special Tools List (RPSTL).

MAINTENANCE FUNCTIONS/PROCEDURES
Each of the mentioned work packages above identifies a maintenance function specified in the MAC. All maintenance procedures required to complete a maintenance function are identified under THIS TASK COVERS: in the order in which the work is most logically accomplished.

DROP TESTING CRITERIA
Drop-testing of aerial delivery equipment consist of physically airdropping an item from an aircraft in flight, The drop-test is used as a means of proving the serviceability of an item or checking parachute rigger proficiency, and will only be performed under the supervision of qualified parachute rigger personnel who satisfy the supervisory requirements outlined in AR 750-32. Drop-testing will usually be conducted by an activity responsible for the inspection and maintenance of airdrop equipment, which includes either parachute packing or airdrop load rigging. The criteria required to accomplish a drop test as follows:

1. Any type of airdrop equipment that indicates evidence of malfunction/defect during, or after, a drop-test will be disposed of as prescribed in WP 0008 00.

2. Airdrop equipment that does not reflect evidence of malfunction or defect upon completion of a drop-test will be administered a technical/rigger-type inspection as outlined in WP 0008 00. If serviceable, the item(s) may then remain in use.

END OF WORK PACKAGE

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES

GENERAL

The following describe PMCS procedures on the unit and direct support levels. The PMCS table has been provided to ensure the Ancillary Military Free-Fall Equipment is in proper operating condition, and ready for its primary mission.

Frequency of Performing PMCS. PMCS will be performed before equipment is rigged for use, during modification and repair after use, or at any time deemed necessary by the air delivery equipment maintenance officer.

PMCS Columnar Entries Table 1.

Item Number. The item number column shall be used as a source of the item number required for the TM Number column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet), when recording the results of the PMCS.

Interval. This column identifies the required PMCS interval.

Item to be Inspected. Contains the common name of the item to be inspected.

Procedures. Provides a brief description of the procedures by which the checks are to be performed.

Not Fully Mission Capable If: Column. Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you perform check and service procedures that show faults listed in this column, do not operate the equipment. Follow standing operating procedures for maintaining the equipment or reporting equipment failure.

Recording Defects. All defects discovered during the inspection will be recorded using tile applicable specifics in DA Pamphlet 738-750, DA Pamphlet 738-751 and TB 43-0002-43.

Over Age Items. During any inspection, or at any time that an item is found to be over age (i.e., shelf/service-life has expired as specified in TB 43-0002-43), the item will be removed from service, condemned, and tagged, in accordance with DA PAM 738-751.

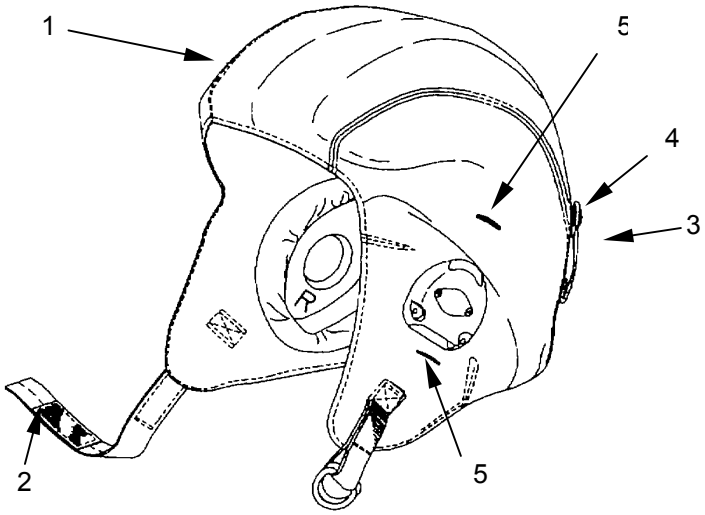
Conservation of Resources. To conserve time and labor, and to avoid evacuation to a direct support maintenance activity, unit/detachment commanders may designate, in writing, rigger personnel to accomplish classification inspection of over age air delivery equipment and the classification of Beyond Economical Repair (BER) ancillary equipment.

Inspection Function Requirement. Normally, air delivery equipment maintenance personnel at a packing, rigging, or repair activity will perform a technical/rigger-type inspection. The inspection of initial receipt items will be performed as a separate function from packing or rigging activity; the item to be inspected will be placed in proper layout on a packing table or suitable sized floor area.

Should defect or damage be discovered at any point during the inspection, the inspection will be terminated and the applicable item will be processed and forwarded to repair activity. The repair activity, in turn, will conduct a technical/rigger-type inspection that will be performed by only those parachute rigger personnel cited in AR 750-32. Any defect discovered during a unit level repair activity inspection, that exceeds the capability of that activity, will require the affected item to be evacuated to a direct support maintenance function.

Table 1. Unit Preventive Maintenance Checks and Services.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
01	Before	Free-fall Parachutist Helmet (Types I and II)	Check for dirt, foreign matter, cuts, distortion of helmet shell **(1)**, broken or missing chin strap **(2)**, goggle headband retainers **(3)**, and snap fasteners **(4)**. Check for loose, missing or torn tacking **(5)** on earpieces. Type II Only: Inspect for intercom serviceability.	Dirt or foreign matter are present, helmet shell **(1)** is distorted, chin strap **(2)**, goggle headband retainer **(3)** or snap fastener is broken or missing. Earpiece tacking is loose, missing or torn. Type II Only: Intercom is unserviceable.



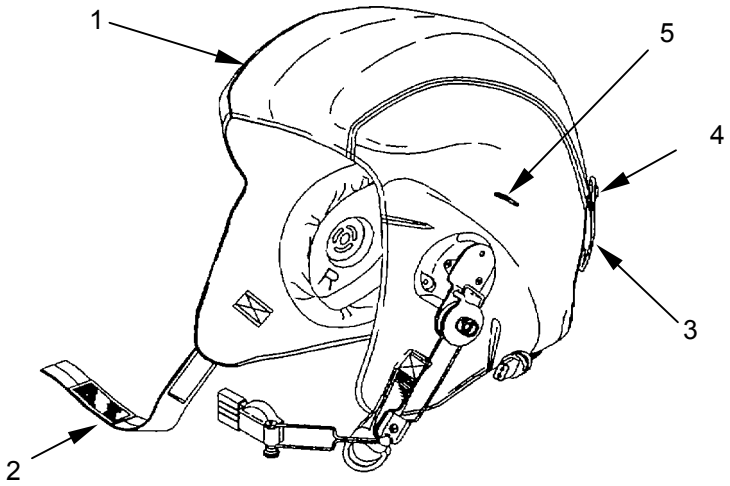


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
02	Before	Goggles	Check for missing, cracked, or marred lens **(1)**; broken or missing headstrap **(2)**, serviceability of strapping **(3)**.	Lens **(1)** is missing, cracked or marred; headstrap **(2)** is broken or missing, strapping **(3)** is unserviceable

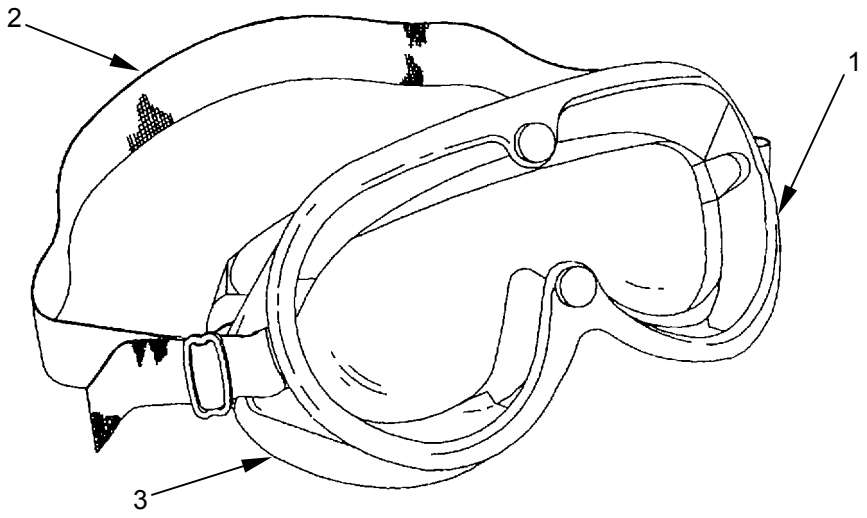


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
03	Before	Altimeter	Inspect for broken or missing lens **(1)** and serviceability of wriststrap **(2)**. Find out-of-date label to ensure that altimeter has been tested in last 90 days. Open battery compartment and inspect for corrosion.	Lens **(1)** is broken or missing, or wriststrap **(2)** is not serviceable. Altimeter has not been tested in last 90 days. Corrosion exists in battery compartment.

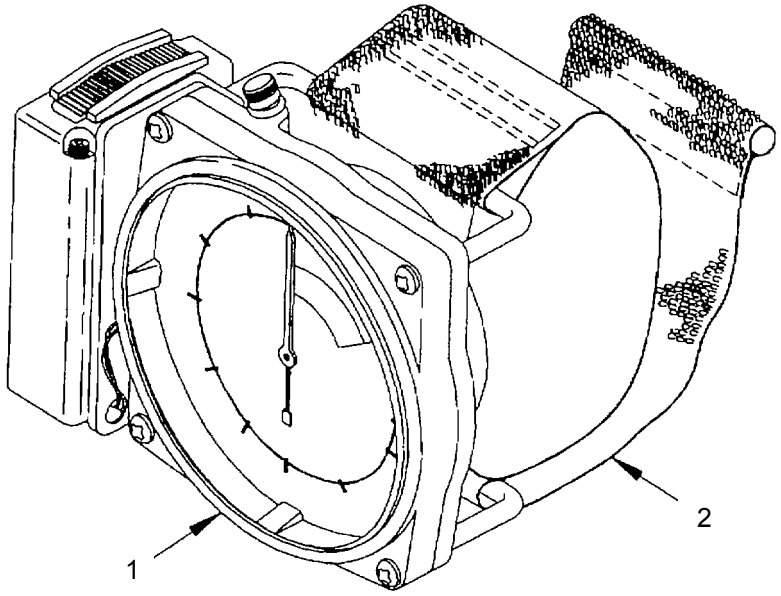


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
04	Before	Equipment Attaching Sling	Inspect for broken, loose or missing stitching **(1)** on fabric. Inspect for rust, burrs, rough spots and corrosion on hardware, or missing hardware **(2)**.	Broken or loose stitching **(1)**. Rust, burrs, rough spots or corrosion on hardware, or missing hardware **(2)**.

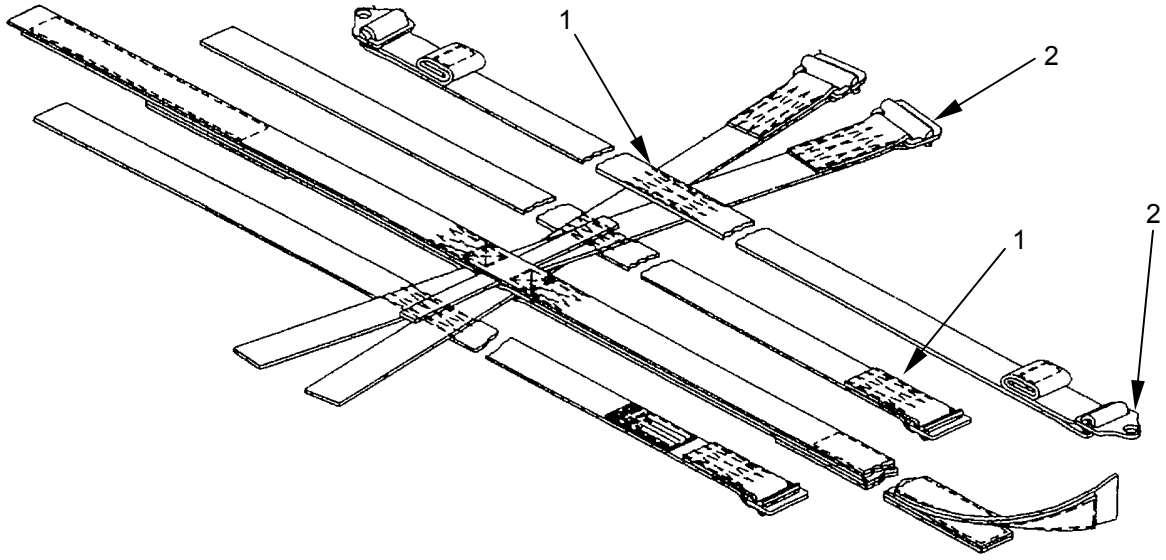


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
05	Before	Equipment Lowering Line	Webbing **(1)**. Inspect for cuts, frays, tears, and marred or illegible markings. Stitching **(2)**. Inspect for loose or broken stitching, damaged or missing fastener tapes **(3)**. All Hardware & Functional Fittings. Inspect for improper operation, rust, corrosion, burrs, & cracks. Gap between the opening gate does not exceed 5/64 of an inch.	Frays or cuts in webbing **(1)** or stitching **(2)**. Damaged or missing fastener tapes **(3)**. Damage to hardware gap exceeds 5/64 of an inch.

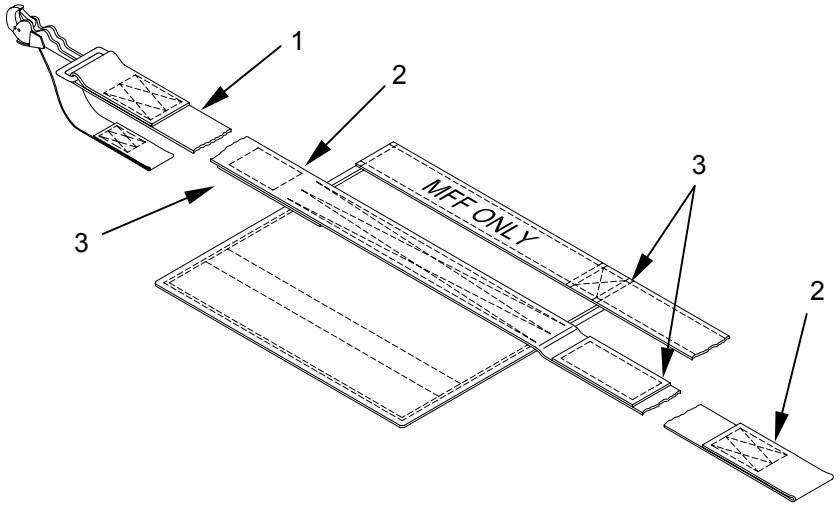


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
06	Before	FF-2 Release (UN-LOADED) Power Cable Assembly & Frangible Cap	Inspect withdrawal hook **(1)** for proper gap. Inspect withdrawal hook retainer clamp **(2)** for minimum 0.1 inch cable protruding. Inspect withdrawal hook retainer clamp knurled nut **(3)** and rubber pad **(4)** for damage. Ensure rectangular key **(5)** is not offset or canted more than 15 degrees. Inspect power cable housing **(6)** for damage (broken strands of armor cable). Ensure power cable housing knurled nut **(7)** is properly seated. Remove frangible cap **(8)** and inspect for cracks and corrosion. Ensure there are no marks or tapes placed on frangible cap **(8)** Inspect rubber buffer **(9)** for dry rot, cracks. Ensure power cable lock nut **(10)** is $^{7}/_{16}$-inch and properly seated and securely fastened to power cable rod. Ensure threadless washer **(11)** is present and serviceable.	Withdrawal hook **(1)** gap is too large or too small. Cable does not protrude through withdrawal hook retainer clamp **(2)** $^{1}/_{16}$-inch withdrawal hook retainer clamp knurled nut **(3)** or rubber pad **(4)** is damaged. Rectangular key **(5)** is offset or canted more than 15 degrees. Power cable housing **(6)** is damaged. Power cable housing knurled nut **(7)** is damaged. Frangible cap **(8)** is cracked or corroded. Rubber buffer **(9)** is damaged or has dry rot. Power cable lock nut **(10)** is not $^{7}/_{16}$-inch or is not serviceable. Threadless washer **(11)** is not present or serviceable

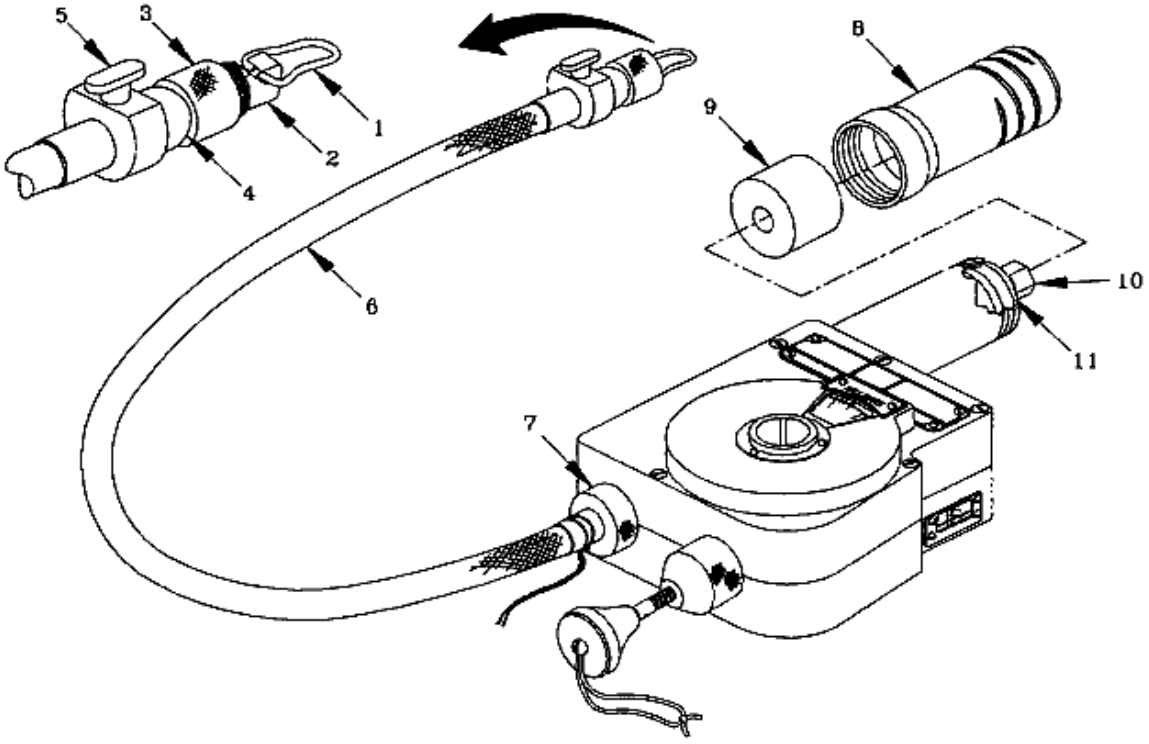

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Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	Before	Arming Pin Assembly (Removed)	Inspect lanyard **(1)** for three inch loop of type III nylon cord. Inspect knob **(2)** for cracks, chips. Inspect swedge **(3)** for proper attachment. Ensure no strands of upper cable **(4)** are broken. Look for cable in inspection hole **(5)**. Inspect knurled nut **(6)** for cracks and ensure two studs are present. Ensure spring **(7)** for proper tension and lack of corrosion. Inspect lower portion of cable **(4)** for broken strands and ensure cable is visible through inspection hole **(8)** in arming pin **(9)**. Inspect arming pin **(9)** for straightness. Inspect arming pin guide bush **(10)** is properly seated and tight. Ensure arming pin guide bush seal **(11)** is present and serviceable.	Lanyard **(1)** is not present or not serviceable. Knob **(2)** is cracked. Swedge **(3)** is not secure or upper portion of cable **(4)** has broken strands. Cable **(4)** is not visible in inspection hole **(5)**. Knurled nut **(6)** is cracked or missing stud. Spring **(7)** is corroded or lacks tension. Lower portion of cable **(4)** has broken strands, is not secure to swedge, or is not visible thru inspection hole **(8)**. Arming pin **(9)** is not straight. Arming pin guide bush **(10)** is not properly seated. Arming pin guide bush seal **(11)** is not present or not serviceable.

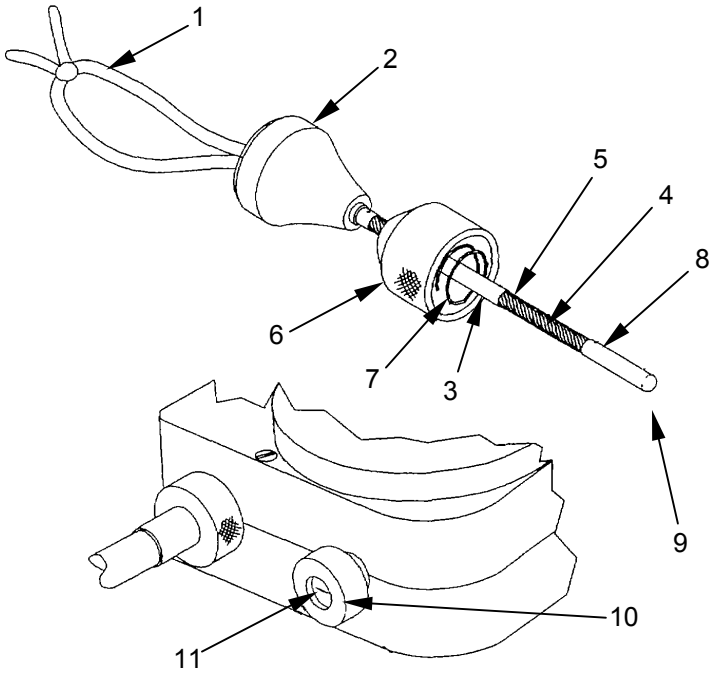

Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	Before	FF-2 Release (LOADED) Power Cable Assembly & Frangible Cap	Inspect withdrawal hook **(1)** for proper gap. Inspect withdrawal hook retainer clamp **(2)** for minimum 0.1-inch cable protruding. Inspect withdrawal hook retainer clamp knurled nut **(3)** and rubber pad **(4)** for damage. There must be at least three threads of knurled nut exposed. Inspect exposed power cable **(5)** for broken strands. Ensure rectangular key **(6)** is not offset or canted more than 15 degrees. Inspect power cable housing **(7)** for damage (broken strands of armor cable). Ensure power cable housing knurled nut **(8)** is properly seated. Remove Frangible cap **(9)** and inspect for cracks and corrosion. Ensure there are no marks or tapes placed on frangible cap **(9)**. Inspect rubber buffer **(10)** for dry rot, cracks. Ensure power cable lock nut **(11)** is $^{7}/_{16}$-inch and properly seated and securely Fastened to power cable rod. Ensure threadless washer **(12)** is present. Inspect power cable rod **(13)** to ensure that hole **(14)** is round NOT oblong.	Withdrawal hook **(1)** gap is too large or too small. Cable does not protrude thru withdrawal hook retainer clamp **(2)** $^{1}/_{16}$-inch withdrawal hook retainer clamp knurled nut **(3)** or rubber pad **(4)** is damaged. Exposed power cable **(5)** has broken strands. Rectangular key **(6)** is offset or canted more than 15 degrees. Power able housing **(7)** is damaged Power cable housing knurled nut **(8)** is damaged. Frangible cap **(9)** is cracked or corroded. Rubber buffer **(10)** is damaged or has dry rot. Power cable lock nut **(11)** is not $^{7}/_{16}$-inch or is not serviceable. Threadless washer **(12)** is not present or serviceable. Hole **(14)** in power cable rod **(13)** is oblong.

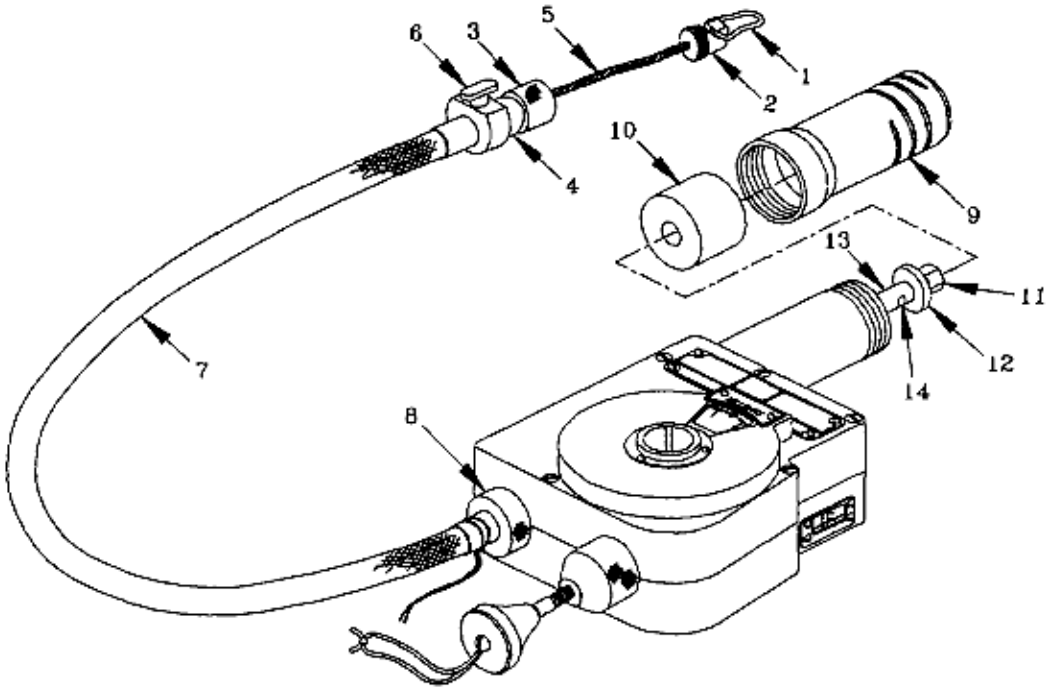
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Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	Before	Arming Pin Assembly (Attached)	Inspect lanyard **(1)** for three inch loop of type III nylon cord. Inspect knob **(2)** for cracks, chips. Inspect swedge **(3)** for proper attachment. Ensure no strands of cable **(4)** are broken. Look for cable in inspection hole **(5)**. Inspect knurled nut **(6)** for cracks and ensure two studs are present. Inspect spring **(7)** for proper tension and lack of corrosion. Inspect arming pin guide bush **(8)** is properly seated and tight.	Lanyard **(1)** is not present or not serviceable. Knob **(2)** is cracked. Swedge **(3)** is not secure or upper portion of cable **(4)** has broken strands. Cable **(4)** is not visible in inspection hole **(5)**. Knurled nut **(6)** is cracked or missing stud. Spring **(7)** is corroded or lacks tension. Arming pin guide bush **(8)** is not properly seated.

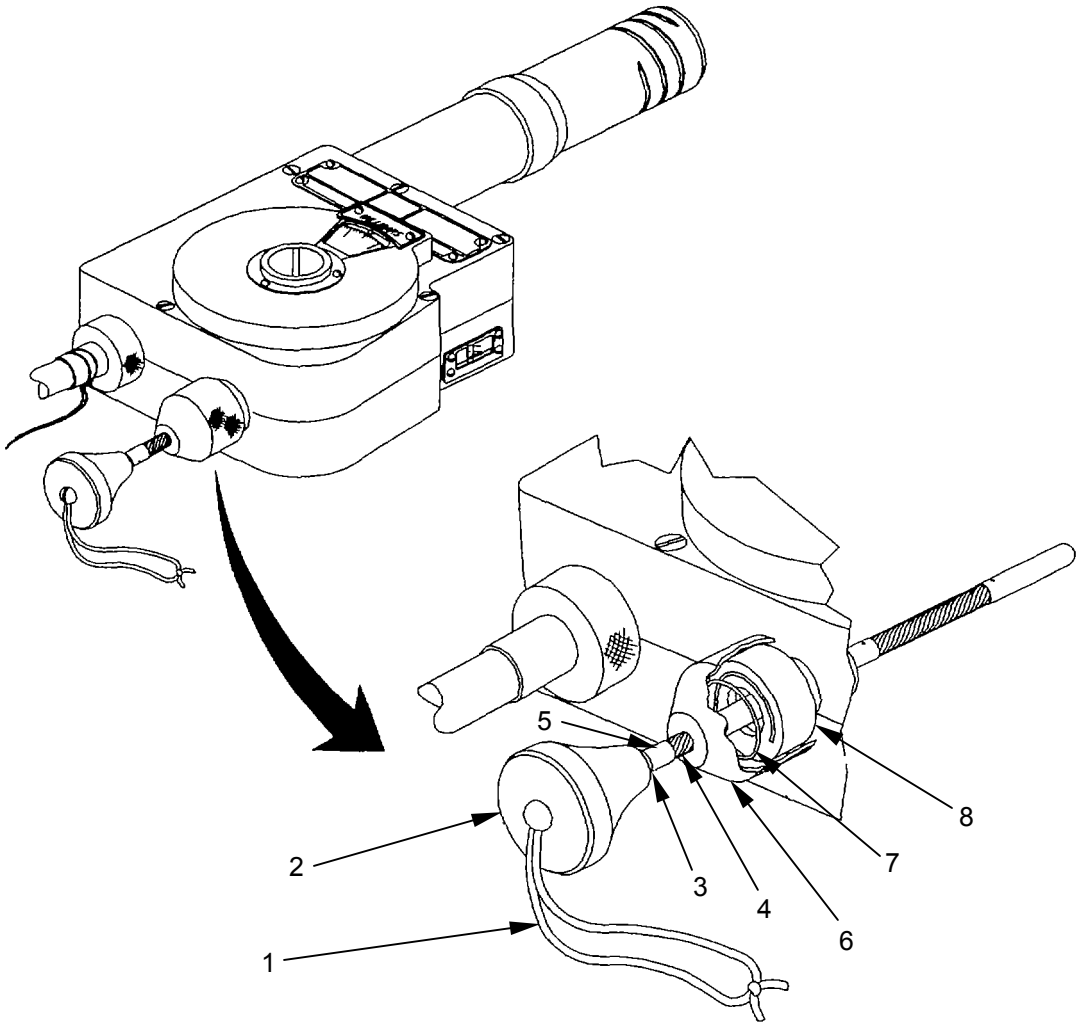
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Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	Before	FF-2 Release LOADED & UNLOADED Front and Rear Case Halves	Ensure six front and one rear case half screws **(1)** are present. Ensure sealant **(2)** is present on bottom center case screw on front case half. Ensure information data plate **(3)** is present and secured with four screws. Ensure information data plate **(3)** is not scratched or damaged and all information is present. Millibar indicator window **(4)** and frame **(5)** are secured with two screws. Ensure window **(4)** is not scratched or broken. Millibar dial knob frame **(6)** is secured with three screws and is not dented or damaged. On rear, manufacturers plate **(7)** is not scratched or dented. Reset access port frame **(8)** is secured with two screws. Ensure reset access port frame **(8)** is not dented, scratched or damaged. Reset access port plug screw **(9)** is present. Reset indicator window **(10)** and frame **(11)** secured with four screws, window **(10)** is not scratched, frame **(11)** is not dented or damaged. Ensure case half protective coating is not scratched or chipped.	Six front and one rear case half screws **(1)** are not present. Sealant **(2)** is not present on bottom center case screw on front case half. Information data plate **(3)** is not present, not secured with four screws. Information data plate **(3)** is scratched or damaged or information is not present. Millibar indicator window **(4)** and frame **(5)** are not secured with two screws. Window **(4)** is scratched or broken. Millibar dial knob frame **(6)** is not secured with three screws or is dented or damaged. Manufacturers plate **(7)** is scratched or dented. Reset access port frame **(8)** is not secured with two screws. Reset access port frame **(8)** is dented, scratched or damaged. Reset access port plug screw **(9)** is not present. Reset indicator window **(10)** and frame **(11)** not secured with four screws, window **(10)** is scratched, frame **(11)** is dented or damaged. Case half protective coating is scratched or chipped.

Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	Before	FF-2 Release Log Record Book	Ensure log record book **(12)** is present and inspect for entries pertaining to initial and subsequent altitude test.	Log record book **(12)** is not present or any log entries are questionable.

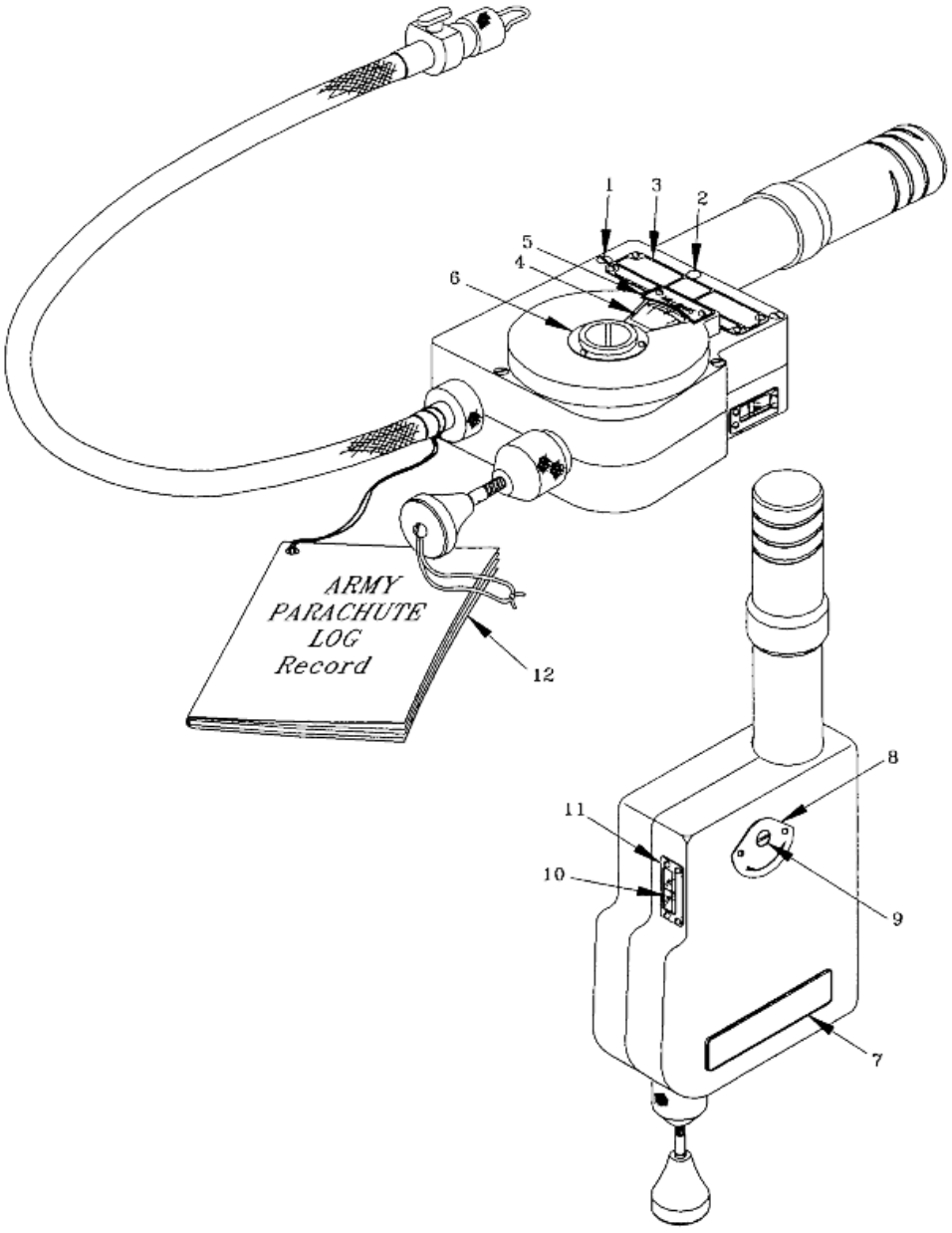

Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
07	When the AR2 is put into service after being stored longer than 120 days.	Automatic Ripcord Release AR-2 Model 451 (Aneroid)	The AR2 shall be tested and certified at each of the following times. Refer to TM-1670-305-23&P. The AR2 Shall be taken out of service and returned to the manufacturer or overhaul after 500 cumulative actuations or 4 years, whichever comes first. Refer to Maintenance Log, in TM 10-1670-305-23&P. Cumulative actuations include both those recorded in the Jump Log Record and Those from the AR2 Maintenance Log Sheets.	
	Before	Automatic Ripcord Release AR-2 Model 451 (Aneroid)	A. Check for aneroid leakage. **(1)** B. Check that AR2 is cocked.	A. Aneroid is leaking. B. AR2 is not cocked.
	Before	Power Cable and Housing	Inspect power cable **(2)** and housing **(3)**. If actuated, refer to TM 10-1670-305-23&P	Power cable is frayed or binds. Power housing conduit has loose convolutions.
	At each 120-day interval while in service.			
	After 50 jumps, regardless of time interval.			
	After any jump where there is a possibility that the AR2 was damaged or malfunctioned.			

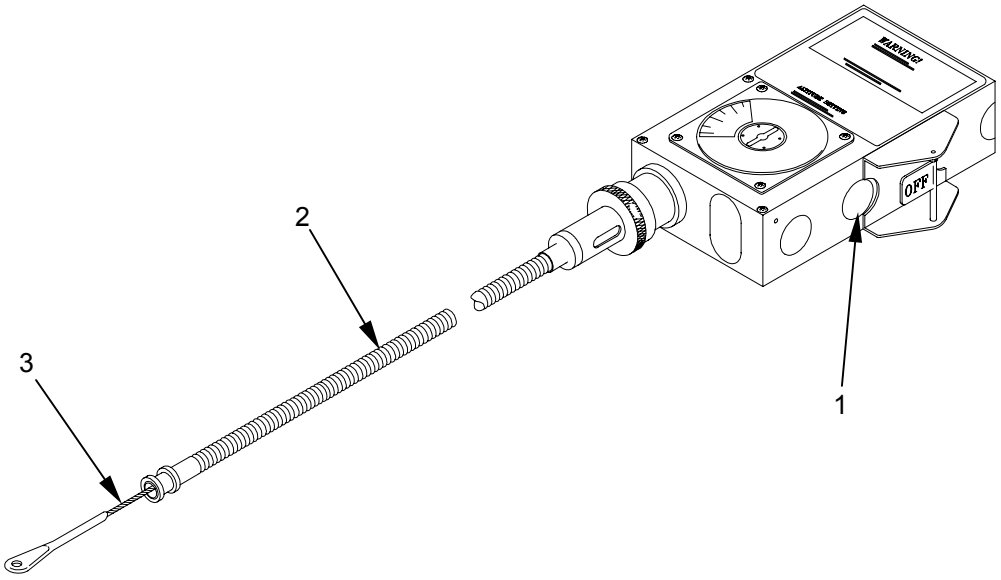
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Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
08	Before	Parachute Drop Bag	All Webbings and Bindings. Inspect for loose or broken stitching, burns, frays, tears, and marred or illegible markings. All Hardware & Functional Fittings. Inspect for improper operation, rust, corrosion, burrs, & cracks. Retainer Webbings. Inspect for loose or broken stitching, loss of elasticity, cuts, and frays.	Cuts, tears or frays in webbing pull to release lanyard. Missing or damaged hardware.
		Lowering Line	Webbing. Inspect for cuts, frays, tears, and marred or illegible markings. Stitching. Inspect for loose or broken stitching, damaged or missing fastener tapes. All Hardware and Functional Fittings. Inspect for improper operation, rust, corrosion, burrs, and cracks. Gap between the opening gate does not exceed $^{5}/_{64}$ of an inch.	

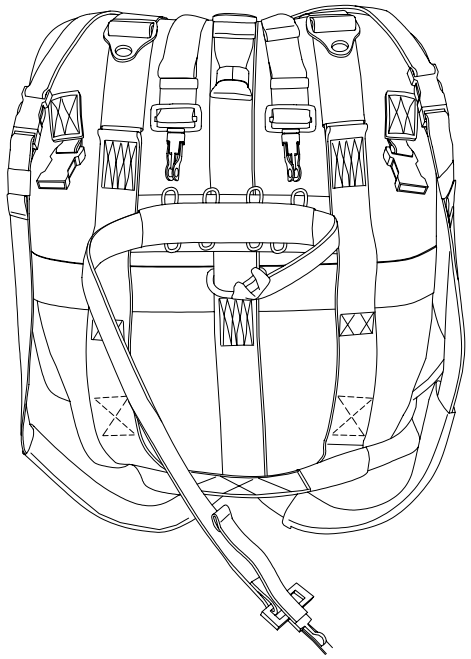


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
09	Before	Harness, Single Point Release **(1)**	Loose or broken stitches and frayed, worn or cut webbing. Bent or damaged hardware.	Cuts, tears and frayed areas in webbing. Missing or damaged hardware.

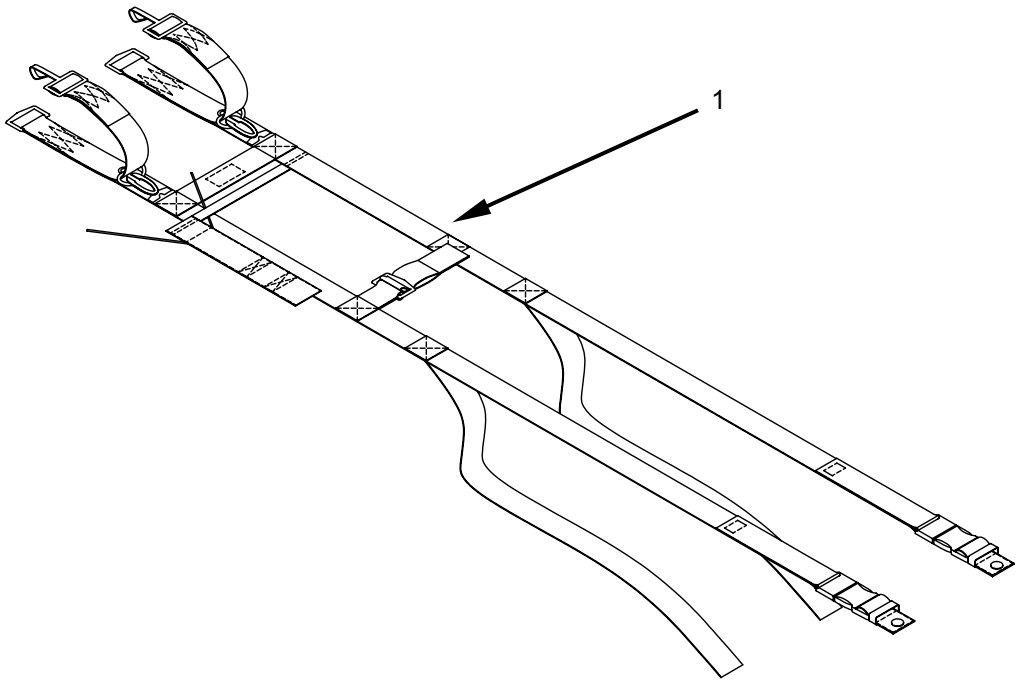
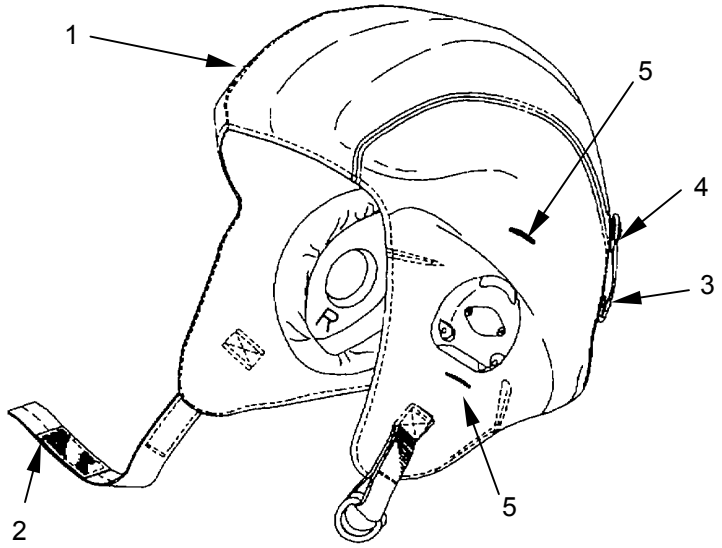


Table 1. Unit Preventive Maintenance Checks and Services.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
01	After	Free-fall Parachutist Helmet (Types I and II)	Check for dirt, foreign matter, cuts, distortion of helmet shell **(1)**, broken or missing chin strap **(2)**, goggle headband retainers **(3)**, and snap fasteners **(4)**. Check for loose, missing or torn tacking **(5)** on earpieces. Type II Only: Inspect for intercom serviceability.	Dirt or foreign matter are present, helmet shell **(1)** is distorted, chin strap **(2)**, goggle headband retainer **(3)** or snap fastener is broken or missing. Earpiece tacking is loose, missing or torn. Type II Only: Intercom is unserviceable.



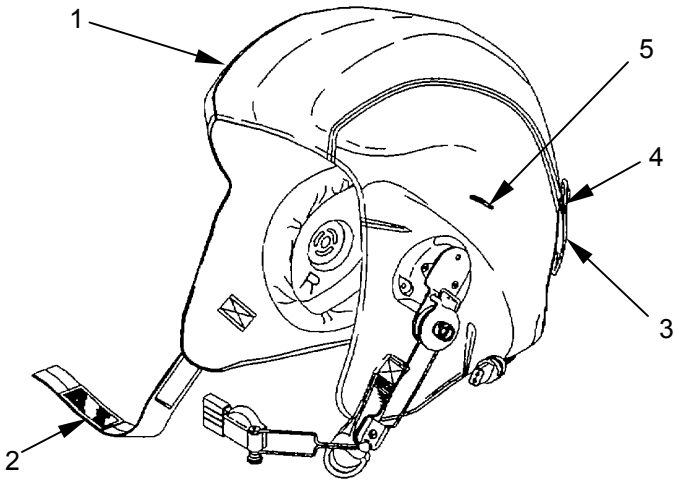


Table 1. Unit Preventive Maintenance Checks and Services-Continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
02	After	Goggles	Check for missing, cracked, or marred lens **(1)**; broken or missing headstrap **(2)**, serviceability of strapping **(3)**.	Lens **(1)** is missing, cracked or marred; headstrap **(2)** is broken or missing, strapping **(3)** is unserviceable

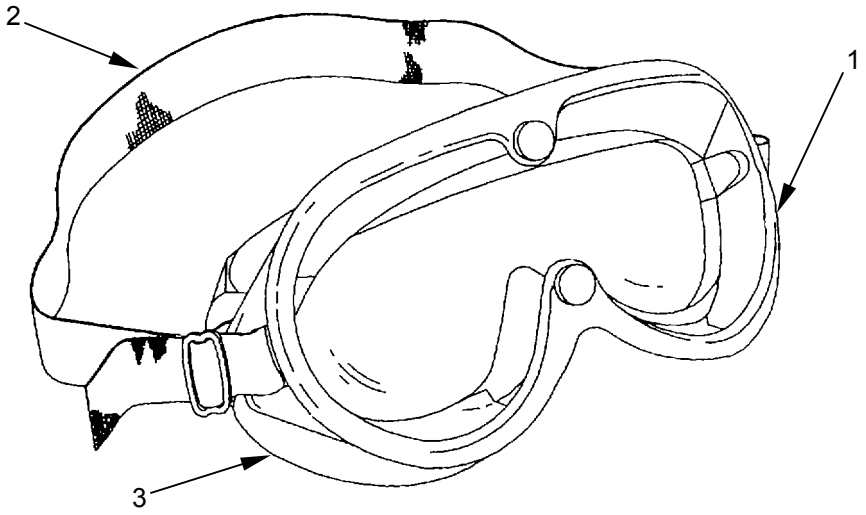


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
03	After	Altimeter	Inspect for broken or missing lens **(1)** and serviceability of wriststrap **(2)**. Find out-of-date label to ensure that altimeter has been tested in last 90 days. Open battery compartment and inspect for corrosion.	Lens **(1)** is broken or missing, or wriststrap **(2)** is not serviceable. Altimeter has not been tested in last 90 days. Corrosion exists in battery compartment.

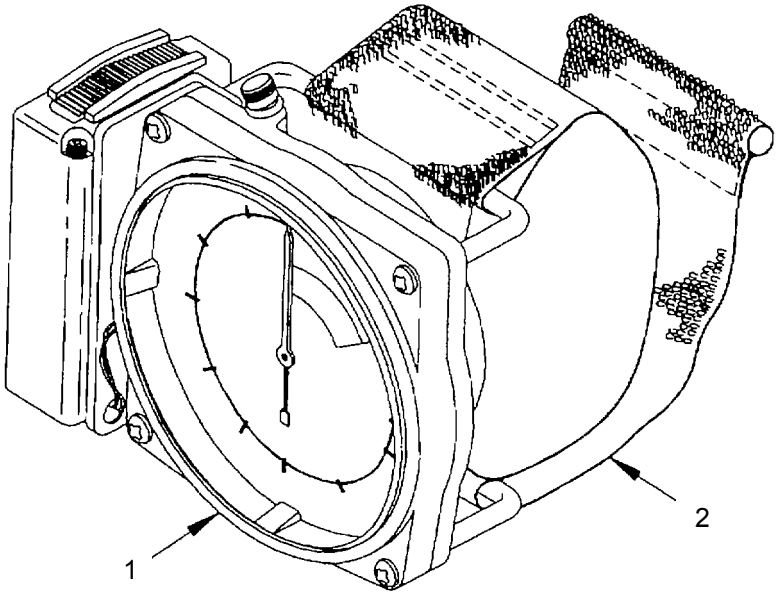


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
04	After	Equipment Attaching Sling	Inspect for broken, loose or missing stitching **(1)** on fabric. Inspect for rust, burrs, rough spots and corrosion on hardware, or missing hardware **(2)**.	Broken or loose stitching **(1)**. Rust, burrs, rough spots or corrosion on hardware, or missing hardware **(2)**.

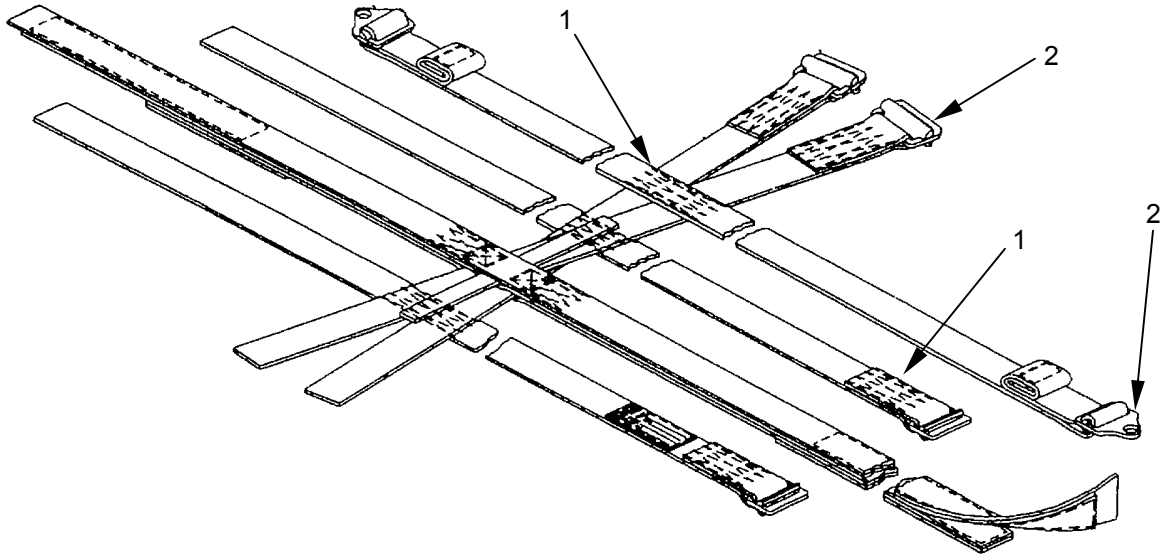


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
05	After	Equipment Lowering Line	Webbing **(1)**. Inspect for cuts, frays, tears, and marred or illegible markings. Stitching **(2)**. Inspect for loose or broken stitching, damaged or missing fastener tapes **(3)**. All Hardware & Functional Fittings. Inspect for improper operation, rust, corrosion, burrs, & cracks. Gap between the opening gate does not exceed 5/64 of an inch.	Frays or cuts in webbing **(1)** or stitching **(2)**. Damaged or missing fastener tapes **(3)**. Damage to hardware gap exceeds 5/64 of an inch.

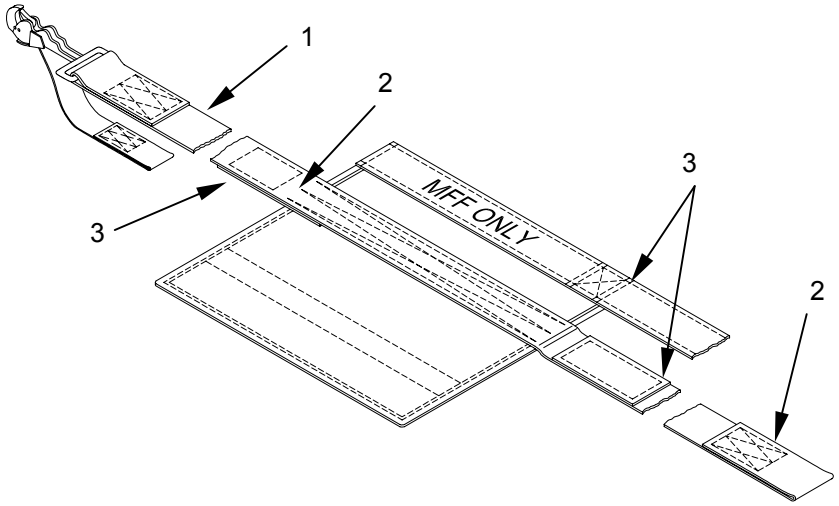


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
06	After	FF-2 Release (UN-LOADED) Power Cable Assembly & Frangible Cap	Inspect withdrawal hook **(1)** for proper gap. Inspect withdrawal hook retainer clamp **(2)** for minimum 0.1 inch cable protruding. Inspect withdrawal hook retainer clamp knurled nut **(3)** and rubber pad **(4)** for damage. Ensure rectangular key **(5)** is not offset or canted more than 15 degrees. Inspect power cable housing **(6)** for damage (broken strands of armor cable). Ensure power cable housing knurled nut **(7)** is properly seated. Remove frangible cap **(8)** and inspect for cracks and corrosion. Ensure there are no marks or tapes placed on frangible cap **(8)** Inspect rubber buffer **(9)** for dry rot, cracks. Ensure power cable lock nut **(10)** is $^{7}/_{16}$-inch and properly seated and securely fastened to power cable rod. Ensure threadless washer **(11)** is present and serviceable.	Withdrawal hook **(1)** gap is too large or too small. Cable does not protrude through withdrawal hook retainer clamp **(2)** $^{1}/_{16}$-inch withdrawal hook retainer clamp knurled nut **(3)** or rubber pad **(4)** is damaged. Rectangular key **(5)** is offset or canted more than 15 degrees. Power cable housing **(6)** is damaged. Power cable housing knurled nut **(7)** is damaged. Frangible cap **(8)** is cracked or corroded. Rubber buffer **(9)** is damaged or has dry rot. Power cable lock nut **(10)** is not $^{7}/_{16}$-inch or is not serviceable. Threadless washer **(11)** is not present or serviceable.

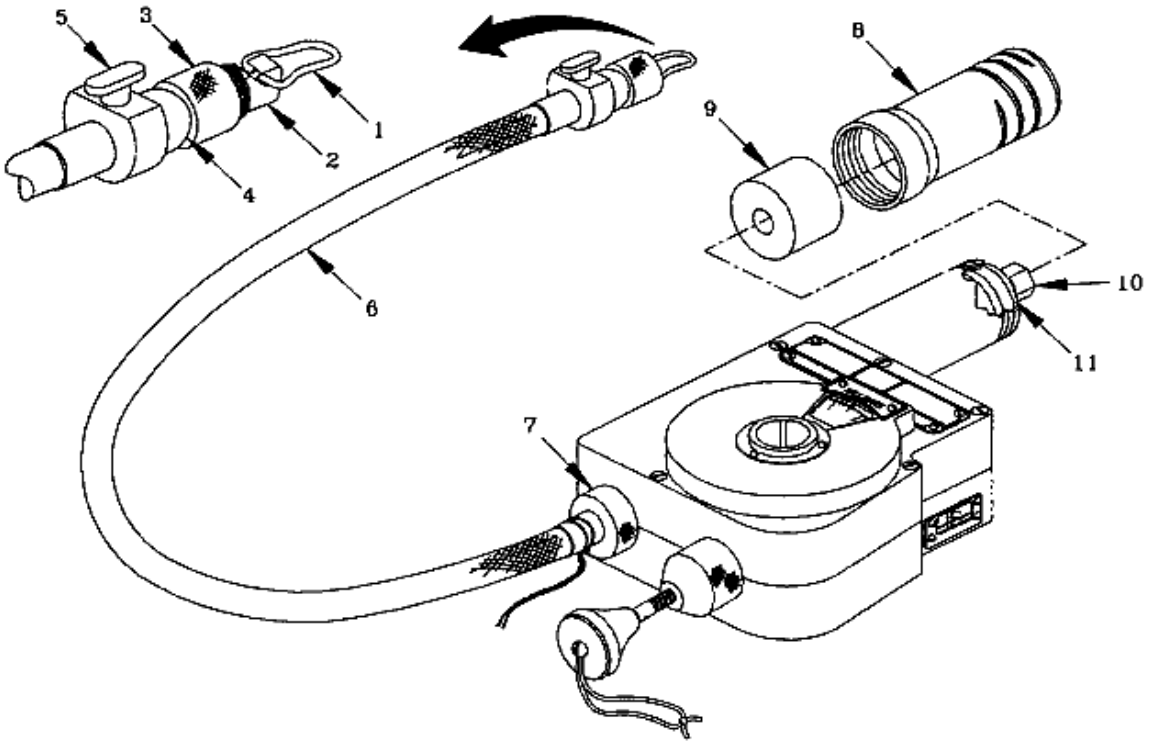

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Table 1. Unit Preventive Maintenance Checks and Services-Continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	After	Arming Pin Assembly (Removed)	Inspect lanyard **(1)** for three inch loop of type III nylon cord. Inspect knob **(2)** for cracks, chips. Inspect swedge **(3)** for proper attachment. Ensure no strands of upper cable **(4)** are broken. Look for cable in inspection hole **(5)**. Inspect knurled nut **(6)** for cracks and ensure two studs are present. Ensure spring **(7)** for proper tension and lack of corrosion. Inspect lower portion of cable **(4)** for broken strands and ensure cable is visible through inspection hole **(8)** in arming pin **(9)**. Inspect arming pin **(9)** for straightness. Inspect arming pin guide bush **(10)** is properly seated and tight. Ensure arming pin guide bush seal **(11)** is present and serviceable.	Lanyard **(1)** is not present or not serviceable. Knob **(2)** is cracked. Swedge **(3)** is not secure or upper portion of cable **(4)** has broken strands. Cable **(4)** is not visible in inspection hole **(5)**. Knurled nut **(6)** is cracked or missing stud. Spring **(7)** is corroded or lacks tension. Lower portion of cable **(4)** has broken strands, is not secure to swedge, or is not visible thru inspection hole **(8)**. Arming pin **(9)** is not straight. Arming pin guide bush **(10)** is not properly seated. Arming pin guide bush seal **(11)** is not present or not serviceable.

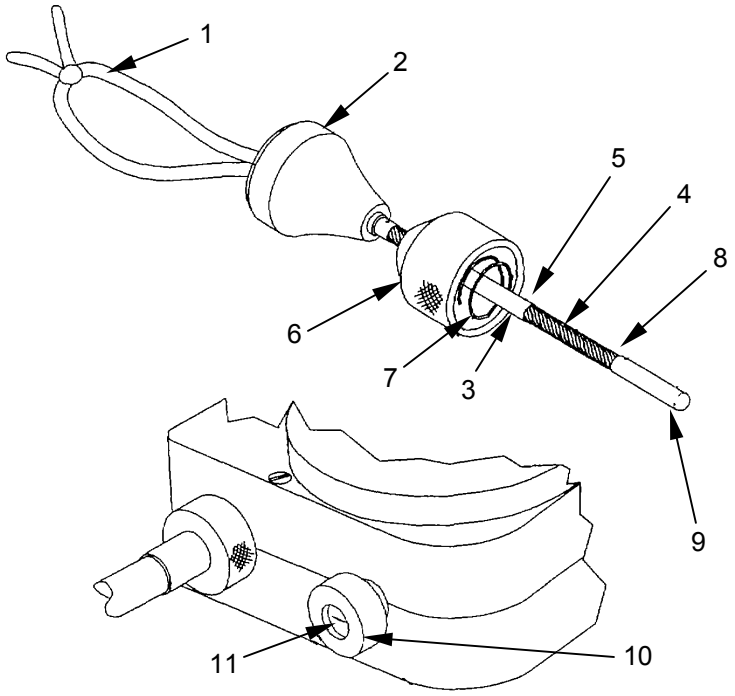

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Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	After	FF-2 Release (LOADED) Power Cable Assembly & Frangible Cap	Inspect withdrawal hook **(1)** for proper gap. Inspect withdrawal hook retainer clamp **(2)** for minimum 0.1-inch cable protruding. Inspect withdrawal hook retainer clamp knurled nut **(3)** and rubber pad **(4)** for damage. There must be at least three threads of knurled nut exposed. Inspect exposed power cable **(5)** for broken strands. Ensure rectangular key **(6)** is not offset or canted more than 15 degrees. Inspect power cable housing **(7)** for damage (broken strands of armor cable). Ensure power cable housing knurled nut **(8)** is properly seated. Remove Frangible cap **(9)** and inspect for cracks and corrosion. Ensure there are no marks or tapes placed on frangible cap **(9)**. Inspect rubber buffer **(10)** for dry rot, cracks. Ensure power cable lock nut **(11)** is $^{7}/_{16}$-inch and properly seated and securely Fastened to power cable rod. Ensure threadless washer **(12)** is present. Inspect power cable rod **(13)** to ensure that hole **(14)** is round NOT oblong.	Withdrawal hook **(1)** gap is too large or too small. Cable does not protrude thru withdrawal hook retainer clamp **(2)** $^{1}/_{16}$-inch withdrawal hook retainer clamp knurled nut **(3)** or rubber pad **(4)** is damaged. Exposed power cable **(5)** has broken strands. Rectangular key **(6)** is offset or canted more than 15 degrees. Power able housing **(7)** is damaged Power cable housing knurled nut **(8)** is damaged. Frangible cap **(9)** is cracked or corroded. Rubber buffer **(10)** is damaged or has dry rot. Power cable lock nut **(11)** is not $^{7}/_{16}$-inch or is not serviceable. Threadless washer **(12)** is not present or serviceable. Hole **(14)** in power cable rod **(13)** is oblong.

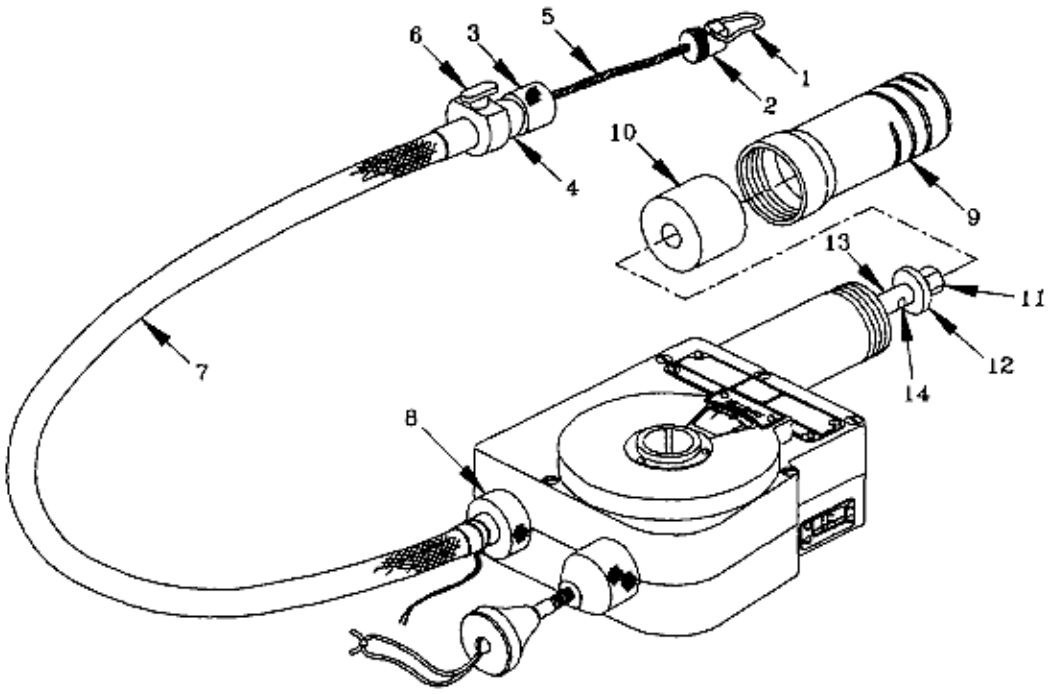
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Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	After	Arming Pin Assembly (Attached)	Inspect lanyard **(1)** for three inch loop of type III nylon cord. Inspect knob **(2)** for cracks, chips. Inspect swedge **(3)** for proper attachment. Ensure no strands of cable **(4)** are broken. Look for cable in inspection hole **(5)**. Inspect knurled nut **(6)** for cracks and ensure two studs are present. Inspect spring **(7)** for proper tension and lack of corrosion. Inspect arming pin guide bush **(8)** is properly seated and tight.	Lanyard **(1)** is not present or not serviceable. Knob **(2)** is cracked. Swedge **(3)** is not secure or upper portion of cable **(4)** has broken strands. Cable **(4)** is not visible in inspection hole **(5)**. Knurled nut **(6)** is cracked or missing stud. Spring **(7)** is corroded or lacks tension. Arming pin guide bush **(8)** is not properly seated.

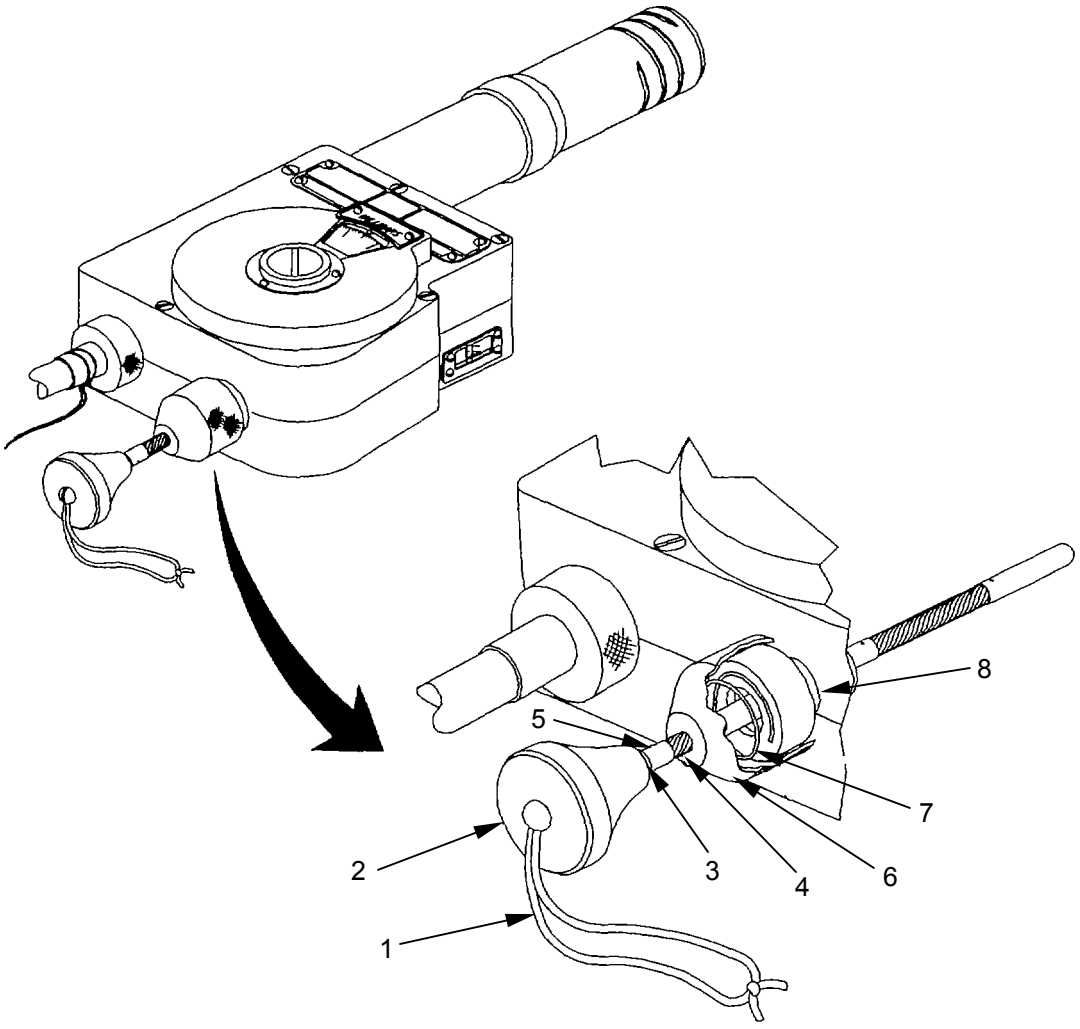
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Table 1. Unit Preventive Maintenance Checks and Services-Continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	After	FF-2 Release LOADED & UNLOADED Front and Rear Case Halves	Ensure six front and one rear case half screws **(1)** are present. Ensure sealant **(2)** is present on bottom center case screw on front case half. Ensure information data plate **(3)** is present and secured with four screws. Ensure information data plate **(3)** is not scratched or damaged and all information is present. Millibar indicator window **(4)** and frame **(5)** are secured with two screws. Ensure window **(4)** is not scratched or broken. Millibar dial knob frame **(6)** is secured with three screws and is not dented or damaged. On rear, manufacturers plate **(7)** is not scratched or dented. Reset access port frame **(8)** is secured with two screws. Ensure reset access port frame **(8)** is not dented, scratched or damaged. Reset access port plug screw **(9)** is present. Reset indicator window **(10)** and frame **(11)** secured with four screws, window **(10)** is not scratched, frame **(11)** is not dented or damaged. Ensure case half protective coating is not scratched or chipped.	Six front and one rear case half screws **(1)** are not present. Sealant **(2)** is not present on bottom center case screw on front case half. Information data plate **(3)** is not present, not secured with four screws. Information data plate **(3)** is scratched or damaged or information is not present. Millibar indicator window **(4)** and frame **(5)** are not secured with two screws. Window **(4)** is scratched or broken. Millibar dial knob frame **(6)** is not secured with three screws or is dented or damaged. Manufacturers plate **(7)** is scratched or dented. Reset access port frame **(8)** is not secured with two screws. Reset access port frame **(8)** is dented, scratched or damaged. Reset access port plug screw **(9)** is not present. Reset indicator window **(10)** and frame **(11)** not secured with four screws, window **(10)** is scratched, frame **(11)** is dented or damaged. Case half protective coating is scratched or chipped.

Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	After	FF-2 Release Log Record Book	Ensure log record book **(12)** is present and inspect for entries pertaining to initial and subsequent altitude test.	Log record book **(12)** is not present or any log entries are questionable.

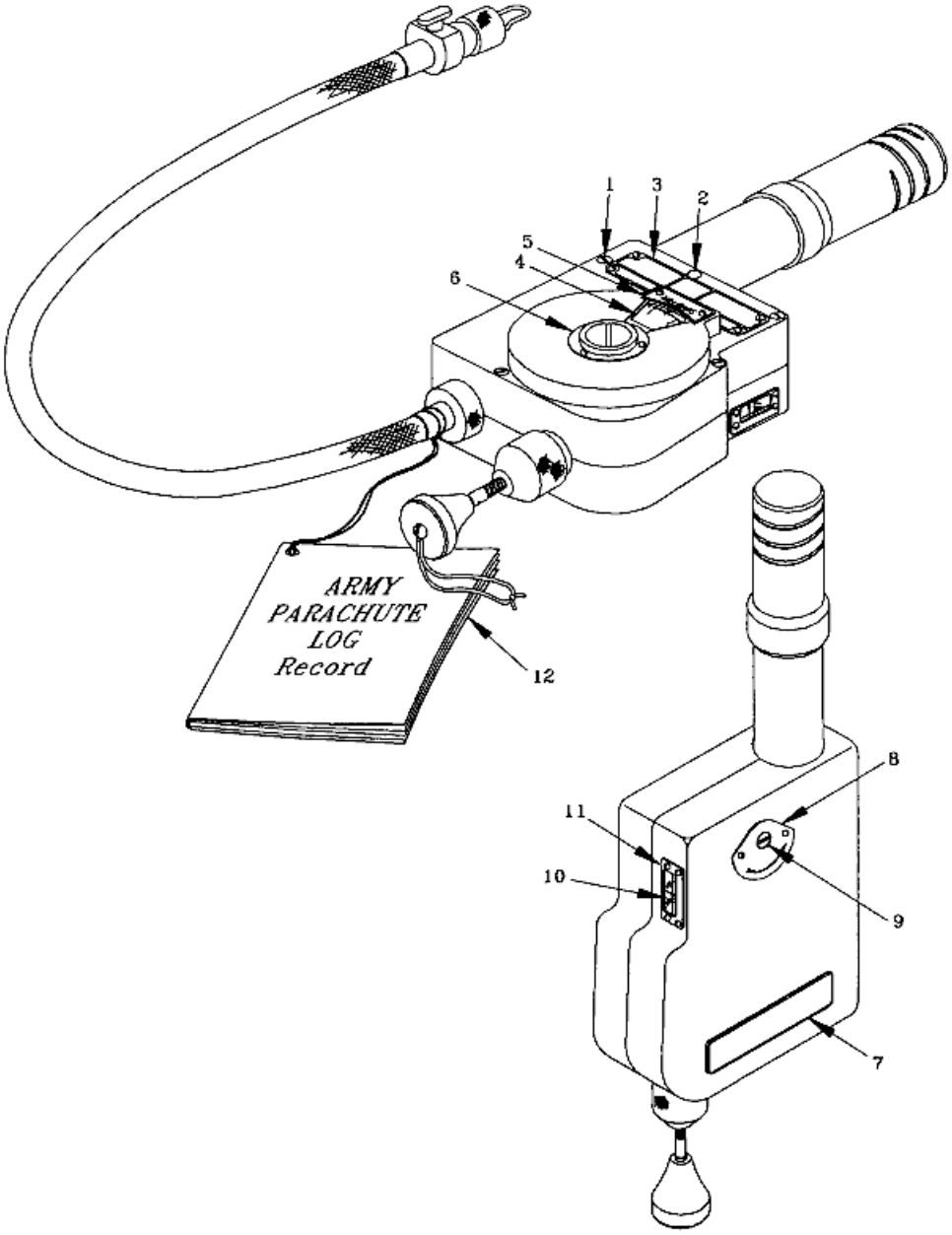


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
07	After	Automatic Ripcord Release AR-2 Model 451 (Aneroid)	A. Check for aneroid leakage. **(1)** B. Check that AR2 is cocked.	A. Aneroid is leaking. B. AR2 is not cocked.
	After	Power Cable and Housing	Inspect power cable **(2)** and housing **(3)**. If actuated, refer to TM 10-1670-305-23&P	Power cable is frayed or binds. Power housing conduit has loose convolutions.

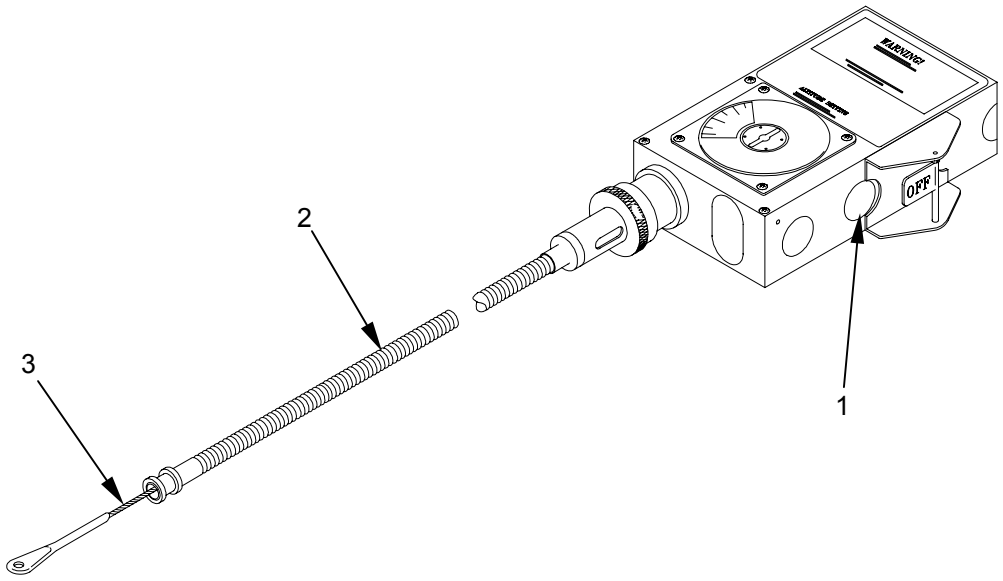


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
08	After	Parachute Drop Bag	All Webbings and Bindings. Inspect for loose or broken stitching, burns, frays, tears, and marred or illegible markings. All Hardware & Functional Fittings. Inspect for improper operation, rust, corrosion, burrs, & cracks. Retainer Webbings. Inspect for loose or broken stitching, loss of elasticity, cuts, and frays.	Cuts, tears or frays in webbing pull to release lanyard. Missing or damaged hardware.
		Lowering Line	Webbing. Inspect for cuts, frays, tears, and marred or illegible markings. Stitching. Inspect for loose or broken stitching, damaged or missing fastener tapes. All Hardware and Functional Fittings. Inspect for improper operation, rust, corrosion, burrs, and cracks. Gap between the opening gate does not exceed $^{5}/_{64}$ of an inch.	

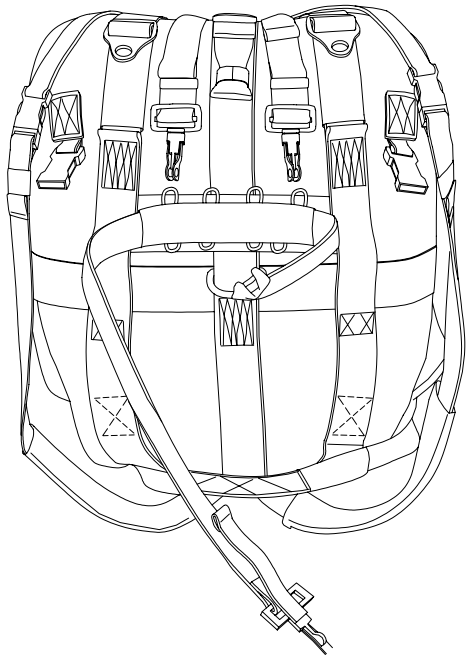
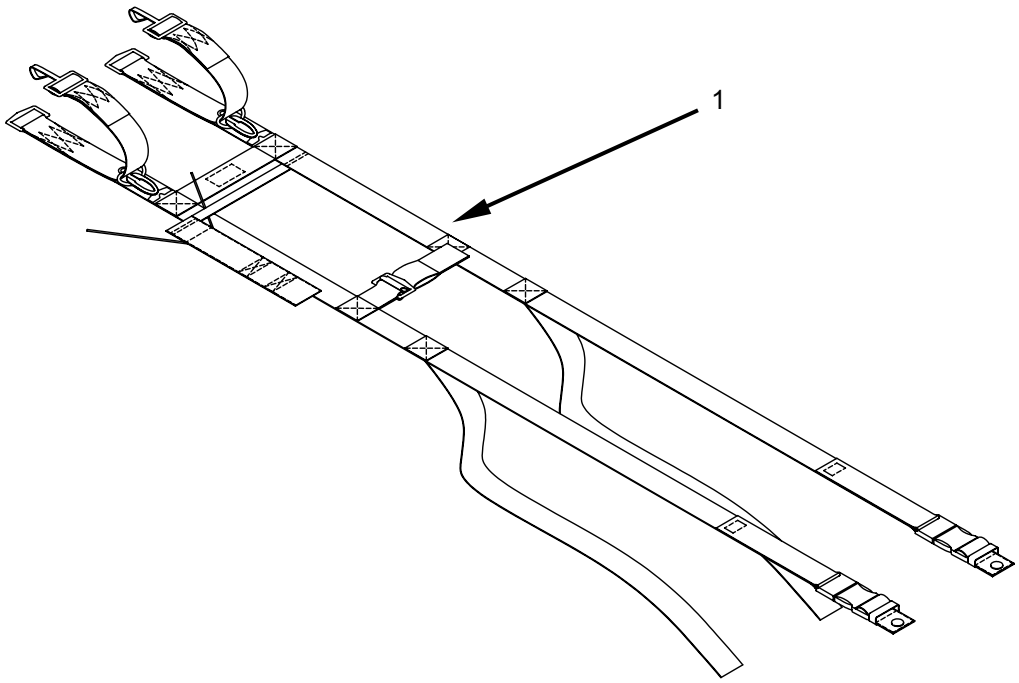


Table 1. Unit Preventive Maintenance Checks and Services - continued.

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
09	After	Harness, Single Point Release **(1)**	Loose or broken stitches and frayed, worn or cut webbing. Bent or damaged hardware.	Cuts, tears and frayed areas in webbing. Missing or damaged hardware.



UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
INTRODUCTION

INTRODUCTION TO UNIT MAINTENANCE

This section contains Unit Maintenance applicable to the Ancillary Military Free-Fall Equipment as authorized by the Maintenance Allocation Chart (MAC), Work Package 0031 00, of this manual. Unit Maintenance personnel may also perform all functions allocated in Operator Maintenance.

All maintenance procedures in this section can be performed by one person unless otherwise indicated. Read all **WARNINGS**, **CAUTIONS**, **NOTES**, and instructions carefully before attempting any procedures. Read and understand all warnings at the front of this manual.

All Unit Maintenance instructions covered in this section are unique to Ancillary Military Free-Fall Equipment.

REPAIR PARTS; TOOLS; SPECIAL TOOLS; TEST MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, or CTA 8-100, as applicable to your unit.

SPECIAL TOOL, TMDE, AND SUPPORT EQUIPMENT. The tool and test equipment requirements required for the maintenance of the Ancillary Military Free-Fall Equipment are listed in WP 0031 00, Tool and Test Equipment List.

REPAIR PARTS. Repair parts for the Ancillary Military Free-Fall Equipment are listed and illustrated in WP 0032 00, Repair Parts and Special Tools List.

SERVICE UPON RECEIPT OF MATERIEL.

Shipping materials. Save the shipping cartons and crates for reuse when possible.

Checking unpacked equipment. Inspect each unpacked component for damage and completeness, and application of all pertinent Modification Work Orders (MWOs) as follows:

Damage: Check the equipment for damage incurred during shipment. Report any damage on DA Form 2404, Equipment Inspection and Maintenance Worksheet and initiate corrective maintenance procedures in accordance with WP 0004 00 of this manual.

Completeness: Inspect the contents of shipment against the packing slip to see if any items are missing. Report any discrepancies in accordance with DA Pam 738-750. The equipment may be placed in service provided missing items do not affect function or safety of the equipment.

Modifications: Check DA Pam 25-30 to see if there are any MWOs applicable to the equipment you are unpacking. If any MWOs are listed, check DA Form 2408-5, Equipment Modification Record to see if MWOs have been applied to the equipment. The MWO number will be shown near the equipment nomenclature label. If a current MWO is listed in DA Pam 25-30, but there is no evidence that it has been applied to the equipment you are unpacking, note discrepancy on DA Form 2404, Equipment Inspection and Maintenance Worksheet.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

INSPECTION

INITIAL SETUP:

Equipment Condition
Packed.

References
DA PAM 738-751
TB 43-0002-43
DA PAM 738-750
AR 750-1/AR 750-32

Personnel Required
92R(10) Parachute Rigger

GENERAL

This section contains Unit Maintenance procedures for the Ancillary Military Free-Fall Equipment as authorized by the Maintenance Allocation Chart (MAC), WP 0031 00 of this manual. Procedures include instructions for inspecting, servicing, repairing and replacing assemblies and subassemblies. All maintenance procedures in this section can be performed by one person unless otherwise stated in the initial setup. Read all **WARNINGS**, **CAUTIONS**, **NOTES** and instructions carefully before attempting a procedure. Read and observe the **WARNINGS** at the front of this manual.

ROUTINE INSPECTION

A routine inspection is a visual check performed to ascertain the serviceability of all visible components of an item that is packed or rigged for use. The inspection will be made on all components that can be inspected without opening the container. Prior to issue, a parachute rigger will administer this inspection. Aerial delivery equipment issued for an air delivery operation and used will receive a routine inspection prior to being placed into ready-for-issue storage.

TECHNICAL/RIGGER-TYPE INSPECTION

A technical/rigger-type inspection is a complete and thorough inspection of an individual airdrop item, including associated parts and components. The following paragraphs outline criteria applicable to accomplishing a technical/rigger-type inspection. It will be performed by a qualified parachute rigger in accordance with AR 750-32.

1. **Inspection Intervals.**

    a. Upon initial receipt of procured equipment issued to a using unit by a supply source.

    b. Immediately before equipment is packed or rigged for use in airdrop operations.

    c. Before and after repairs or modifications are made.

    d. At any other time as deemed necessary by the airdrop equipment maintenance officer.

2. **Inspection Function Requirement**. Normally, a technical/rigger-type inspection will be performed at a packing, rigging or repair activity. The inspection of initial receipt items will be performed as a separate function from packing or rigging operations. When the inspection is conducted at a packing or rigging activity, the item to be inspected will be placed in proper layout on a packing table or suitable sized floor area. Should a defect or damage be discovered at any point during the inspection, the inspection will be terminated and the applicable item will be processed and forwarded to a repair activity. The repair activity in turn, will conduct a technical/rigger type inspection that will be performed by only those parachute rigger personnel cited in AR 750-32. The repair activity inspection of personnel parachutes will be made on a shadow table. Any defect discovered during a unit level repair activity inspection which exceeds the capability of that activity will require the affected item to be evacuated to a direct support maintenance facility for determination of economic repair and its application, if applicable.

Perform Inspection as follows:

1. **Overall Inspection**. An overall inspection will be made on the Ancillary equipment to ascertain the following.

   a. Log Record/Parachute Inspection Data Pocket and Form. As applicable inspect the assembly log record/ parachute inspection data pocket (as applicable) to insure the Army Parachute Log Record (DA form 3912) or NAVWPNCEN or NAVWPNS CL 13512/11 (Parachute History Record) is enclosed and properly attached. Further, remove the log record from the pocket and evaluate the recorded entries. Inspect and evaluate as follows:

      The Army Parachute Log Record, DA Form 3912, and AFTO 391 are history-type maintenance documents that accompany the items through the period of service of the individual assembly. The log record provides a means of recording maintenance actions performed on the items. Normally, a log record is initiated and attached to a convenient point on the item by a using unit. However, if the item is subjected to alteration or modification by a maintenance activity during the interim period from date of manufacture to receipt by a using unit, the log record will be prepared by the activity performing the maintenance function. Once initiated, a log record will be attached to, or contained in a suitable area, until such time as the item is destroyed or rendered unfit for further use or repair. Additionally, should an item that requires a log record, be transferred from one unit to another, the log record for that item will accompany the item in the transfer action. A prepared log record will not be removed or separated from the item except as directed by the local air delivery equipment maintenance activity officer. A log record that is illegible, lost, damaged, soiled, or precludes further entries due to lack of space, will be replaced upon the next inspection, as applicable, with a serviceable item from stock.

   b. **Assembly completeness.** Ensure the applicable assembly is complete and that no components (or parts) are missing.

   c. **Operational Adequacy.** Check the item components and parts to ensure proper assembly, which includes attachment and alignment, and that the assembled product functions in the prescribed manner. Further ensure that no stitch formation (or sewn seam) has been omitted.

   d. **Markings and Paint.** Inspect each assembly and associated components for faded, illegible, obliterated, or missing informational data, identification numbers, and warning marks. Also check for chipped, worn, or peeled paint, as applicable.

e. **Foreign Material and Stains.** Inspect each assembly and related components for the presence of dirt or similar type foreign material. Also check for evidence of mildew, moisture, oil, grease, pitch, resin, or contamination by salt water.

2. **Detailed Inspection.** In addition to the overall inspection performed in (1) above, a detailed inspection will be performed on the materials that constitute the assembly or component construction using the following criteria, as applicable:

a. **Metal.** Inspect for rust, corrosion, dents, bends, breaks, burrs, rough spots, sharp edges, wear, deterioration; damaged, loose, or missing grommets, safety pins, connector snap, eye hook, pack fastener; improper swaging or welding; loss of spring tension; and missing or loose screws.

b. **Cloth.** Inspect for breaks, burns, cuts, frays, holes, rips, snags, tears; loose, missing, or broken stitching or tacking; weak spots, wear, or deterioration.

c. **Fabric tape, webbing, and cordage**. Inspect for breaks, burns, cuts, frays, holes, snags, tears, incorrect weaving, and sharp edges formed from searing; loose, missing, or broken stitching, tacking, whipping, and weaving; weak spots, wear, and deterioration.

d. **Pressure-sensitive (adhesive) tape.** Inspect for burns, holes, cuts, tears, weak spots; looseness and deterioration.

e. **Rubber and elastic.** Inspect for burns, cuts, holes, tears, weak spots; loss of elasticity and deterioration.

f. **Felt.** Inspect for cuts, tears, burns, breaks, holes, and thin spots.

g. **Leather.** Inspect for burns, cuts, holes, tears, loose missing or broken stitching; thin spots and deterioration.

IN STORAGE INSPECTION

An in-storage inspection is a physical check conducted on a random sample of air delivery equipment that is located in storage. The purpose of the inspection is to ensure that the item is ready for issue, that the item is properly identified and segregated from other types of equipment, that no damage or deterioration of the equipment has been incurred, and that all modifications or similar action requirements have been completed. The inspection shall also concern the methods and procedures applied to the storage of air delivery items, the adequacy of storage facilities, efforts of pest and rodent control, and protection against unfavorable climatic conditions. Air delivery equipment that is in storage will be inspected at least semiannually and at more frequent intervals if prescribed by the local parachute maintenance officer. The frequency of inspection may vary according to the type of storage facilities and local climatic conditions. Only parachute rigger personnel designated by the local parachute maintenance officer will conduct in-storage inspections.

Equipment Disposition

Air delivery equipment may be rendered unserviceable by either normal fair wear or by aging, and will subsequently be repaired, modified, or condemned, as appropriate. Equipment that is uneconomically repairable (outdated) will be condemned. Disposition of air delivery equipment that is condemned, unserviceable, or for which serviceability is questionable, will be accomplished using the following procedures as applicable:

1. **Item requiring repair or modification.** An air delivery item that requires repair or modification will be tagged in accordance with DA Pam 738-751. Subsequent work will be performed on the item at the

maintenance level specified for the maintenance function in the applicable supporting technical publication.

2. **Equipment with exhausted age or service life.** Any component or air delivery equipment whose age or service life has expired as specified in TB 43-0002-43 will be removed from service, condemned and tagged as prescribed by DA PAM 738-751.

3. **Disposition of Condemned Air Delivery Equipment.** Condemned equipment, other than fatality parachutes, will be removed from service and disposed of in accordance with current directives listed in this WP.

4. **Rejected equipment.** Equipment which, prior to use is deemed unserviceable will be reported in an Equipment Improvement Recommendation (EIR) in accordance with DA PAM 738-750, as authorized by AR 750-1. Each applicable item that is defective will be held and safeguarded pending receipt of disposition instructions from the National Maintenance Point (NMP). In all instances, EIR exhibit material will be handled as prescribed in DA PAM 738-750. If the quality or the serviceability of an item is questionable, clarification and assistance may be obtained by contacting Commander, U.S. Army Soldier and Biological Chemical Command, ATTN: AMSSB-RIM-E(N), Kansas Street, Natick, MA 01760-5052.

5. **Equipment of Doubtful Serviceability.** Equipment that has had previous use and has not exceeded normal fair wear or aging criteria, but of which further serviceability is doubtful, will be tagged as prescribed in DA PAM 750-751. In addition, the equipment will be reported in an EIR, in accordance with DA PAM 738-750 and AR 750-1. The item(s) in question will be held as EIR exhibit material as outlined in DA PAM 738-750 pending receipt of disposition instructions from the NMP. A maintenance activity holding EIR exhibit material will not tamper with the applicable item(s) or make any attempt to ascertain cause factors. Unnecessary handling of EIR exhibit material may disturb or alter peculiar aspects of the affected item(s) that might affect the judgment of engineering personnel who have the responsibility for final evaluation of EIR actions.

6. **Equipment immersed in salt-water.** Any air delivery item constructed from cotton material that has been immersed in salt-water will be condemned. Cotton thread used for tacking and sewing on nylon that has been immersed in salt-water will only be replaced when there is visible evidence or deterioration such as extreme discoloration or indications of broken thread. Any air delivery equipment constructed of nylon or rayon material that has been immersed in salt-water for a period less than 24-hours, but which cannot be rinsed within 48-hours after recovery will also be condemned unless the following actions can be performed. Upon removal from the salt water, the parachute is placed in a single heavy duty plastic trash bag, the top of the bag securely closed and kept in a wet state until a rinse can be performed following normal rinse procedures. The bag must be doubled when outside temperatures exceed 85 degrees F. The bags must be inspected after transport and storage to insure the bag did not get torn and the assembly allowed to dry. Parachutes recovered using this method must be rinsed no later than 7 days after the salt water immersion or be condemned. However, if the cited time limitations can be met, then immediately upon recovery, suspend or elevate the recovered equipment in a shaded area and allow the item(s) to drain for at least 5-minutes. Do not attempt to wring the equipment fabric. Within 48-hours after recovery, under the supervision of a qualified parachute rigger (92R), rinse the recovered equipment as indicated in WP 0011 00.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

AIRING

INITIAL SETUP:

Tools
N/A

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
N/A

Equipment Condition
N/A

AIRING

Where dampness and mildew are prevalent, air delivery equipment will be aired at frequent intervals according to the severity of the prevailing conditions. Items that have been previously packaged or are unpackaged, and have been subjected to conditions of dampness or mildew, will be aired for a period of at least 6-hours prior to being repackaged. Air delivery items may be aired either indoors or outdoors, in dry weather. However, fabric items will not be aired in direct sunlight. Suspending or elevating the applicable item(s) in a manner that would allow maximum exposure to air circulation may accomplish airing. Outside facilities may be used for the airing of air delivery equipment if weather conditions permit. If the shakeout facilities are inadequate for airing, the applicable item(s) may be suspended or elevated at several points, or draped over suitable type objects that will not cause damage.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

CLEANING AND DRYING

INITIAL SETUP:

Tools
N/A

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Brush, Scrub Household (WP 0044 00, Table 1, Item 7)
Cloth, Abrasive (WP 0044 00, Table 1, Item 10)
Dishwashing Compound (WP 0044 00, Table 1, Item 16)
Lubricant, Solid Film (WP 0044 00, Table 1, Item 28)
Rag, Wiping (WP 0044 00, Table 1, Item 32)

Equipment Condition
Laid out on packing table or other suitable surface.

CAUTION

If, during the cleaning, there exists a possibility that the substance to be removed contains acid or some other equally destructive ingredient, the item will be evacuated to intermediate maintenance activity for determination as to the nature of the substance and item disposition. If the substance cannot be identified, or if normal repair procedures will not eliminate all traces of chemical or acid damage, the applicable item will be condemned.

NOTE

Cleaning of fabric items should be held to a minimum and should be performed only when necessary, to prevent malfunction or deterioration. When fabric item(s) contains debris, or when it is soiled by dirt, oil, grease, rust, corrosion, or other foreign substances, to such an extent that cleaning is necessary, the cleaning should be performed manually and should be limited to the soiled area only, unless the fabric items has been contaminated by water. The methods of cleaning must be determined by the nature of the substance to be removed. Do not use cleaning solvent to clean items soiled by airsickness. Use a solution of hand dishwashing compound to clean this type of soiling.

CLEANING FABRIC ITEMS WITH A SOLUTION OF HAND DISHWASHING COMPOUND
Use dishwashing compound to clean fabric items as follows:

1. Gently brush with a soft bristle brush.
2. Spot clean with a solution of dishwashing compound.
   a. Dissolve one-half cup of dishwashing compound in one-gallon of warm water.
   b. Rub the soiled area with a clean cloth dampened with a solution of dishwashing compound.

c. Rinse the cleaned area by repeating the rubbing process, with a clean portion of the cloth dampened with water.

RINSING FABRIC ITEMS IMMERSED IN SALT WATER

If the fabric items, or any of its components, has been immersed in salt water in excess of 24-hours it will be condemned. Additionally, if the fabric items, or any of its components, has been immersed in salt water for a period less than 24-hours, but cannot be rinsed within 48-hours after recovery, it will also be condemned unless the following actions can be performed. Upon removal from the salt water, the parachute is placed in a single heavy duty plastic trash bag, the top of the bag securely closed and kept in a wet state until a rinse can be performed following normal rinse procedures. The bag must be doubled when outside temperatures exceed 85 degrees F. The bags must be inspected after transport and storage to insure the bag did not get torn and the assembly allowed to dry. Parachutes recovered using this method must be rinsed no later than 7 days after the salt water immersion or be condemned. However, if the cited time limitations can be met, then immediately upon recover, suspend or elevate the fabric item assembly in a shaded area and allow it to drain for at least 5-minutes. Do not attempt to wring the fabric. Within 48-hours after recovery, under the supervision of a qualified parachute rigger (92R), rinse the recovered fabric item assembly as follows:

1. Place the fabric items in a large watertight container filled with a suitable amount of fresh, clean water to cover the assembly.

NOTE

If the salt-water-soaked fabric item is too large to be placed into a rinsing container, then the rinsing process will be affected by applying fresh, clean water to the assembly using a hose.

2. Agitate the container contents by hand for 5-minutes.

3. Remove the fabric item from the container and suspend or elevate it in a shaded area, allowing a 5-minute drainage period. Do not attempt to wring the fabric.

4. Repeat the procedures in steps 1. through 3. above, twice, using fresh, clean water for each rinse.

5. After the third rinse, allow the fabric item to drain thoroughly. Upon completion of draining, dry the assembly in accordance with the DRYING FABRIC ITEMS procedures, below.

6. When dried, perform a technical/rigger-type inspection of the fabric items. Corroded metal components, or corrosion-stained fabrics, will be either repaired or replaced as prescribed by the Maintenance Allocation Chart (MAC) in WP 0031 00.

7. Record any repair, immersion, and rinsing in the parachute log record as shown in WP 0004 00.

RINSING FABRIC ITEMS IMMERSED IN FRESH WATER

Any fabric item, or its components, that has been immersed in a fresh water lake, river, or stream will not require rinsing unless it has been ascertained that the water is dirty, oily, or otherwise contaminated. Procedures for handling a fresh water immersed fabric item are as follows:

1. **Contaminated fresh water.** If the fabric item, or its components, has been immersed in contaminated fresh-water, rinse and dry (see RINSING FABRIC ITEMS IMMERSED IN SALT WATER, above), and, if applicable, repair.

2. **Uncontaminated fresh water.** If the fabric item, or its components, has been immersed in uncontaminated fresh-water, it will be cleaned and dried as outlined in CLEANING FABRIC ITEMS WITH A SOLUTION OF HAND DISHWASHING COMPOUND, DRYING FABRIC ITEMS, and CLEANING METAL ITEMS, in the detailed paragraphs above and below. Minor discoloration of fabric items, resulting from immersion in uncontaminated fresh-water, may occur.

NOTE

Fabric items will not be dried in direct sunlight or by laying an item on the ground.

DRYING FABRIC ITEMS
Dry fabric items as follows:

1. Suspend or elevate the item in a well-ventilated room or in a heated drying room.

2. Using electric circulating fans may reduce drying time.

3. When heat is used, the heat temperature shall not exceed 160 degrees Fahrenheit (71 degrees Celsius). The preferred temperature is 140 degrees Fahrenheit (60 degrees Celsius).

CLEANING METAL ITEMS
Clean metal items as follows:

CAUTION

Use care not to damage the adjacent fabric materials.

1. Remove burrs, rough spots, rust, or corrosion from metal items by filing with a metal file, or by buffing and polishing with abrasive cloth.

2. Remove all oils and filings by brushing and cleansing with dishwashing compound. Allow to dry.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

SALT/FRESH WATER CONTAMINATION TEST
INSPECT

INITIAL SETUP:

Tools
N/A

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
N/A

Equipment Condition
Laid out on packing table or other suitable area.

INSPECTION
Look for a white crystalline residue. If evidence of salt water/fresh water contamination is found, refer to the procedures detailed below:

RINSING FABRIC ITEMS IMMERSED IN SALT WATER. If the fabric item, or any of its components, has been immersed in salt water in excess of 24-hours it will be condemned. Additionally, if the fabric item, or any of its components, has been immersed in salt water for a period less than 24-hours, but cannot be rinsed within 48-hours after recovery, it will also be condemned unless the following actions can be performed. Upon removal from the salt water, the parachute is placed in a single heavy duty plastic trash bag, the top of the bag securely closed and kept in a wet state until a rinse can be performed following normal rinse procedures. The bag must be doubled when outside temperatures exceed 85 degrees F. The bags must be inspected after transport and storage to insure the bag did not get torn and the assembly allowed to dry. Parachutes recovered using this method must be rinsed no later than 7 days after the salt water immersion or be condemned. However, if the cited time limitations can be met, then immediately upon recovery, suspend or elevate the fabric items in a shaded area and allow it to drain for at least 5-minutes. Do not attempt to wring the fabric. Within 48-hours after recovery, under the supervision of a qualified parachute rigger (92R), rinse the recovered fabric items as follows:

1. Place the fabric items in a large watertight container filled with a suitable amount of fresh, clean water to cover the assembly.

NOTE

If the salt-water-soaked fabric item is too large to be placed into a rinsing container, then the rinsing process will be affected by applying fresh, clean water to the assembly using a hose.

2. Agitate the container contents by hand for 5 minutes.

3. Remove the fabric item from the container and suspend or elevate it in a shaded area, allowing a 5-minute drainage period. Do not attempt to wring the fabric.

4. Repeat the procedures in steps 1. through 3., above, twice, using fresh, clean water for each rinse.

5. After the third rinse, allow the fabric items to drain thoroughly. Upon completion of draining, dry the assembly in accordance with the DRYING FABRIC ITEMS procedures detailed below.

6. When dried, perform a technical/rigger-type inspection of the fabric items. Corroded metal components, or corrosion-stained fabrics, will be either repaired or replaced as prescribed by the Maintenance Allocation Chart (MAC) in WP 0031 00.

7. Record any repair, immersion, and rinsing in the parachute log record as shown in WP 0004 00.

RINSING FABRIC ITEMS IMMERSED IN FRESH WATER. Any fabric item, or its components, that has been immersed in a fresh water lake, river, or stream will not require rinsing unless it has been ascertained that the water is dirty, oily, or otherwise contaminated. Procedures for handling fresh water immersed fabric items are as follows:

1. **Contaminated fresh water.** If the fabric item, or its components, has been immersed in contaminated fresh water, rinse and dry (see RINSING FABRIC ITEMS IMMERSED IN SALT WATER, ABOVE), and, if applicable, repair.

2. **Uncontaminated fresh water.** If the fabric item, or its components, has been immersed in uncontaminated fresh water, it will be cleaned and dried as outlined in CLEANING FABRIC ITEMS WITH A SOLUTION OF HAND DISHWASHING COMPOUND, DRYING FABRIC ITEMS, AND CLEANING METAL ITEMS, in the detailed paragraphs above and below. Minor discoloration of fabric items, resulting from immersion in uncontaminated fresh water, may occur.

NOTE

Fabric items will not be dried in direct sunlight or by laying an item on the ground.

DRYING FABRIC ITEMS. Dry fabric items as follows:

1. Suspend or elevate the item in a well-ventilated room or in a heated drying room.

2. Using electric circulating fans may reduce drying time.

3. When heat is used, the heat temperature shall not exceed 160 degrees Fahrenheit (71 degrees Celsius). The preferred temperature is 140 degrees Fahrenheit (60 degrees Celsius).

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

MARKING AND RESTENCILING

INITIAL SETUP:

Tools
N/A

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Brush, Stenciling (WP 0044 00, Table 1, Item 8)
Ink, Marking (WP 0044 00, Table 1, Item 25)
Marker, Felt Tip, Black (WP 0044 00, Table 1, Item 29)
Pen, Ball Point (WP 0044 00, Table 1, Item 31)

Equipment Condition
Laid out on packing table or other suitable area.

NOTE

Stenciling should be used whenever possible. A ballpoint pen or felt tip marker should be used only were stenciling is not possible, or when stenciling devices are not available. Any type ballpoint pen using black or blue ink may be used for marking on labels only.

Original stenciled data or marking that becomes faded, illegible, obliterated, or removed as a result of performing a repair procedure, will be remarked with a ballpoint pen, felt tip marker, or restenciled. All marking or restenciling will be done on, or as near as possible to, the original location and should conform to the original lettering type and size.

MARKING
Using marking devices, such as a ballpoint pen or felt tip marker, mark on, or as near as possible to, the original location and conform to the original lettering type and size.

RESTENCILING
Proceed as follows:

1. Cut oiled stencil board to match the original lettering type and size of data to be restenciled.
2. Place cut stencil board over, or as near as possible to, the original marking to be restenciled.
3. Place an additional sheet of stencil board beneath the area to be restenciled to prevent the marking ink from penetrating to other areas.
4. Hold the stencil board in place and, using the stenciling brush filled with parachute marking ink, restencil the original marking.

REMARKING AND RESTENCILING
Remark/restencil the original stenciled data/markings that become faded, illegible, obliterated, or that have been removed as a result of performing a repair procedure. Ensure all marking/restenciling is on, or as near as possible to, the original location, and conforms to the original lettering type and size.

RESTENCILING AND REPAINTING

Painted markings on airdrop equipment that are chipped or worn will be repainted with the same color paint metal and wood items may be repainted with olive drab paint as required.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

SEARING AND WAXING

INITIAL SETUP:

Tools
Knife, Hot, Metal (WP 0031 00, Table 2, Item 9)
Pot, Melting, Electric (WP 0031 00, Table 2, Item 13)

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Beeswax (WP 0044 00, Table 1, Item 6)
Wax, Parrafin (WP 0044 00, Table 1, Item 46)

Equipment Condition
Serviceable

CAUTION

Cotton tape, webbing, or cord will not be seared.

NOTE

Fabric materials such as cord, tape, and webbing, that are cut for use in the maintenance of ancillary military free fall equipment will normally be heat-seared or dipped in melted wax mixture, as applicable, to prevent the material from fraying or unraveling. However, in some instances, the preparation of the material may not be necessary and will be specified accordingly.

SEARING
The cut ends of nylon tape, webbing and cord lengths may be prepared by heat-searing, which is performed by pressing the raw end of the material against a hot metal surface (knife) until the nylon has melted sufficiently. Avoid forming a sharp edge or lumped effect on the melted end.

WAXING
The fraying or unraveling of cotton or nylon tape, webbing, and cord length ends may be prevented by dipping ½-inch of the raw end of the material into a thoroughly melted mixture of half beeswax and half paraffin in an electric melting pot. The wax temperature should be substantial enough to ensure the wax completely penetrates the material, rather than just coating the exterior fabric.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

SEWING PROCEDURES
REPAIR

INITIAL SETUP:

Tools
Specified in paragraph applicable to the item being repaired.

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Specified in paragraph applicable to the item being repaired.

Equipment Condition
Unpacked. Canopy with defects recorded. Clean.

REPAIR

NOTE

Sewing requirements will vary according to the type of item being repaired and the type of repair being made. The type of sewing machine, type of thread, the stitch range, and the stitch pattern (if applicable) required to accomplish a sewing procedure will be specified in the paragraph applicable to the item being repaired. All original stitching that is cut during the performance of a sewing procedure will be removed from the applicable item. Immediately after the accomplishment of a machine sewing procedure, trim thread ends to a point as close as possible to the material that has been sewn.

NOTE

Repair and replacement of air item components is performed in accordance with the repair instruction in this section and in specific paragraphs applicable to the item being repaired. Fabrication is a means of replacing an air delivery item component that is damaged beyond repair and not an issue item. Though the act of fabrication is a replacement-type action, the function is actually a method of repairing an end item. Since most fabrication pertains to components that are peculiar to air items, the fabrication of components that are most general in nature will be detailed in the following paragraphs.

BASTING AND TEMPORARY TACKING

Basting and temporary tacking are hand-sewing methods used to temporarily hold layers of cloth fabric together while a repair is being performed. The following is a list of procedures that apply to basting and temporary tacking actions:

1. Basting and temporary tacking should be made using thread that is of a contrasting color to the material being worked.

2. Basting and temporary tacking will be performed using a single strand of size A, nylon thread, or ticket No. 24/4 cotton thread.

3. When basting, do not tie knots at any point in the thread length. Also, the sewing should be made with two stitches per inch.

4. Immediately upon completion of a repair, remove previously made basting or temporary tacking.

STITCHING AND RESTITCHING
Perform stitching and restitching as follows, refer to Tables 1 and 2.

1. The stitching and restitching of Ancillary Military Free Fall Equipment will be accomplished with thread that is matching in color to the fabric being restitched. If matching color thread is not available, thread of contrasting color may be used, providing all other specifications are met. Straight stitching and restitching will be locked by at least ½-inch at each end of a stitch row, when possible. Zig-Zag stitching does not require locking; however, zig-zag restitching should extend at least ½-inch into undamaged stitching at each end, when possible. Keep proper thread tension when possible to prevent loose top or bobbin thread, and excessively tight stitching resulting in puckering of the materials sewn. The stitching lock should be embedded in the center of the material. When restitching, stitch directly over the original stitching and follow the original stitch pattern as closely as possible.

Table 1. Sewing Machine Code Symbols.

CODE SYMBOL	SEWING MACHINE
LD	SEWING MACHINE, INDUSTRIAL: General Sewing; 301 Stitch; Light Duty; NSN 3530-01-177-8590.
MD ZZ	SEWING MACHINE, INDUSTRIAL: Zig-Zag; 308 Stitch; Medium Duty; NSN 3530-01-181-1421.
LD ZZ	SEWING MACHINE, INDUSTRIAL: Zig-Zag; 308 Stitch; Light Duty; NSN 3530-01-181-1420.
HD	SEWING MACHINE, INDUSTRIAL: General Sewing; 301 Stitch; Heavy Duty; NSN 3530-01-177-8588.
MD	SEWING MACHINE, INDUSTRIAL: General Sewing; 301 Stitch; Medium Duty; NSN 3530-01-177-8591.
DN	SEWING MACHINE, INDUSTRIAL: Darning; Lock Stitch; NSN 3530-01-177-8589
LHD	SEWING MACHINE, INDUSTRIAL: 301 Stitch; Light-Heavy Duty; NSN 3530-01-186-3079.
ND	SEWING MACHINE, INDUSTRIAL: 301 Stitch; Double-Needle; NSN 3530-01-182-2873.

Table 2. Stitching and Restitching Specifications.

COMPONENT	RECOMMENDED SEWING MACHINE (CODE SYMBOL)	STITCHES PER INCH	THREAD SIZE
Helmet, Free Fall, Parachutist, Type I and Type II	MD	7 to 11	E
Edge Binding	LD	7 to 11	E
Chin Strap	LD	7 to 11	E
Wrist Strap, Altimeter	LD	7 to 11	E
Lowering Line	HD MD	5 to 8 7 to 11	3/E
Sling Assembly, Equipment Attaching	HD	5-8	3
Drop Bag, Parachute			
Pack Body Patching	MD	6 to 9	FF
Darning	DN/ZZ	Darn	E
Binding Tape	LD	7 to 11	E
Elastic Keeper	LD	7 to 11	E
Attachment of Hook Pile Tape	LD	7 to 11	E
Vertical Straps	MD	5 to 8/6 to 9	3/FF
Compression	MD	4 to 6/6 to 9	5/FF
Lowering Line Assembly	MD/LD	6 to 9/7 to 11	FF/E
Attaching Straps	MD	6 to 9	FF
Breakaway Leg Straps	MD	4 to 6/6 to 9	5/FF
Harness, Single Point Release			
Harness, Stitching	HD	5 to 8	3
Attaching Harness Strap	HD	5 to 8	3
Darning	DN ZZ	Darn	E
Splicing	MD	Darn	E
Loops “A”, “B”, “C”	ZZ/MD	7 to 10/6 to 9	E/FF
Lanyard	HD	5 to 8	3
Retainer Loops			
Attachment to Release Assembly	MD	6 to 9	FF
Elastic Keeper	MD	6 to 9	FF
Keeper Assembly	MD	6 to 9	FF
Attachment to Release Assembly	MD	6 to 9	FF
Attachment of Hook Pile Tape	MD	6 to 9	FF

DARNING

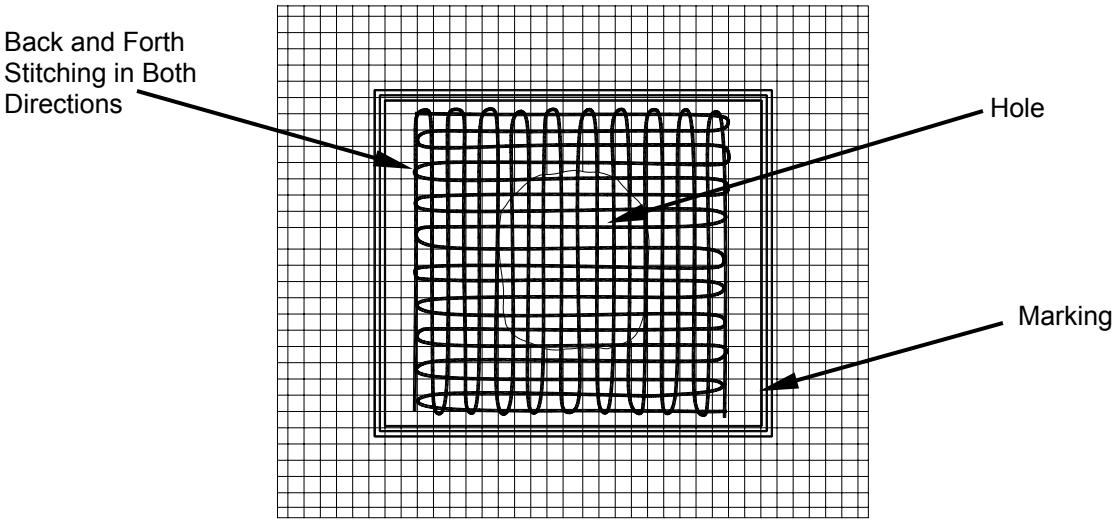
(Refer to Tables 1 and 2). Darning is a sewing procedure used to repair limited size holes, rips, and tears. A darning repair may be made either by hand or by sewing machine, depending upon the method preferred and the availability of equipment. However, a darning machine should be used to darn small holes and tears where fabric is missing. A darning repair will be performed using the following procedures, as appropriate:

1. Machine darning. Proceed as follows:

    a. Using an authorized marking aid of contrasting color, mark a square around the damaged area and ensure the marking is at least ¼-inch back from each edge of the damaged area.

    b. Darn the damaged area by sewing the material in a back and forth manner, using size A or E nylon thread.

c. Turn the material and stitch back and forth across the stitching made in b., above, until the hole or tear is completely darned.

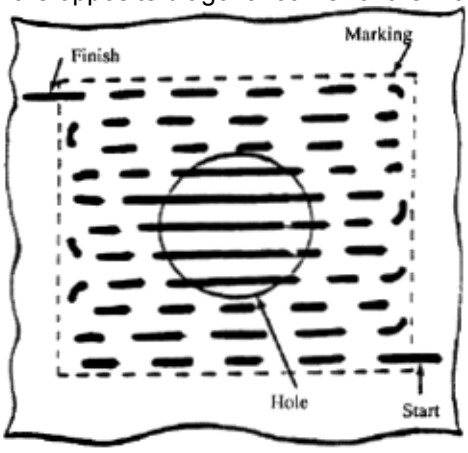


d. If applicable, restencil informational data, or identification marks using the criteria in WP 0014 00.

2. Hand darning. When repair of a hole or tear is made by hand darning, the darn should match the original weave of the damaged material as closely as possible. Hand darning will be performed as follows:

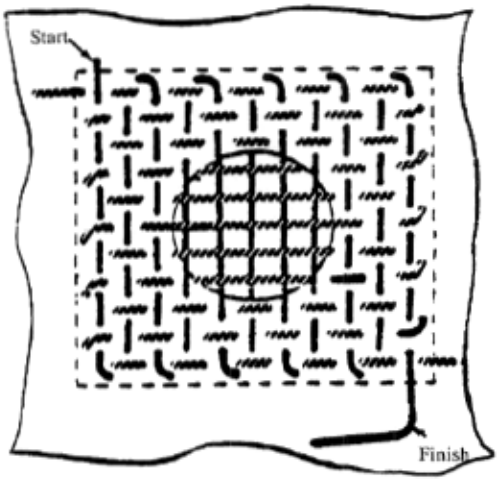
a. Using an authorized marking aid of contrasting color, mark a square around the damaged area and ensure the marking is at least ¼ -inch back from each edge of the damaged area.

b. Using a darning needle and a length of size A or E nylon thread, begin darning at one corner of the marked area. Working parallel with the marking, pass the needle and thread back and forth through the material until the opposite diagonal corner of the marked area is reached.



Stitching

c. Turn the material and weave the needle and thread back and forth across the stitching made in b., above, until the hole is completely darned.



Hand Darning Completed

d. If applicable, restencil informational data or identification marks as outlined in WP 0014 00.

ZIG-ZAG SEWING

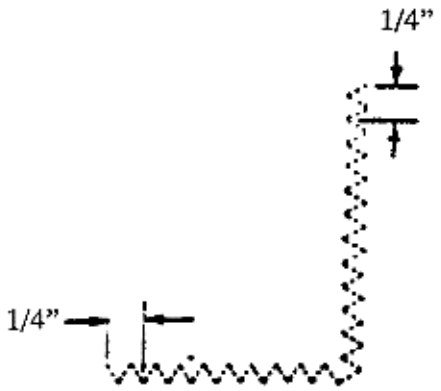
(Refer to Tables 1 and 2). Ancillary Military Free Fall Equipment, that has sustained cut or tear damage, may be repaired by zig-zag sewing, provided the applicable damaged area does not have any material missing and the cut or tear is straight or L-shaped. Should the damaged area be irregular shaped or have material missing, the repair will be achieved by either darning or patching, as required. A zig-zag sewing repair will be accomplished using a zig-zag sewing machine, with the following procedures:

1. Set the sewing machine to the maximum stitch width.

2. Beginning at a point 1/4-inch beyond one end of the cut or tear, stitch lengthwise along the damaged area to a point 1/4-inch beyond the opposite end of the cut or tear.

Straight Cut Or Tear Stitching

3. The cited stitching procedure will also apply to an L-shaped cut or tear.



L-Shaped Cut Or Tear Stitching

4. If applicable, restencil informational data or identification marks as prescribed in WP 0014 00.

PATCHING
Patching is a procedure used to repair holes that cannot be darned.

Patching limitations. The following is a list of patching limitations for Ancillary Military Free-Fall Equipment.

WARNING

The limitations prescribed for patching will be stringently adhered to under all circumstances and without any deviations. Failure to do so may result in failure of an ancillary item causing death or serious injury to personnel.

1. A patch will not be applied to a damaged area that has been previously patched.

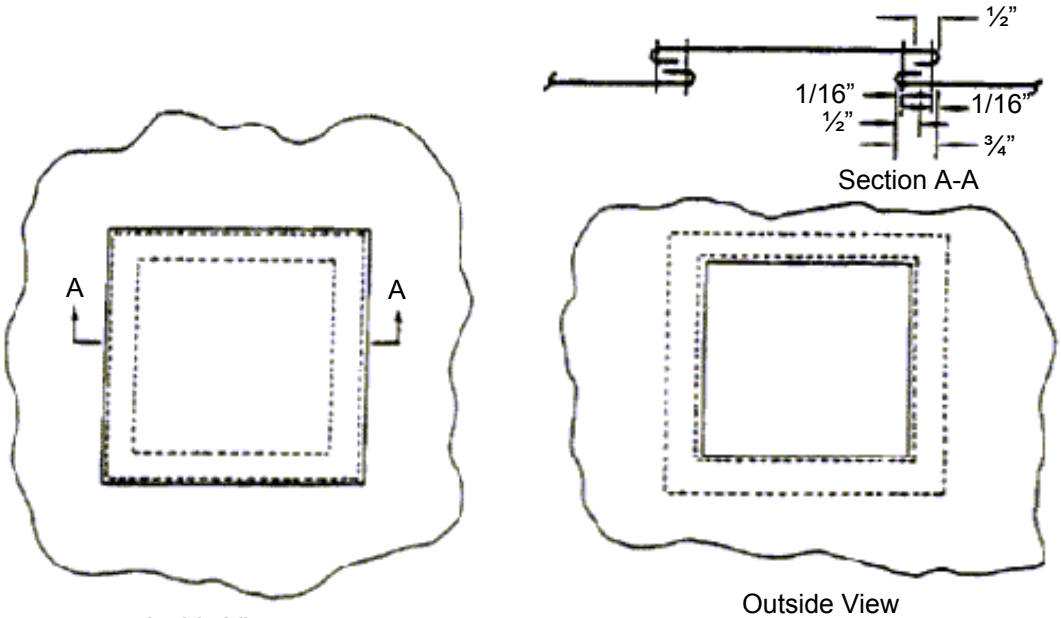
2. There is no limitation to the number of patches, or size of patch, made to each area. However, determination should be made as to the most economical method to be used, i.e., two or more patches versus one large patch, or damage that would require replacement.

Making a basic patch. A basic patch is used to repair damaged cloth when the affected area is no closer than 1-inch from a seam. Should a damaged area be closer than 1-inch to the cited areas, a miscellaneous patch will be made as detailed in paragraph 3., below. There are three methods that may be used to apply a basic patch; the procedures for performing each method are outlined in paragraphs a. and b., as follows:

NOTE

A basic patch will be square or rectangular in shape.

1. The sewn patch. The primary method of applying a basic patch is by sewing. When using this method of patching, the patch will be applied to either the inside or the outside.



Apply a sewn patch as follows:

a. Place the repairable item on a repair table, smooth the fabric around the damaged area, and secure the item to the table with pushpins. Do not pin the damaged area.

b. Using an authorized marking aid of contrasting color, mark a square or rectangle around the area to be patched.

c. Cut the damaged fabric area along the lines made in 2., above. Further, cut the fabric diagonally at each corner to allow a ½-inch foldback in the raw edges.

d. Make a ½-inch foldback on each raw edge. Pin and baste each foldback to complete the prepared hole. Basting will be performed using the procedures in the BASTING AND TEMPORARY TACKING paragraph detailed above.

e. Using the same type of material as in the original construction, mark and cut a patch 2 ½ -inches wider and longer than the inside measurements of the prepared hole.

f. Center the material over the prepared hole. Pin the patch material in position.

g. Make a ½-inch fold-under on each edge of the patch material, and baste the patch to the prepared area. Basting will be performed using the procedures in the BASTING AND TEMPORARY TACKING paragraph above.

h. Remove the pushpins securing the canopy to the repair table; secure the patch by stitching, using the applicable details in the STITCHING AND RESTITCHING paragraph and figure detailed above. Make the first row of stitching completely around the patch. Turn the item over and make a second row of stitching around the prepared hole. Stitching will be performed in accordance with the STITCHING AND RESTITCHING paragraph detailed above.

i. If applicable, restencil informational data according to procedures in WP 0014 00.

Applying a miscellaneous patch. A miscellaneous patch, which may be irregularly shaped, is used to repair damaged material when the location of the damaged area requires the patch to extend into (or over) a seam or reinforcement. Ascertain the type of patch required for the item, using the details in illustrations (A through I) following the patch procedures detailed below. Apply a miscellaneous patch as follows:

NOTE

A section that cannot be patched with a basic patch, as outlined in paragraph 2. above, will be patched with a miscellaneous patch.

1. Place the item on a repair table; smooth the fabric around the damaged area, and secure the damaged area to the table with pushpins. Do not pin the damaged area.

2. As required, cut the applicable stitching to remove or lay aside items that may interfere with the patching process.

3. Using an authorized marking aid of contrasting color, mark a rectangle or triangle around the damaged area. Make the mark ½-inch from any adjacent seam or reinforcement.

4. Prepare the damaged area by cutting along the marks made in c. above. Also make a diagonal cut at each corner of the formed hole to permit a foldback of each raw edge.

5. To complete hole preparation, make a ½-inch foldback of each raw edge. Pin and baste each edge foldback; use the procedures in the BASTING AND TEMPORARY TACKING paragraph detailed above.

6. Using the same type of material as in the original construction, mark and cut a patch 2 ½-inches wider and longer than the inside measurements of the prepared hole.

7. Center the patch material over the prepared hole. Pin the patch material in position.

8. Make a ½-inch fold-under on each edge of the patch material and baste the patch to the prepared area. Basting will be performed using the procedures in the BASTING AND TEMPORARY TACKING paragraph detailed above.

9. Remove the pushpins securing the item to the repair table and secure the patch by stitching according to the details in the stitching specifics outlined in Tables 1 and 2.

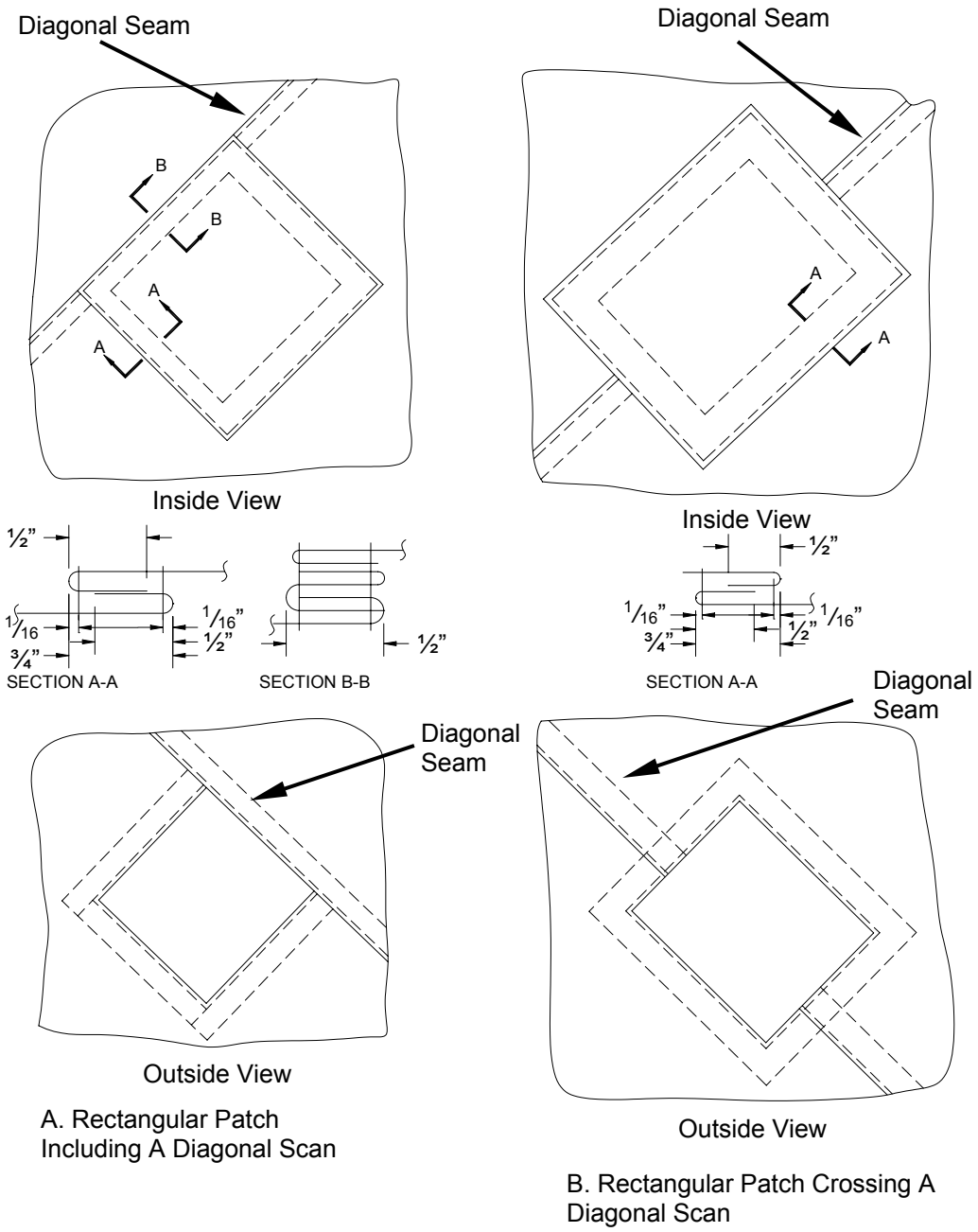
10. Make the first row of stitching completely around the edges of the patch. Turn the item right-side-out (or vice versa) and make a second row of stitching around the edges of the prepared hole. Stitching will be performed in accordance with the STITCHING AND RESTITCHING paragraph detailed above.

11. Reposition the items removed or laid aside in step b., above, in the original location and secure each item by restitching according to original construction details and the STITCHING AND RESTITCHING paragraph detailed above

12. If applicable, restencil informational data according to procedures in WP 0014 00.

NOTE

If the outside of a seam is damaged, cut away the seam in the damaged area and patch as a basic patch.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

GROMMETS
REPAIR, RESEAT, REPLACE

INITIAL SETUP:

Tools
Canvas repair kit (WP 0031 00, Table 2, Item 2)
Diagonal pliers (WP 0031 00, Table 2, Item 4)
Double bow cutter (WP 0031 00, Table 2, Item 5)
Lead, Pig (WP 0031 00, Table 2, Item 10)
Press, hand operated (WP 0031 00, Table 2, Item 14)
Punch and die for 0-grommets (WP 0031 00, Table 2, Item 15)
Rawhide mallet (WP 0031 00, Table 2, Item 16)
Single bow cutter (WP 0031 00, Table 2, Item 29)

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Cloth, Abrasive (WP 0044 00, Table 1, Item 10)

Equipment Condition
N/A

GENERAL
Replacement of grommets. A grommet is a two-piece metal eyelet used to reinforce and protect textile material at a point where a hole has been made to permit the threading of a line, chord, webbing or the insertion of a retainer device. The three types of grommets used on air-drop equipment are the flat, plain, and spur, each of which is installed with an applicable type washer. Repair or replace a defective grommet using the following procedures, as appropriate.

REPAIR
Remove burrs, rough spots, rust, or corrosion from an installed grommet by filing with a metal file or by buffing with a crocus cloth.

RESEAT
Reseat a loose grommet by using the applicable procedures described under grommet replacement.

REPLACE
A grommet which is damaged or cannot be reseated will be replaced with a serviceable grommet and washer of the same size and type from stock and the following procedures, as applicable:

1. Original grommet removal. Using a suitable type tool, lift the edge of the original washer at one point.

2. Grip the lifted washer edge with diagonal nippers and roll the washer edge back to lift the washer from the original grommet. Remove the original grommet from the material.

3. If the fabric area around the original grommet has been damaged, repair the area by darning WP 0016 00. However, if darning does not provide and adequate repair, construct a suitable sized reinforcement of the same type material as that used in the original grommet location. Secure the reinforcement to the inside of the damaged area using the patching procedures in WP 0014 00.

4. Using a single or double bow cutter that is compatible with the size of the replacement grommet, a lead cutter block, and a rawhide mallet or other non-steel impact device, cut a hole in the repaired fabric area to accommodate the barrel of the replacement grommet. Ensure the hole is cut with a slightly smaller diameter than the diameter of the barrel of the replacement grommet.

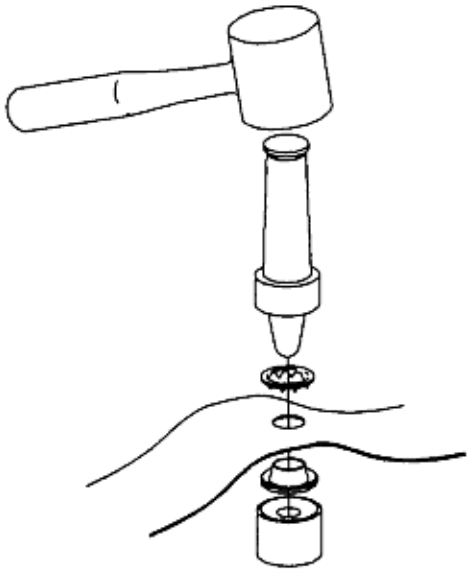
5. Install a plain or spur grommet by the hand-held method which requires the use of a suitable sized punch and die, and a rawhide mallet or other non-steel impact device. A flat grommet should also be installed using the hand-held method, but may be installed using a hand- or foot-operated press and a suitable size chuck and die.

CAUTION

Tools used to install a grommet will be compatible with the size and type of grommet.

6. Insert the barrel of the replacement grommet through the accommodating hole in the material and insure the grommet flange is located on the same side of the material as the original grommet.

7. Position the grommet on a suitable sized die with the barrel facing up and place the applicable washer over the grommet barrel.



NOTE

When installing a flat grommet by the hand-held method, Ensure the grommet barrel and washer are aligned to preclude off-center setting of the grommet.

8. Using a suitable sized punch and a rawhide mallet or other non-steel impact device, spread the grommet barrel by hammering as shown until the barrel collar is rolled down smooth on the washer. If the grommet barrel splits during the hammering process, remove and replace the installed grommet with a serviceable item from stock, subsequently repeating the procedures in 6. and 7. above.

9. Check the seating of the grommet, and if the grommet can be turned by hand, repeat the procedure in step 8. above until the grommet is firmly seated.

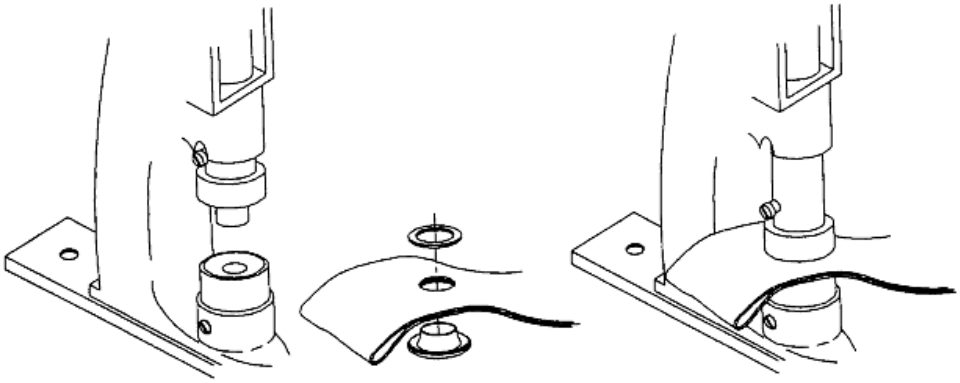
10. To install a flat grommet by hand-operated press install a suitable sized chuck and die on a hand or foot operated press. Secure the chuck and die in place using the available locking screws and a suitable sized key (Allen type hexagon wrench.)

11. Insert the barrel of the replacement grommet through the accommodating hole in the material as shown. Insure the flange of the replacement grommet is on the same side of the material as the original.

12. Position the grommet on the installed die with the barrel facing up and place the replacement washer over the grommet barrel.

13. Depress the press handle or foot pedal and spread the grommet barrel until the collar of the barrel is rolled down smoothly on the washer.

14. Check the grommet for a firm seating. If the grommet can be turned by hand, repeat the procedure above (step 13.) until a firm seating of the grommet is achieved.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

HELMET, FREE FALL PARACHUTISTS, TYPE I
INSPECT, REPAIR, REPLACE

INITIAL SETUP:

Tools

Key, Socket Head Set (WP 0031 00, Table 2, Item 7)
Needle, tacking (WP 0031 00, Table 2, Item 11)
Screwdriver, flat tip (WP 0031 00, Table 2, Item 18)
Sewing machine, light duty (WP 0031 00, Table 2, Item 20)

Personnel Required

92R(10) Parachute Rigger

Materials/Parts

Thread, cotton, Ticket 8/7 Natural (WP 0044 00, Table 1, Item 39)
Thread, nylon, Size E, OD (WP 0044 00, Table 1, Item 42)

Equipment Condition

Helmet should be cleaned before performing maintenance procedures.

INSPECT

Perform inspection of helmet, parachutist's in accordance with WP 0006 00 and WP 0008 00.

REPAIR

1. **Restitching.** Restitch loose, broken, or missing edge stitching in accordance with WP 0016 00, and original construction details.

2. **Replace Ear Cushion**. Replace or repair loose ear cushion as follows:

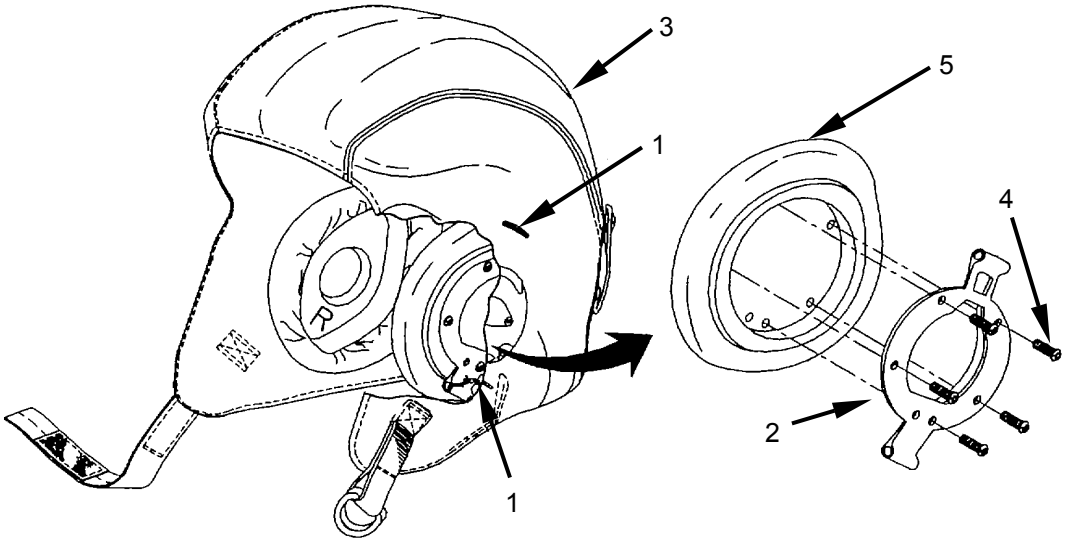
   a. Cut tacking **(1)** that secures bracket **(2)** to helmet **(3)** and remove bracket **(2)** from helmet **(3)**.

   b. Remove five screws (4) securing ear cushion (5) to bracket (2).

   c. Gently pry unserviceable ear cushion (5) from bracket (2).

   d. Install five screws (4) to secure a serviceable ear cushion (5) to bracket (2).

   e. Tack bracket (2) to helmet (3) using doubled cotton tacking (1) in two places.



REPLACE

Replace unserviceable helmet, free-fall parachutist's, type I with a serviceable one from stock.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

HELMET, FREE-FALL PARACHUTISTS, TYPE II ONLY INSPECT, REPAIR, REPLACE

INITIAL SETUP:

Tools

Key, Socket Head Set (WP 0031 00, Table 2, Item 7)
Knife (WP 0031 00, Table 2, Item 8)
Needle, tacking (WP 0031 00, Table 2, Item 11)
Screwdriver, cross tip (WP 0031 00, Table 2, Item 19)
Screwdriver, flat tip (WP 0031 00, Table 2, Item 18)
Sewing machine, light duty (WP 0031 00, Table 2, Item 20)

Personnel Required

92R(10) Parachute Rigger

Materials/Parts

Thread, nylon, size E, OD (WP 0044 00, Table 1, Item 42)

Equipment Condition

Helmet should be cleaned before performing maintenance procedures.

INSPECT

Perform inspection of helmet, parachutist's in accordance with WP 0006 and WP 0008 00.

REPAIR

1. **Restitching.** Restitch loose, broken, or missing edge stitching in accordance with WP 0014 00, and original construction details.

2. **Replace Ear Cushion.** Replace or repair loose ear cushion in accordance with WP 0016 00.

3. **Replace Earphone.** Replace unserviceable earphone as follows:

   a. Cut tacking **(1)** that secures bracket **(2)** to helmet **(3)** and remove bracket **(2)** from helmet **(3)**.

   b. Remove five screws **(4)** securing ear cushion **(5)** to bracket **(2)**.

   c. Gently pry unserviceable ear cushion **(5)** from bracket **(2)**.

   d. Lift unserviceable earphone **(6)** from ear cushion.

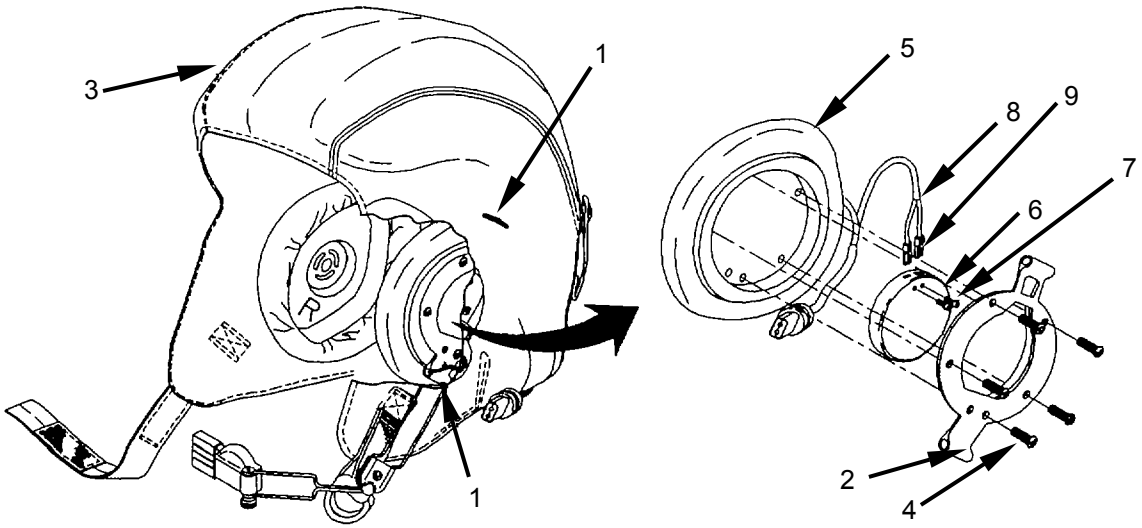
   e. Loosen two set screws **(7)** which secure wires **(8)** to earphone **(6)** and pull wires **(8)** with terminals **(9)** from earphone **(6)**.

   f. Insert wires **(8)** and terminals **(9)** into serviceable earphone **(6)** and tighten set screws **(7)**.

   g. Place earphone **(6)** into ear cushion **(5)** to bracket **(2)**.

   h. Install five screws **(4)** to secure ear cushion **(5)** to bracket **(2)**.

i. Tack bracket (2) to helmet (3) using double cotton tacking (1) in two places.



4. **Replace Earphone Cord.** Replace earphone cord as follows:

a. Remove bracket, ear cushion, and earphone in accordance with steps 3 (a) through (j) above.

b. Obtain an 18-in length of type I nylon cord **(1)** (hereafter referred to as ”attaching cord”) and tie it to end of the earphone connecting cord **(2)** on the right side of the helmet.

c. Pull the connecting cord **(2)** from the helmet **(3)**, using care not to pull running ends of attaching cord **(1)** under the helmet liner.

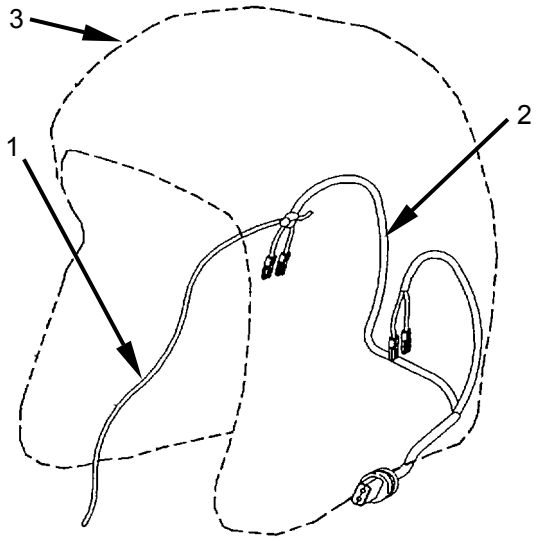
d. Remove the earphone connecting cord **(2)** from the attaching cord **(1)**.

e. Attach serviceable earphone connecting cord **(2)** to attaching cord **(1)**.

f. Pull and work the attaching cord **(1)** with earphone connecting cord **(2)** back between the liner and the helmet **(3)** to the original position.

g. Remove attaching cord **(1)**.

h. Install earphone, ear cushion, and bracket in accordance with steps 3 (f) through 3 (i) above.



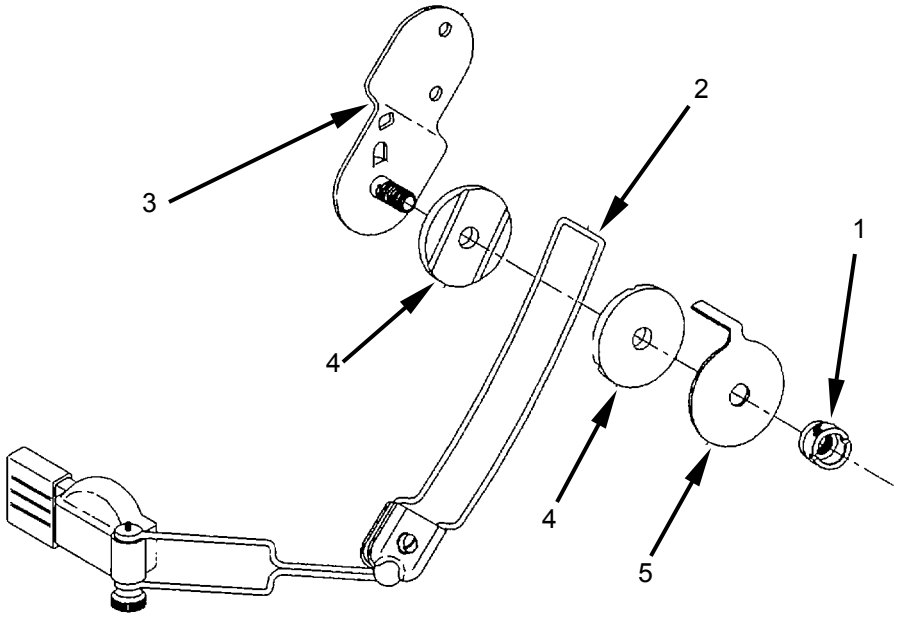
5. **Replace Boom Microphone**. Replace boom microphone as follows:

   a. Loosen and remove knurled nut **(1)** securing boom microphone **(2)** to bracket **(3)**.

   b. Disassemble the bracket **(3)** to remove boom microphone **(2)**.

   c. Position serviceable boom microphone **(2)** between slotted washers **(4)** and install outer plate **(5)**. Ensure boom microphone is aligned with slots in both washers.

   d. Install knurled nut **(1)** onto bracket **(3)** to secure boom microphone **(2)** and hand tighten.



REPLACE

Replace unserviceable helmet, free-fall parachutist's, type II with a serviceable one from stock.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

GOGGLES, SUN, WIND AND DUST
INSPECT, REPLACE

INITIAL SETUP:

Tools
N/A

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
N/A

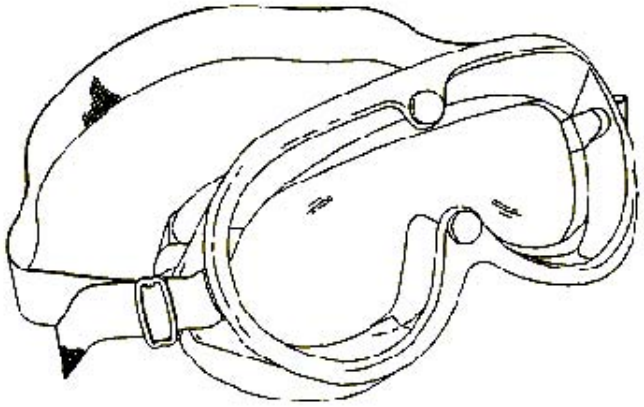
Equipment Condition
N/A

INSPECT

Inspect goggles in accordance with WP 0006 00 and WP 0008 00.

REPLACE

Replace unserviceable goggles with a serviceable pair from stock.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

ALTIMETER
INSPECT, TEST, SERVICE, REPAIR, REPLACE

INITIAL SETUP:

Tools
Screwdriver, cross tip (WP 0031 00, Table 2, Item 19)
Sewing Machine, light duty (WP 0031 00, Table 2, Item 20)
Shears (WP 0031 00, Table 2, Item 28)

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Battery, Nickel-Cadmium, (WP 0044 00, Table 1, Item 5)
Fastener tape, hook (WP 0044 00, Table 1, Item 20)
Fastener tape, pile (WP 0044 00, Table 1, Item 23)
Pen, Ball Point (WP 0044 00, Table 1, Item 31)
Tape, masking (WP 0044 00, Table 1, Item 37)
Thread, nylon, size E, OD (WP 0044 00, Table 1, Item 42)

Equipment Condition
N/A

INSPECT

Inspect altimeter in accordance with WP 0006 00.

TEST

1. Functional Test. Free-fall parachutist's pressure altimeter shall be tested every 90 days, or whenever accuracy is doubtful.

   a. Set the master altimeter in the vacuum test chamber at 29.92 inches.

   b. Observe the indicated altitude on the master altimeter in the test chamber and set the test altimeter at the same altitude.

   c. Place the test altimeter in the test chamber in a manner that will allow test altimeter and master altimeter to be observed simultaneously.

   d. Close the chamber and evacuate to an altitude of 30,000 feet. As the chamber is evacuated, check the test altimeter against the master altimeter at indicated altitudes of 2500, 5000, 10,000, 15,000, and 30,000 feet. When compared to the master altimeter the test altimeter should read within the tolerances for the cited altitudes listed in Table 1. The altimeter shall remain at each altitude for not less than one minute before the reading is taken.

NOTE

When reducing altitude in the test chamber, tap the master altimeter lightly with finger tips frequently to prevent lag.

e. Stop the chamber at 30,000 feet and allow the test altimeter to be equilibrated. Reduce altitude at a rate of 180 to 250 feet per second and observe both altimeters. The test altimeter should read within the tolerances for the cited altitudes as listed in Table 1.

f. If the test altimeter does not meet the requirements indicated in steps d and e above, it is considered unserviceable and shall be replaced.

g. If the test altimeter satisfactorily meets the requirements the altimeter is serviceable for use.

h. Place a suitable length of pressure-sensitive tape (masking tape) in an accessible location on the test altimeter which will permit the tape to be observed while the altimeter is in use. Calculate next test due by advancing today's date by 90 days. Record next test due date (day, month, year) and the last name of the individual performing the test. Tape marking will be made with a suitable type marking device.

TABLE 1. ALTIMETER TOLERANCES FOR ALTITUDE TEST CHAMBER.

Master Altimeter Altitude Reading (Feet)	Test Altimeter Acceptable Tolerance (Feet)
2500	+/- 300
5000	+/- 350
10,000	+/- 400
15,000	+/- 400
20,000	+/- 400
30,000	+/- 500

SERVICE

1. **Cleaning.** Clean by wiping frame and lens with a clean, soft, dry cloth.

2. **Replace Battery**.

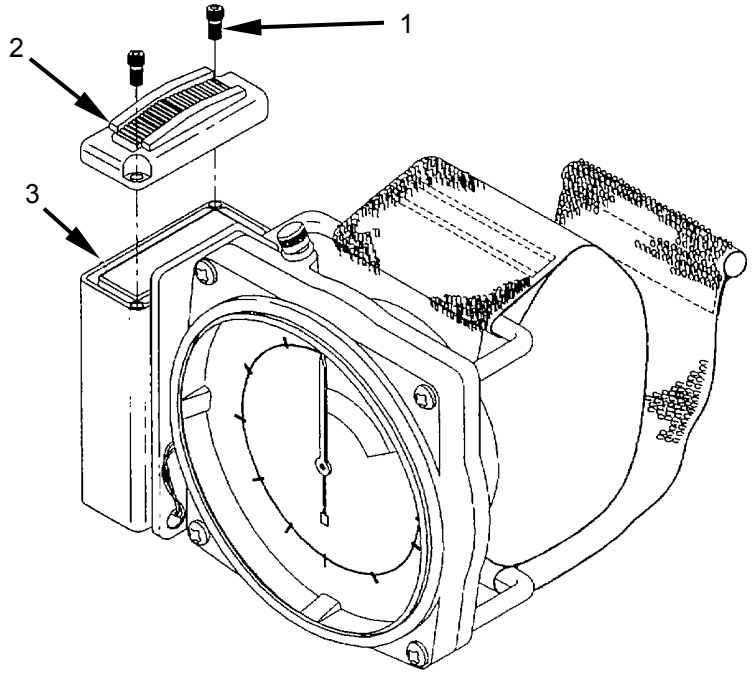
NOTE

Ni-Cad cells self-discharge 1% per day at 20^0C (68^0F) and 10% per day at 45^0C (113^0F). For reliable operation, charge battery before use.

a. Remove two set screws **(1)** and remove switch assembly **(2)**.

b. Replace battery **(3)** with a serviceable and fully charged one.

c. Install switch assembly **(2)** and two set screws **(1)**.



REPAIR

1. **Repair Wriststrap**. Repair broken stitching by restitching with thread, Nylon in accordance with WP 0014 00, Table 2, and original construction details.

2. **Replace Wriststrap**. Replace unserviceable wriststrap as follows:

   a. Remove four screws **(1)** on face of altimeter **(2)** and remove handles **(3)** holding wriststrap **(4)**.

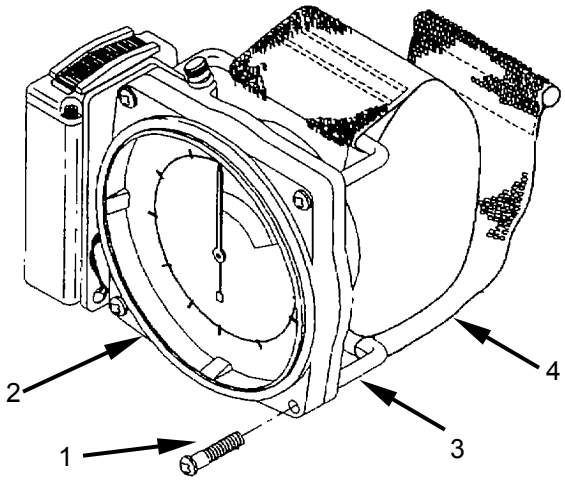
   b. Slip unserviceable wriststrap **(4)** off handles **(3)**.

   c. Make a new wriststrap in accordance with WP 0045 00 Illustrated List of Manufactured Items.

   d. Slip serviceable wriststrap **(4)** onto handles **(3)** of altimeter **(2)**.

REPLACE

Slip serviceable wriststrap **(4)** onto handles **(3)** of altimeter **(2)**.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

SLING ASSEMBLY, EQUIPMENT ATTACHING INSPECT, REPAIR, REPLACE

INITIAL SETUP:

Tools
Sewing Machine, Heavy Duty (WP 0031 00, Table 2, Item 24)

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Thread, Nylon, size 3, OD (WP 0044 00, Table 1 Item 40)
Webbing, Textile, type XIII, OD (WP 0044 00, Table 1, Item 50)

Equipment Condition
N/A

INSPECT

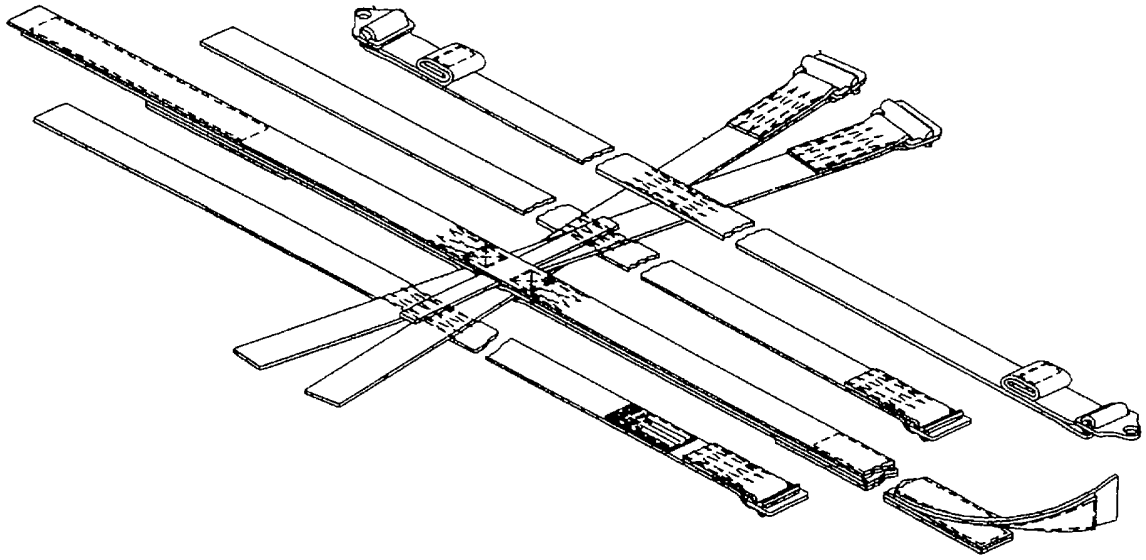
Inspect sling assembly in accordance with WP 0006 00 and WP 0008 00.

REPAIR

Repair sling assembly in accordance with WP 0014 00, Table 2, and original construction details.

REPLACE

Replace unserviceable equipment attaching sling with a serviceable one from stock.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

LINE, EQUIPMENT LOWERING
INSPECT, REPAIR, REBUILD, REPLACE

INITIAL SETUP:

Tools
Knife (WP 0031 00, Table 2, Item 8)
Sewing machine, heavy duty (WP 0031 00, Table 2, Item 24)
Sewing machine, medium duty (WP 0031 00, Table 2, Item 25)

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Brush, stenciling (WP 0044 00, Table 1, Item 8)
Fastener tape, hook (WP 0044 00, Table 1, Item 20)
Fastener tape, pile (WP 0044 00, Table 1, Item 23)
Ink, marking (WP 0044 00, Table 1, Item 25)
Pen, ballpoint (WP 0044 00, Table 1, Item 31)
Stencilboard, oiled (WP 0044 00, Table 1, Item 35)
Thread, nylon size 3 (WP 0044 00, Table 1, Item 40)

Equipment Condition
N/A

INSPECT

Inspect lowering line in accordance with WP 0006 00 and WP 0008 00.

REBUILD

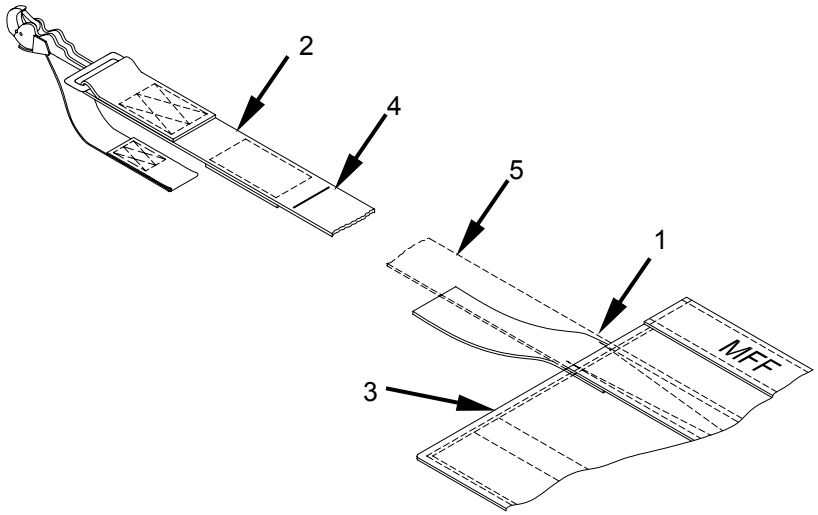
NOTE

This function describes modification of a 15-ft lowering line into an 8-ft lowering line for Military Free-Fall use.

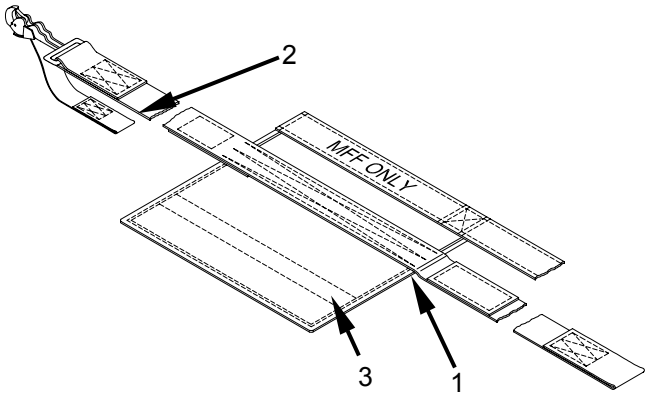
1. Obtain a serviceable 15-ft. lowering line.
2. Modify as follows:
   a. Place one mark **(1)** on lowering line **(2)** at edge of retainer/stow flap **(3)**.
   b. Place a second mark **(4)** 72-in. away from first mark **(1)**.
   c. Carefully cut lowering line **(2)** at marks **(1)** and **(4)** and discard removed section of webbing **(5)**.
   d. Sear both cut ends of lowering line **(2)** at **(1)** and **(4)**.

e. Position cut edge **(1)** of lowering line **(2)** on retainer/stow flap **(3)**, aligning it with right edge of retainer/stow flap **(3)**. Ensure that pile tab on cut lowering line section is facing down directly over existing portion of lowering line.

f. Secure cut lowering line section **(2)** to retainer/stow flap by stitching with three point WW stitch pattern.



3. **Marking New Lowering Line**. Mark outside of retainer/stow flap with a one inch stencil and black ink with the letters “MFF ONLY”.



REPAIR

1. Repair Lowering Line. Repair lowering line in accordance WP 0014 00 and original construction details.

2. **Replace Hook/Pile Fastener Tape on Retainer/Stow Flap**.

   a. Remove unserviceable hook fastener tape **(1)** and/or pile fastener tape **(2)**, as required.

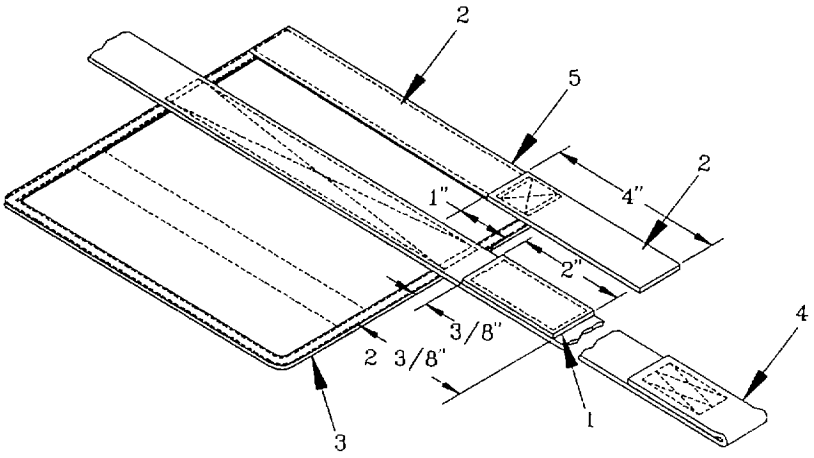
   b. Cut a 2-inch length of hook fastener tape **(1)** or a 4-inch length of pile fastener tape **(2)** as required.

   c. Place a mark 3/8-inch from retainer binding **(3)** on folded loop end of lowering line **(4)**.

   d. With hook side facing up, align 2-inch hook fastener tape **(1)** with 3/8-inch marking, and stitch with a single box stitch.

   e. Place a mark 1-inch from the binding edge **(5)** on pile flap retainer **(6)** at folded loop end of lowering line **(4)**.

   f. With pile side facing up, position edge of 4-inch pile fastener tape **(2)** on 1-inch marking with other end extending over binding edge **(5)**. Stitch to pile flap retainer **(6)** with a single x-box stitch.



REPLACE

Replace unserviceable equipment line with a serviceable one from stock.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

RELEASE ASSEMBLY, RIPCORD, AUTOMATIC, TYPE FF-2
SERVICE, TEST, INSTALL, ADJUST, REPAIR, REPLACE, OVERHAUL, INSPECT

INITIAL SETUP:

Tools
- Awl (WP 0031 00, Table 2, Item 1)
- Penlight (WP 0031 00, Table 2, Item 12)
- Reset key (WP 0031 00, Table 2, Item 17)
- Screw driver, flat tip (WP 0031 00, Table 2, Item 18)
- Stirrup cocking tool (WP 0031 00, Table 2, Item 31)
- Stopwatch, ten-second sweep (WP 0031 00, Table 2, Item 32)
- Test arming pin (WP 0031 00, Table 2, Item 33)
- Test Chamber (WP 0031 00, Table 2, Item 34)
- Test Scale (WP 0031 00, Table 2, Item 36)
- Tool kit, FF-2 (WP 0031 00, Table 2, Item 6)
- Torque Driver (WP 0031 00, Table 2, Item 38)

Materials/Parts
- Arming pin assembly (WP 0044 00, Table 1, Item 3)
- Cyanoacrylate Instant Cure Adhesive (WP 0044 00, Table 1, Item 15)
- Lanyard (Type I Nylon Cord) (WP 0044 00, Table 1, Item 12)
- Methyl Ethyl Ketone (WP 0044 00, Table 1, Item 30)
- Sealant, 20/20 or eq. (WP 0044 00, Table 1, Item 33)

Personnel Required
- 92R(10) Parachute Rigger

SERVICE

Reset

Check to see that reset indicator bar **(1)** is aligned with reset indicator mark **(2)** in reset indicator window **(3)**. If not aligned, then FF-2 Release must be reset. Proceed as follows:

1. Remove reset access port plug screw **(4)** from the reset access port **(5)** located on rear FF-2 release.

NOTE

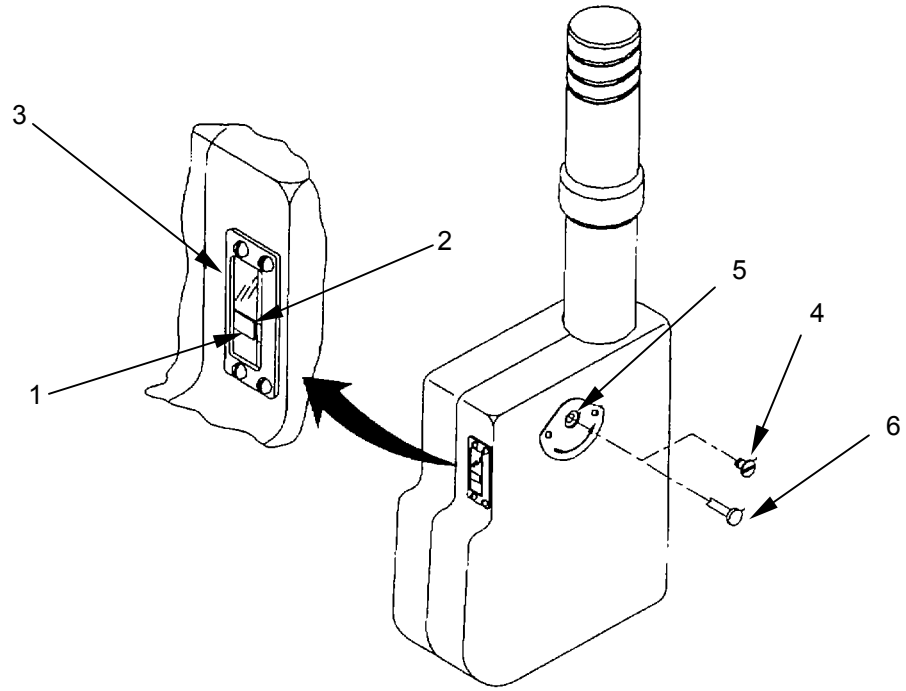
Attempting to reset an FF-2 release shall be limited to six attempts. If the FF-2 release fails to reset by the sixth attempt, the FF-2 release shall be considered unserviceable.

Turning of the reset key should result in an audible resetting of the FF-2 release mechanism and alignment of reset indicator bar with reset indicator mark in reset indicator window.

2. Insert reset key (6) into reset access port (5). Depress and turn reset key (6) one half turn counterclockwise, then remove reset key (6).

3. Listen and look to ensure that FF-2 Release has been reset. If FF-2 Release has not been reset, repeat attempt to reset up to five more times. If FF-2 Release does not reset by the sixth attempt, consider it unserviceable and remove it from service.

4. Reinstall reset access port plug screw (4) into reset access port (5) on FF-2 Release.



NOTE

FF-2 releases attaining 25 live operations since being placed in service from depot storage or previous cleaning of 365 days of service will be considered unserviceable even if they pass all functional tests. Unserviceable FF-2 releases will be serviced in accordance with these procedures.

FF-2 releases attaining 200 live operations or four years of service from depot storage will be evacuated for overhaul by manufacturer.

5. Initiate DA Form 2404 or locally approved form.

Record Forms

Irvin HITE-FINDER FF-2 Release
Field Service Worksheet

Unit: _____ Serial Number: _____

Time Interval Tests:

1st: _____ 2nd: _____ 3rd: _____
Before During After

Operating Height Test

Millibar Setting: _____ Activation Altitude: _____

(Circle one) Serviceable Unserviceable

Inspector:

Date:

NOTE: Make two copies of this form. One copy will go to servicing unit, the other stays at DS/GS maintenance facility.

Remarks:

Sample Locally Approved Form

INSPECT/TEST

Exterior Inspection.

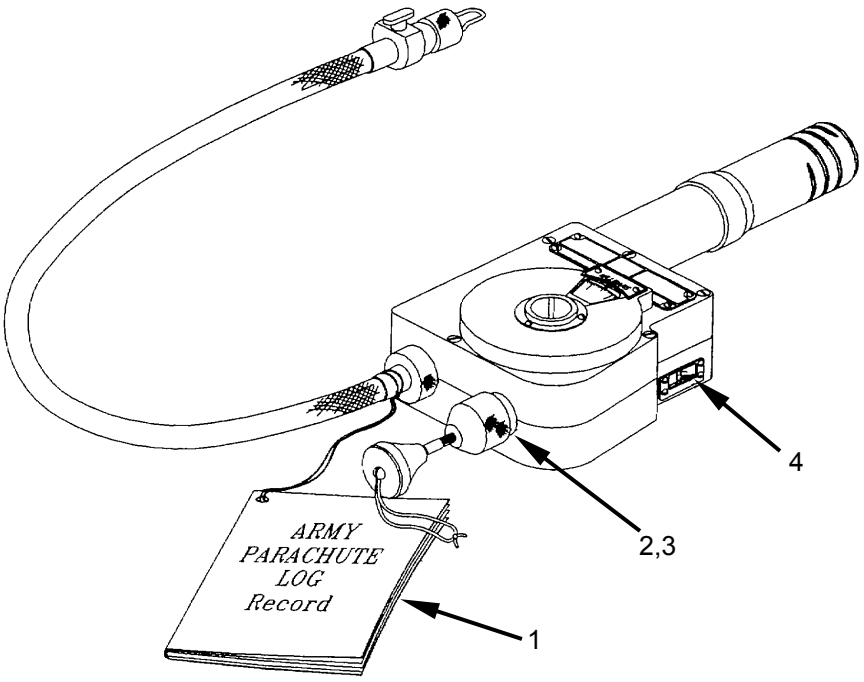
1. Inspect Log Record (DA Form 3912) entries **(1)** pertaining to accomplishment of initial and subsequent altitude test.

   a. Check the number of live operations since being placed in service from storage or previous servicing.

   b. Check the length of time the FF-2 Release has been in service.

2. Ensure arming pin guide bush **(2)** and arming pin guide bush seal **(3)** are present and serviceable.

3. Inspect for broken reset indicator window **(4)**.



4. Main Spring Test. Perform main spring test as follows:

   a. Ensure millibar setting **(1)** is at 570 m/b.

   b. Ensure that the frangible cap **(2)** is securely tightened on main spring and plunger barrel.

   c. Ensure that FF-2 Release is not loaded. If FF-2 Release is loaded, remove arming pin **(3)** to fire.

   d. Reset FF-2 Release in accordance with RESET function above.

   e. Insert the test arming pin **(4)**.

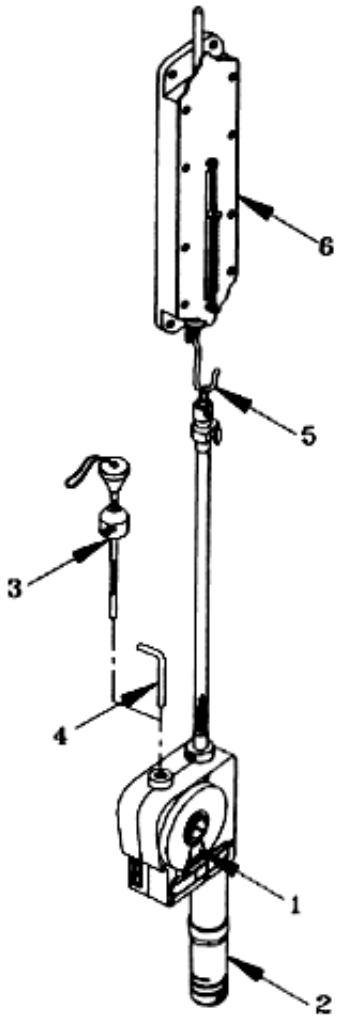
   f. Connect withdrawal hook **(5)** to vertically-mounted test scale **(6)**.

   g. Gradually pull downward tension on the FF-2 Release until test scale indicator disk passes 50 lb mark. Slowly release the tension.

   h. Check to see that the FF-2 Release has not armed itself under the 50 lb load. If it has, FF-2 Release mainspring is unserviceable and must be replaced.

   i. Remove withdrawal hook **(5)** from test scale **(6)**.

   j. Record accomplishment of main spring strength test for a serviceable FF-2 Release by making an appropriate entry on “Organizational, Field and Depot Repair and Inspection Data” page of individual FF-2 Release log record.



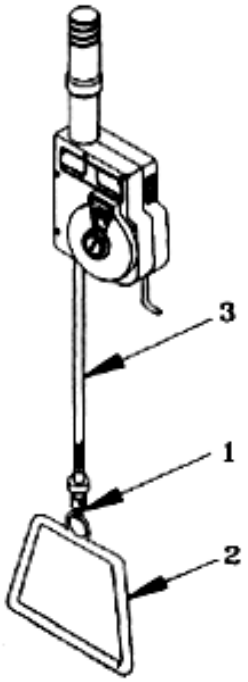
5. Reset FF-2 Release in accordance with RESET function above.

6. Load FF-2 Release using stirrup cocking tool as follows:

   a. Place withdrawal hook **(1)** on stirrup cocking tool **(2)**.

   b. Place one foot in stirrup cocking tool **(2)** and pull FF-2 Release upwards until main spring is compressed, power cable **(3)** is fully extended and has locked into extended position.

   c. Remove withdrawal hook **(1)** from stirrup cocking tool **(2)**.



7. Remove frangible cap **(1)** from main spring and plunger barrel **(2)** and set it aside.

8. Loosen power cable housing knurled nut **(3)**.

9. Push power cable **(4)** toward FF-2 Release until power cable rod is exposed at opening of main spring and plunger housing **(2)**.

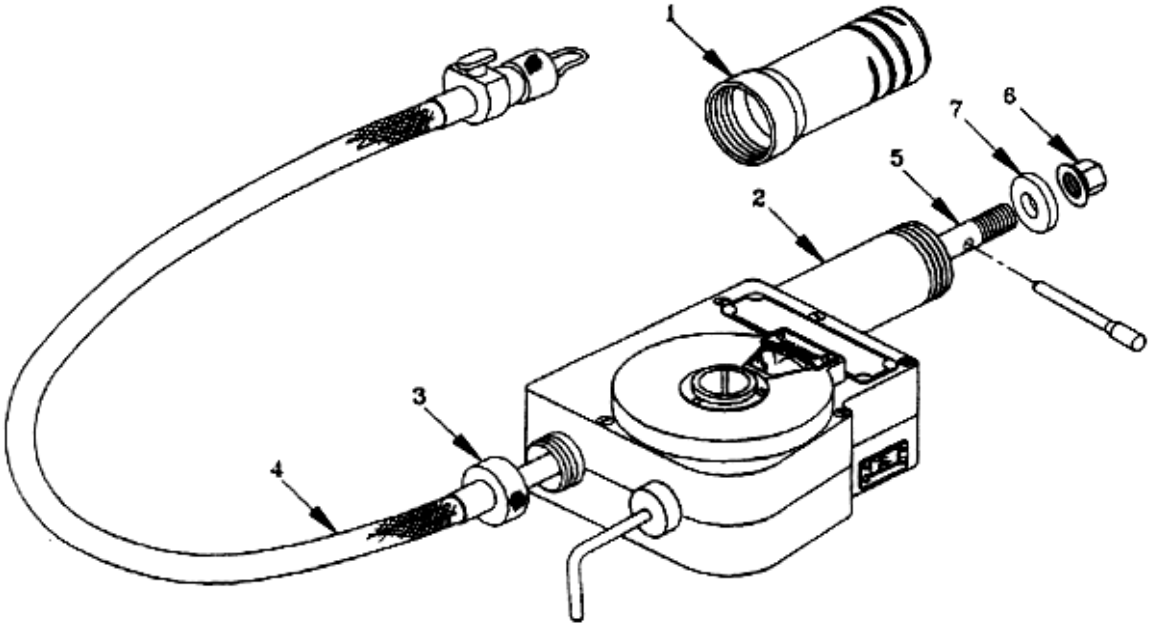
10. Insert awl or special tool through hole on power cable rod **(5)**.

11. While holding awl or special tool and rod power cable **(5)** firmly, remove power cable nut **(6)** and threadless washer **(7)**.

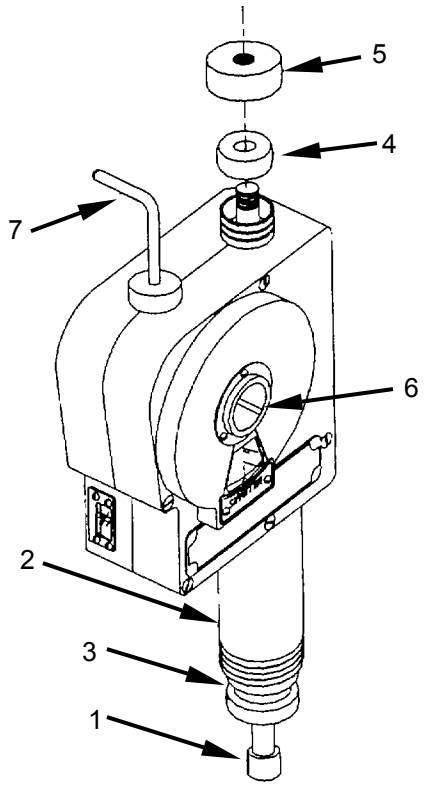
WARNING

Do not remove test arming pin and keep open end of barrel pointed in a safe direction towards ceiling, floor, or safe wall. Removal of test arming pin will release main spring, expelling plunger with sufficient force to cause serious injury to personnel.

12. Carefully remove entire power cable assembly (4) from FF-2 Release (2) and set it aside.



13. Immediately insert safety bar (1) through bottom portion of main spring and plunger barrel (2), plunger (3), and main spring (not visible). Install safety bar pad (4) and safety bar nut (5). Screw safety bar nut (5) finger tight and ensure that it is properly seated.



14. First Time Interval Test.

    a. Ensure that millibar knob **(6)** is set to 570 m/b and test arming pin **(7)** is installed. Reset FF-2 Release in accordance with RESET function above.

    b. Firmly grasp FF-2 Release in one hand so that test arming pin **(7)** faces upwards.

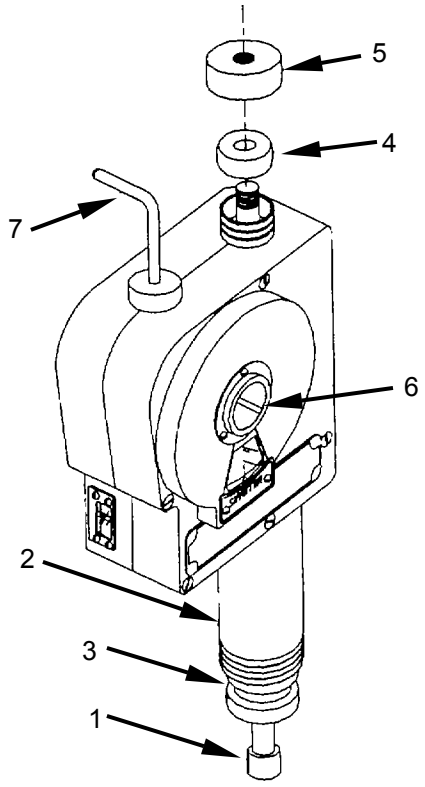
    c. Position a ten-second sweep stopwatch in palm of other hand with thumb directly on plunger and middle finger around short stem of test arming pin **(7)**.

    d. Using a short, quick pull, simultaneously activate FF-2 Release and stopwatch by removing test arming pin **(7)** and at the same time depressing stopwatch plunger.

NOTE

First time test result should be permanently recorded, but does not have to be within tolerance of 5.5 to 6.5 seconds; second and third time test must fall within tolerance, but need not be identical.

    e. When FF-2 Release fires, stop stopwatch and read and record time indicated.



Interior Inspection

NOTE

The FF-2 Release will be disassembled to perform this inspection, any unserviceable components will be replaced during this inspection in accordance with REPAIR function and Maintenance Allocation Chart (WP 0031 00).

1. If loaded, fire FF-2 Release. Ensure that the millibar setting is 570 m/b and safety bar is properly installed. Reset the FF-2 Release and install test arming pin.

2. Inspect Main Spring and Plunger.

   a. Insert plunger loading tool **(1)** metal portion first through the bottom portion of main spring and plunger barrel **(2)**.

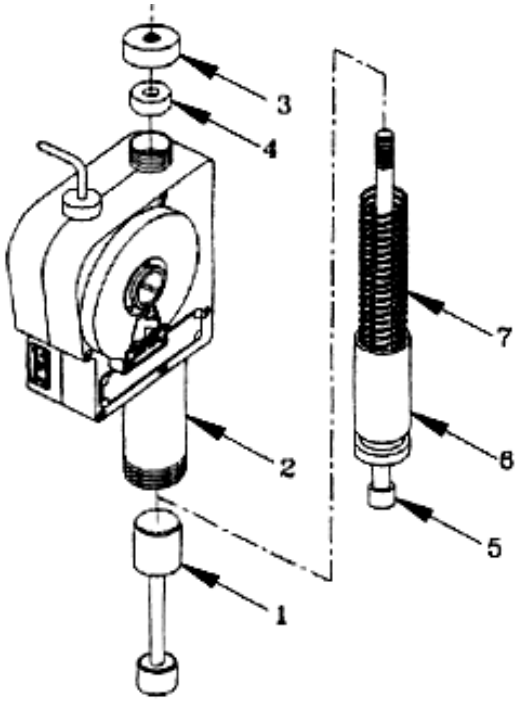
   b. Grasp FF-2 Release firmly and with the rubber end of plunger loading tool **(1)** on work table, apply just enough downward force to relieve tension on safety bar nut **(3)**.

   c. Remove safety bar nut **(3)** and safety bar pad **(4)** and gradually relieve downward force on FF-2 Release.

   d. Slide the plunger loading tool **(1)**, safety bar **(5)**, plunger **(6)**, and main spring **(7)** out of main spring and plunger barrel **(2)**.

   e. Inspect the plunger **(6)** for cracks, corrosion, and unusual scratch marks.

   f. Inspect the main spring **(7)** for unusual distortion, cracks, and corrosion.



3. Inspect inside of barrel.

CAUTION

When using the shotgun type nylon brush, always hold the FF-2 Release mechanism higher than the brush and brush with a clockwise motion. This will prevent debris from entering the mechanism and also prevent the brush from separating from the handle.

a. Using penlight inspect main spring and plunger barrel **(1)** for debris.

b. Remove debris from main spring and plunger barrel **(1)** with shotgun-type nylon brush as required.

4. Inspect FF-2 Release Case Halves.

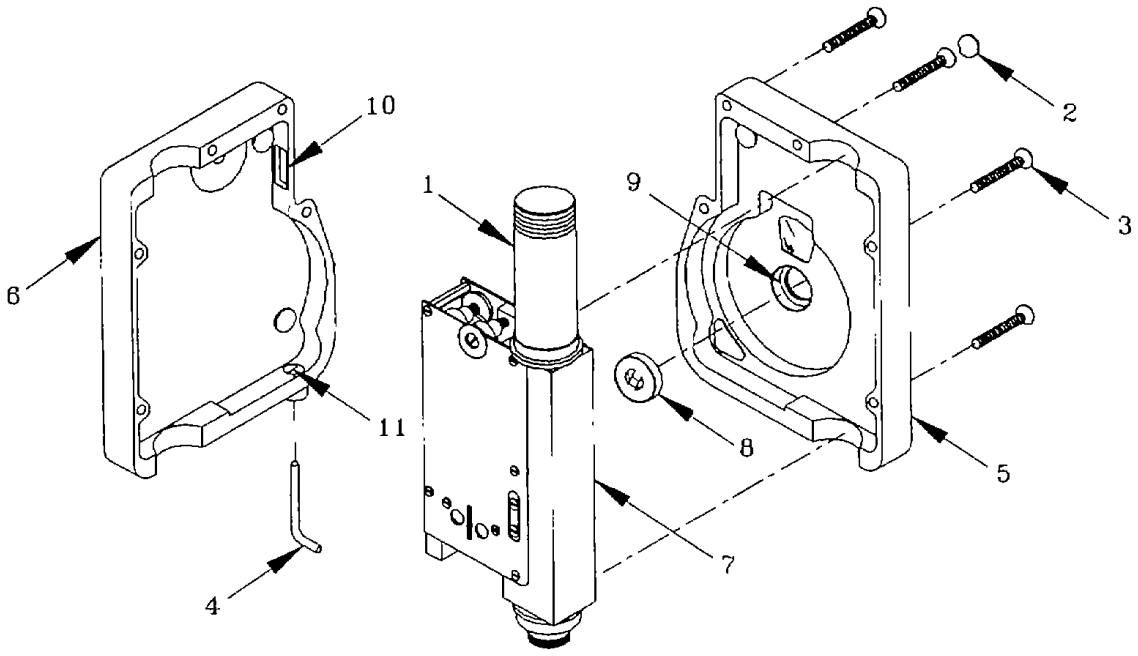
a. Remove sealant **(2)** from bottom center screw on front case half.

b. Remove all seven case screws **(3)** (six front and one rear).

CAUTION

Never permit the firing mechanism to lay on its millibar dial. Damage to mechanism may result.

c. Remove test arming pin (4), separate case halves (5) and (6) and carefully remove firing mechanism (7).



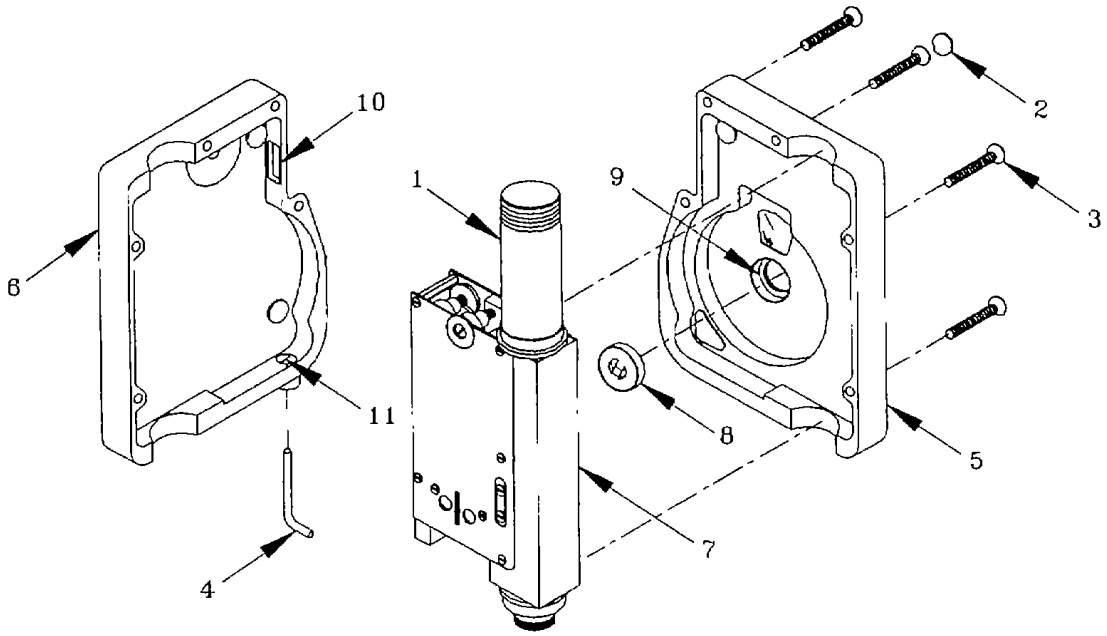
5. Inspect top case half.

   a. There should be one triangular rubber pad and one round rubber pad on inside of top case half **(5)**.

   b. Remove millibar knob **(8)** and ensure that O-ring **(9)** is present and serviceable.

NOTE

Due to the ability of the neoprene rubber bush seal to retain a set position ("memory characteristic"), once the arming pin has been inserted it is virtually impossible for the seal to achieve a total seal after it has been used. If the slit opening is doubtful, it should be replaced.

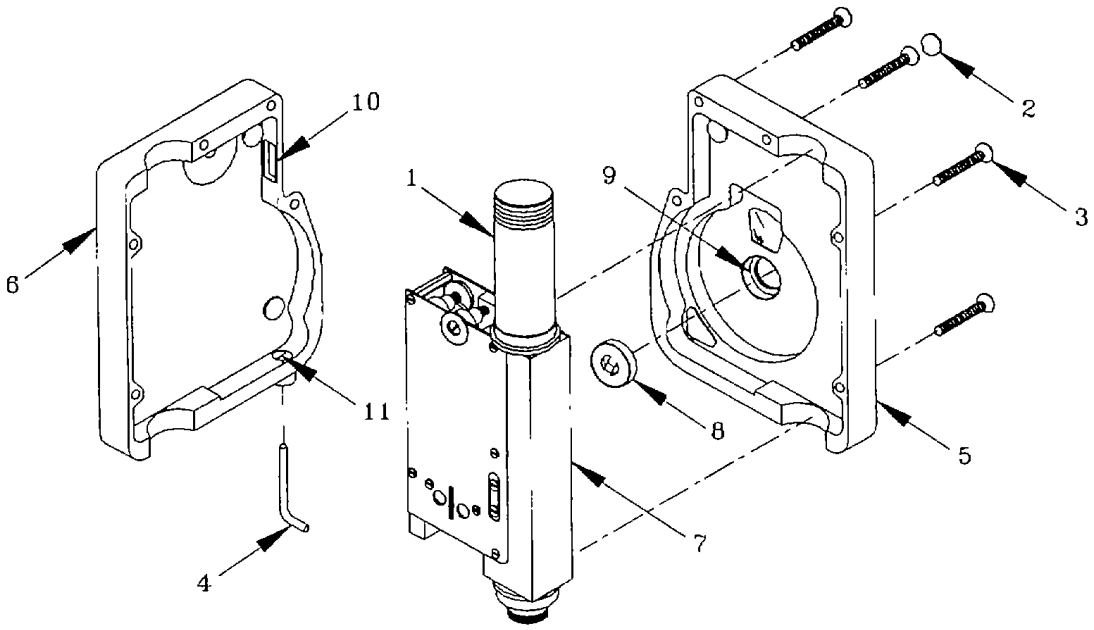


6. Inspect bottom case half.

   a. There should be two round rubber pads on inside of bottom case half **(6)**.

   b. Ensure the reset indicator window **(10)** is present and not broken.

   c. Point bottom case half **(6)** toward a light source to ensure that no light penetrates through arming pin guide bush seal **(11)**.



7. Inspect Firing Mechanism

CAUTION

Never permit the firing mechanism to lay on its millibar dial. Damage to mechanism may result.

NOTE

Change the rubber seal whenever unserviceable or every 25 operations, whichever comes first.

Unused rubber seals must be stored in a sealed plastic bag at all times.

When replacing rubber seals, ensure that flat portion of rubber seal is aligned with flat side of firing mechanism.

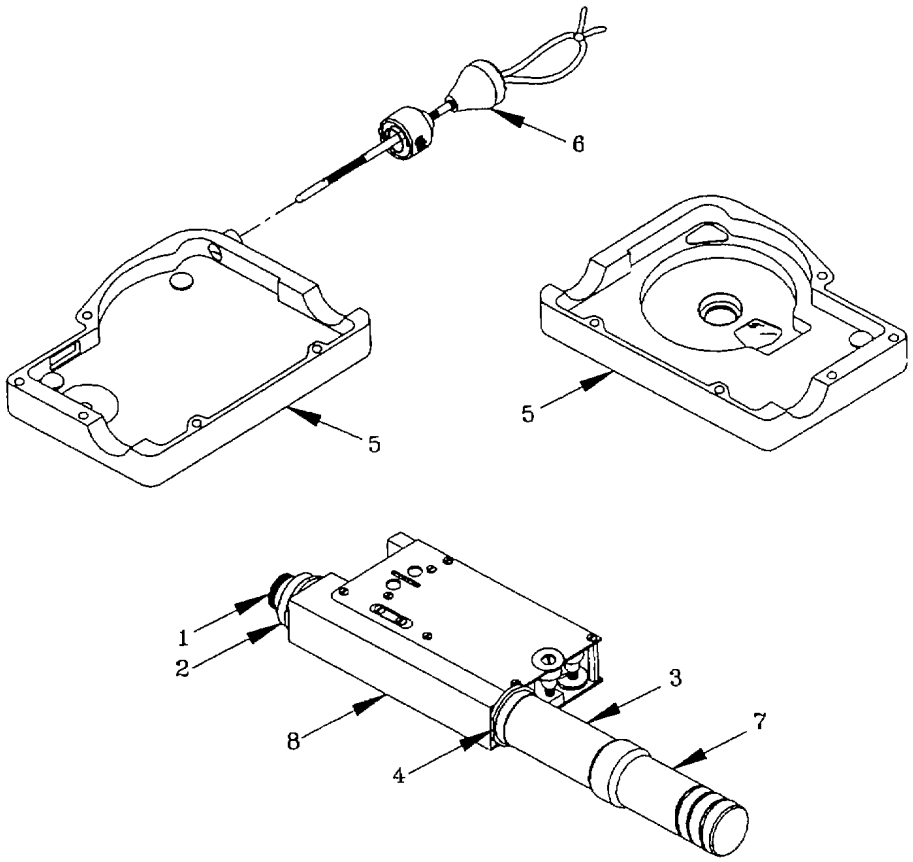
a. Inspect short portion of main spring and plunger barrel (top) **(1)**. Ensure that rubber seal **(2)** is present and serviceable. Replace rubber seal **(2)** if required.

b. Inspect long portion of main spring and plunger barrel (bottom) **(3)**. Ensure that rubber seal **(4)** is present and serviceable. Replace rubber seal **(4)** if required.

8. Clean FF-2 Release.

   a. Clean case halves **(5)**, arming pin assembly **(6)**, and frangible cap **(7)** by brushing with a soft bristle brush or shotgun-type nylon brush and compressed air.

   b. Clean FF-2 Release mechanism **(8)** by blowing with compressed ambient air not exceeding 15 psi. While blowing out FF-2 Release mechanism, keep one long end of main spring and plunger barrel **(3)** lower than the rest of mechanism and always handle with care.



9. Assemble FF-2 Release

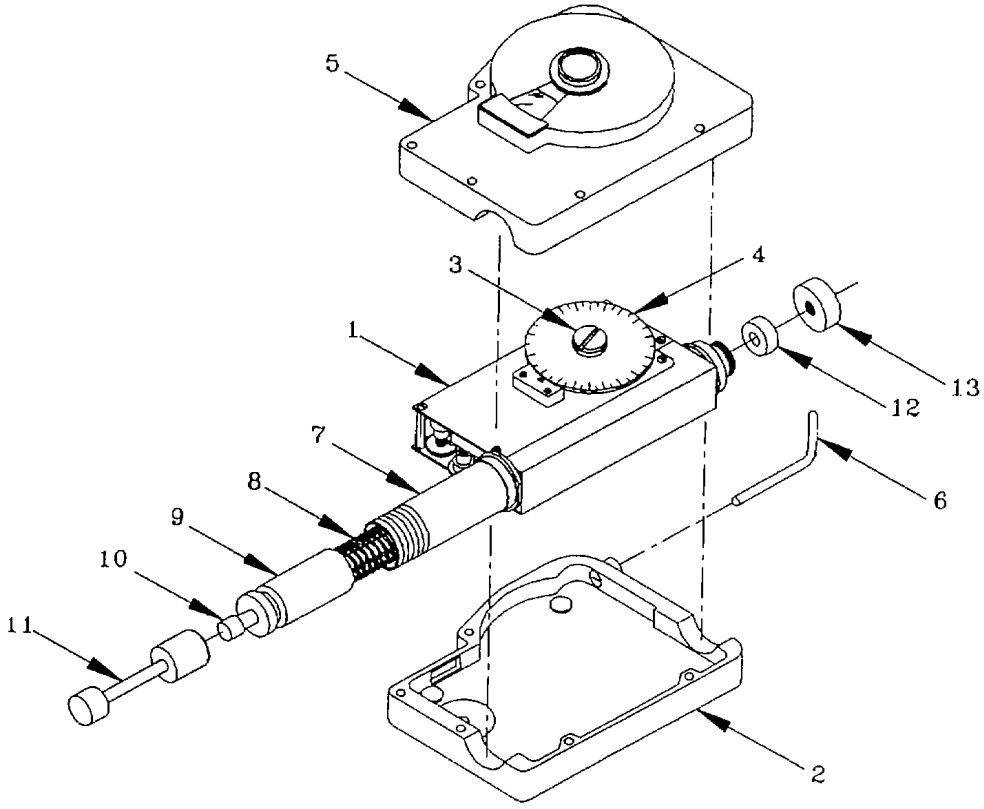
   a. Set firing mechanism **(1)** back in bottom case half **(2)**. Install millibar knob **(3)** on top of millibar dial **(4)** and install top case half **(5)**. Do not install case screws at this time.

   b. Ensure that the millibar setting is 570 m/b. Reset FF-2 Release in accordance with RESET function above.

   c. Install test arming pin **(6)**.

   d. Through bottom portion of main spring and plunger barrel **(7)** insert main spring **(8)**, plunger **(9)**, and safety bar **(10)** threaded end first.

e. Using plunger loading tool (11), load FF-2 Release and install safety bar pad (12) and safety bar nut (13).



10. Second time interval test.

a. Perform a second time interval test. This time, the time check must be within the acceptable time tolerance of 5.5 to 6.5 seconds.

b. If the FF-2 mechanism is not within tolerance, make necessary adjustments as follows:

NOTE

Before loosening timing set screws, ensure that the mechanism is reset, otherwise inconsistent time readings will result. Never completely remove both timing set screws as this will set the holes in the timing block and timing plates out of alignment.

(1) Loosen two timing set screws **(1)**.

(2) Move the timing block **(2)** toward shorter end of barrel **(3)** for a shorter timing setting or toward longer end of barrel **(3)** for a longer time setting.

(3) Tighten set screws **(1)** and repeat second time test.

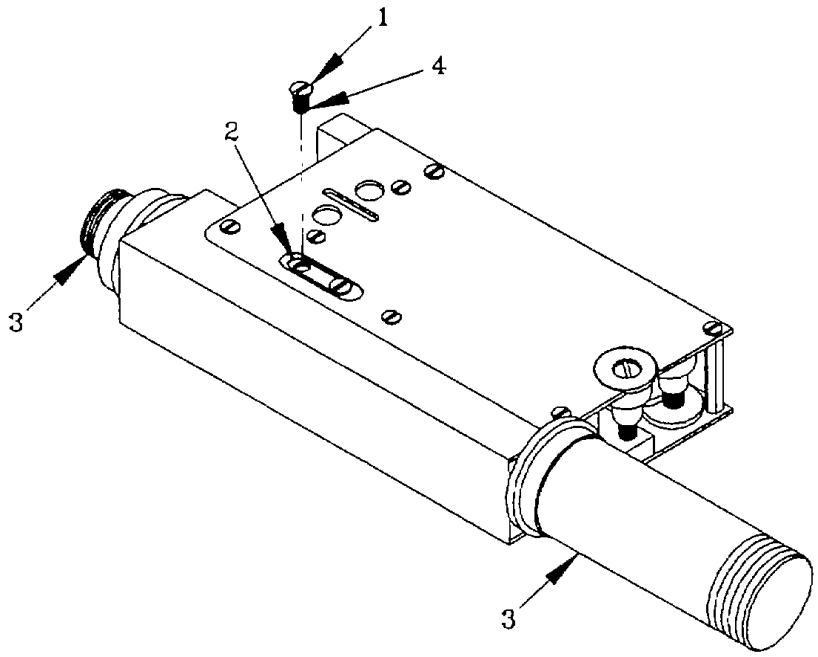
(4) When second time interval test fails within acceptable tolerances, remove one of the old timing screws (1) and install a new one that has received one to two drops of Loctite grade 161 sealant (4) on its tip. Install timing set screw with fingers only.

NOTE

Use only authorized torque screwdriver calibrated within the last 120 days for this function.

(5) Torque new timing set screw to 6 inch-lbs.

(6) Repeat steps 4 and 5 above for other timing set screws (1),



NOTE

Millibar knob should be installed on millibar dial before assembling case halves.

c. Record acceptable second time interval test results in Log Record Book (DA Form 3912) on the "Organizational, Field, and Depot Repair and Inspection Data" page and DA Form 2404 or locally approved form.

d. Replace case halves.

11. Install all case screws so that they are flush with case halves.

12. Check to ensure that millibar setting is 570 m/b. Reset FF-2 release and install test arming pin.

13. Third time interval test.

a. Perform a third time interval testThe third time test must be within acceptable tolerance, but does not necessarily need to be the same value as that of the second time test.

b. If the third time check is not within acceptable tolerance, repeat procedures in step 8 above.

c. Record acceptable third time interval test results in Log Record Book (DA Form 3912) on the "Organizational, Field, and Depot Repair and Inspection Data" page and DA Form 2404 or locally approved form.

Operating Height Test. Perform operating height test as follows:

1. Prepare for operating height test.

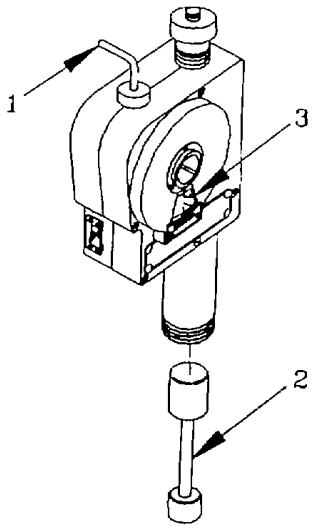
a. Inspect and test automatic ripcord release test set to ensure that it meets serviceability criteria.

b. Reset FF-2 in accordance with RESET function above.

c. Install test arming pin **(1)**.

d. Load FF-2 Release using a plunger loading tool **(2)**.

e. Set FF-2 Release millibar setting **(3)** to desired setting (refer to table, Criteria for Testing FF-2 Release Delay Mechanism).

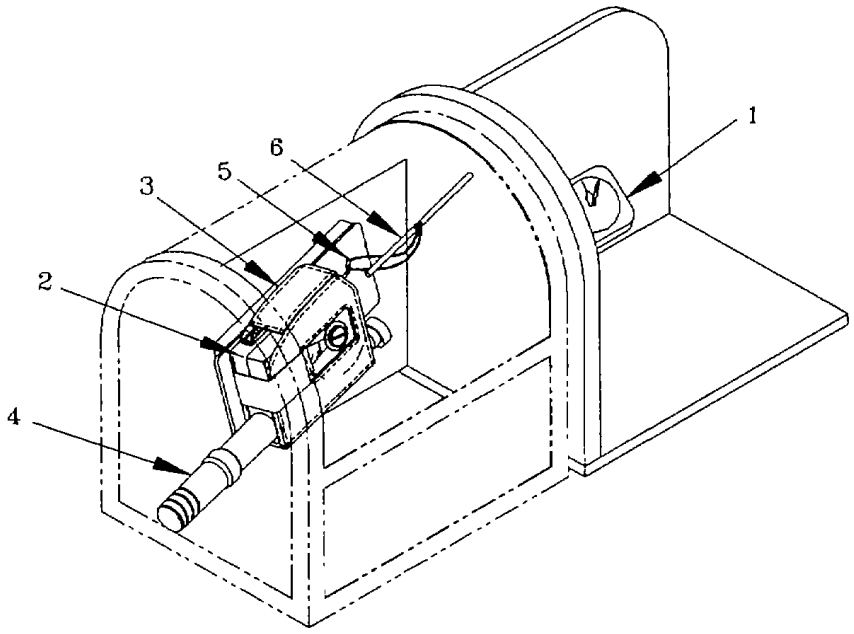


2. Perform operating height test.

a. Set automatic ripcord release test set master altimeter **(1)** to 29.92 inches of mercury (standard barometric pressure at sea level).

b. Install FF-2 Release **(2)** in adaptor plate stowage pocket **(3)**. Ensure that frangible cap **(4)** is installed and that it has been secured with cover retaining strap equipped with hook fastener.

c. Install FF-2 Release **(2)** in test set by attaching adaptor plate **(3)** to center attachment plate with locking bars on center plate. Attach test arming pin **(5)** to arming withdrawal rod **(6)**.



WARNING

Position shield over glass bell jar prior to operating test set. Failure to do so may result in serious injury to personnel.

Premature withdrawal of test arming pin prior to reaching 2500 feet of altitude will result in an inaccurate time delay and opening altitude.

After calculating FF-2 Release opening altitude, minimum arming altitude (opening altitude plus 2500 feet) should be ascertained. It is imperative that all concerned parachutists and aircrew members be aware of minimum arming altitude.

d. Close chamber and evacuate to an altitude above FF-2 Release arming pin withdrawal altitude that corresponds to millibar setting. Withdraw test arming pin prior to descending to prescribed withdrawal altitude. (Allow chamber to stabilize).

e. Reduce chamber altitude at a rate slow enough to be able to note altitude reading on master altimeter when delay mechanism becomes activated. If available, a stethoscope may be placed against frame of altitude chamber to facilitate listening.

f. The altitude at which release time delay mechanism began to function must be within tolerance listed in column 4, (Criteria for Testing FF-2 Release Delay Mechanism) that corresponds to previously established millibar setting and arming pin withdrawal altitude. If release time delay does not operate within the prescribed tolerances in table (Criteria for Testing FF-2 Release Delay Mechanism, the release is considered unserviceable and will be removed from service.

3. Record the results of the operating height test and remove FF-2 Release from the test set. On the "Inspection" page of DA Form 3912, enter the date of test; altitude; millibar dial setting made on the FF-2 Release; altitude at which the time delay mechanism started; signature of the inspector testing the FF-2 Release; and unit at which FF-2 Release was tested. Record results on DA Form 2404 or locally approved form as well.

4. Set millibar setting **(1)** back at 570 m/b, reset FF-2 Release **(2)** and replace test arming pin **(3)** with arming pin **(3)** with arming pin assembly.

5. Reload FF-2 Release **(2)** and remove safety bar assembly **(5)**.

6. Immediately install power cable assembly **(6)** of required length and reset access port plug screw. Install a new locknut **(7)** on power cable rod **(6)**. Place rubber buffer **(8)** in frangible cap **(9)** (one only) and place frangible cap **(9)** on barrel **(10)**.

7. Using sealant type 2020 or equal, seal bottom center case screw **(11)** on top case half.

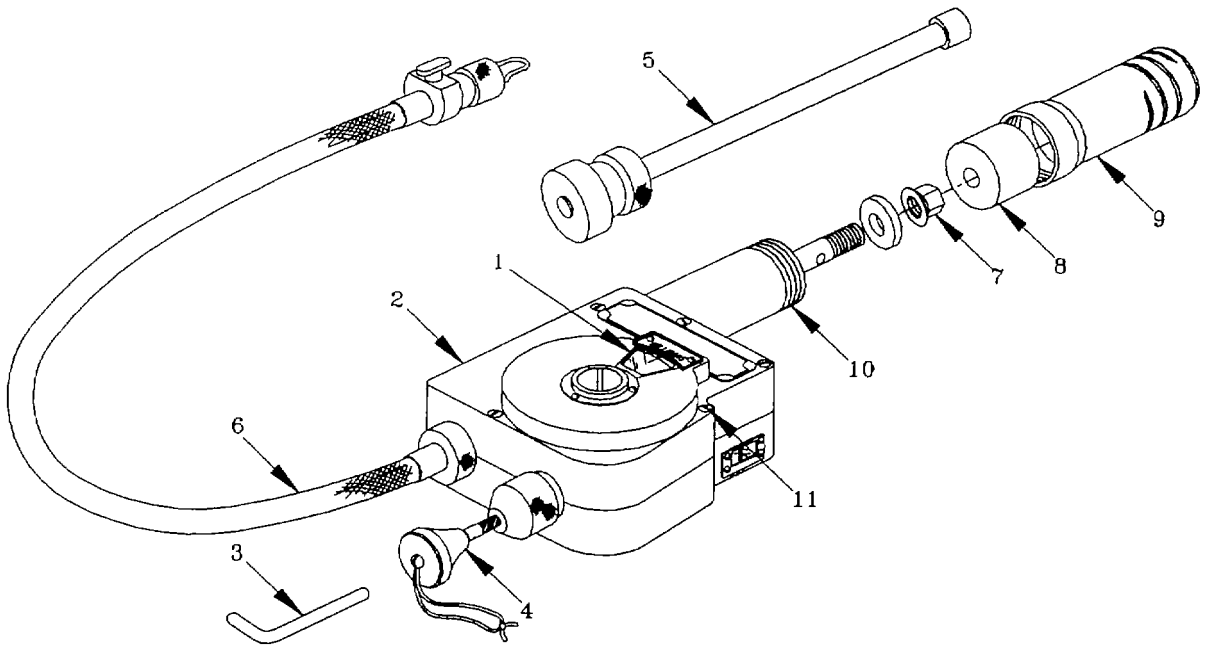


Table 1. Criteria For Testing FF-2 Release Delay Mechanism.

Millibar dial setting (millibars)	Arming pin withdrawal altitude (feet)	Time delay mechanism starting altitude (6-second delay) (feet)	Acceptable tolerance (feet)
1000	5,000	1,445	+310 = 1,755 -110 = 1,334
960	6,000	2,565	+310 = 2,875 -110 = 2,455
920	8,000	3,730	+350 = 4,080 -120 = 3,610
880	9,000	4,930	+380 = 5,310 -140 = 4,790
840	10000	6,180	+420 = 6,600 -160 = 6,020
800	11000	7,475	+420 = 7,895 -160 = 7,315
760	13000	8,825	+470 = 9,295 -200 = 8,625
720	14000	10,225	+520 = 10,755 -250 = 9,985

INSTALL

Inspection Prior to Use. Prior to cocking an FF-2 Release for use, ensure it has been inspected in accordance with above procedures. Evidence of damage to any component of the FF-2 Release, or evidence that the FF-2 Release has been immersed in salt water shall be cause to consider the item unserviceable and it shall be removed from service.

Cocking the FF-2 Release for Use

WARNING

Do not attempt to cock the FF-2 Release if reset indicator bar is not aligned with reset indicator mark. Inaccurate time delay and operating altitude will result. Failure to observe this warning may result in severe injury or death to parachutist using the FF-2 Release.

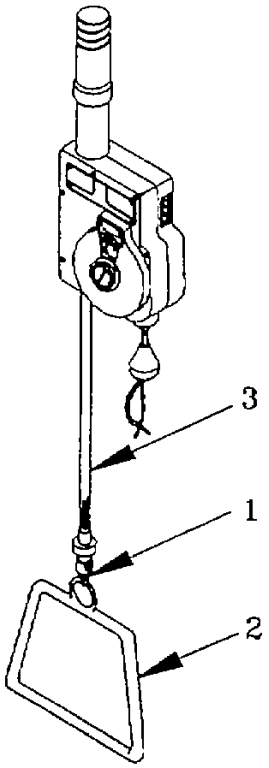
NOTE

FF-2 Releases attaining 25 live operations since being placed in service from depot storage or previous cleaning will be considered unserviceable even though they pass all functional checks. Unserviceable FF-2 Releases will be evacuated to a DS facility for servicing.

Any FF-2 Release attaining 200 live operations or four years of service since being placed in service from depot storage will be evacuated to depot for overhaul.

Firing to FF-2 Release with the power cable installed constitutes a live operation.

1. Reset FF-2 Release in accordance with RESET function above.
2. Place withdrawal hook **(1)** on stirrup cocking tool **(2)**.
3. Place one foot in stirrup cocking tool **(2)** and pull FF-2 Release upward until the main spring (not visible) in FF-2 Release is compressed and power cable **(3)** is fully extended and locked into extended position.
4. Remove foot from stirrup cocking tool **(2)** and remove power cable withdrawal hook **(1)** from stirrup cocking tool **(2)**.
5. FF-2 Release is now cocked and ready for setting and installation.



0022 00-20

Setting the Opening Altitude. Setting the opening altitude of FF-2 Release will be accomplished immediately prior to use, as atmospheric conditions will cause the barometric pressure in a drop area to vary on a day-to-day basis. Since the function of the FF-2 Release is directly affected by prevailing barometric pressure at a given point, the opening altitude of the FF-2 Release will be calculated on the FF-2 calculator and the applicable millibar setting will be made on the release on a daily basis.

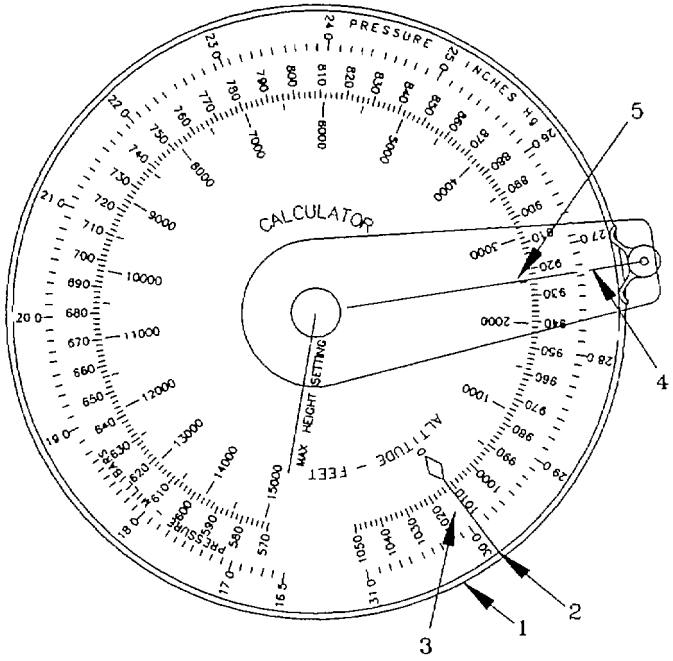
1. Ascertain barometric pressure of an intended drop zone in inches of mercury or millibars. As an example, consider pressure at 29.92 inches of mercury which is equal to 1012 millibars.

2. Set the arrow on calculator **(1)** at “29.9” on outside scale **(2)** which coincides with “1012” millibar setting on center scale **(3)**.

3. Set hairline indicator **(4)** on desired opening altitude in feet which is located on inside scale **(5)**. In this example, 2500 feet is opening altitude.

4. Read corresponding millibar setting under hairline indicator **(4)**. For the example 2500 feet desired opening altitude, millibar setting to be made on FF-2 Release is “924”. Recheck the arrow setting made in previous steps and ensure no inadvertent movements were made.

5. Turn millibar knob on side of FF-2 Release until “924” is aligned with arrow in millibar window.



WARNING

Premature withdrawal of FF-2 Release arming cable prior to reaching 2500 feet of altitude above desired opening altitude will result in inaccurate time delay and opening altitude.

After calculating FF-2 Release opening altitude, the minimum arming altitude (opening altitude plus 2500 feet) should be ascertained. It is imperative that all concerned parachutists and aircrew members be aware of this minimum arming altitude.

NOTE

When in use, FF-2 Release aneroid will release timing mechanism to begin operating six seconds above the altitude/millibar setting. With the example provided above, the timing mechanism will start operation at 6 seconds or 1080 feet (180 feet per second rate of descent times six seconds) above the 2500 feet (924 millibar) setting. 2500 plus 1080 equals 3580 feet above surface of the drop zone.

6. Make appropriate log entries as follows:

   a. Fill in date.

   b. Under number of jumps column, record number of operations. Number 1 will always be used when FF-2 Release is tested in test chamber, and each operation thereafter will be numbered consecutively 2 through 56.

   c. Apply signature of individual cocking FF-2 Release.

   d. Fill in unit designation.

REPAIR

Replace Arming Pin Bush Seal

WARNING

Acetone and Methyl Ethyl Ketone are hazardous chemicals! Repeated or prolonged contact with liquid or inhalation of vapor can cause skin and eye irritation, dermatitis, narcotic effects, and damage to internal organs. Avoid contact with skin and eyes and do not breathe vapors. Always wear protective goggles and gloves, and use only in well-ventilated areas. Do not use near open flame or excessive heat. If you become dizzy while using one of these solvents, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical help. In case of skin contact, wash contacted area thoroughly with soap and water.

1. Remove unserviceable arming pin guide bush seal **(1)** from arming pin guide bush **(2)** by soaking in Acetone or Methyl Ethyl Ketone for approximately four to five hours. Ensure that all unserviceable seal **(1)** is removed and inside of bush **(2)** is clean and dry.

2. Deposit one drop of cyanoacrylate instant cure adhesive **(3)** (WP 0044 00, Table 1, Item 7) on a piece of paper, cardboard, stencilboard, or other clean surface.

CAUTION

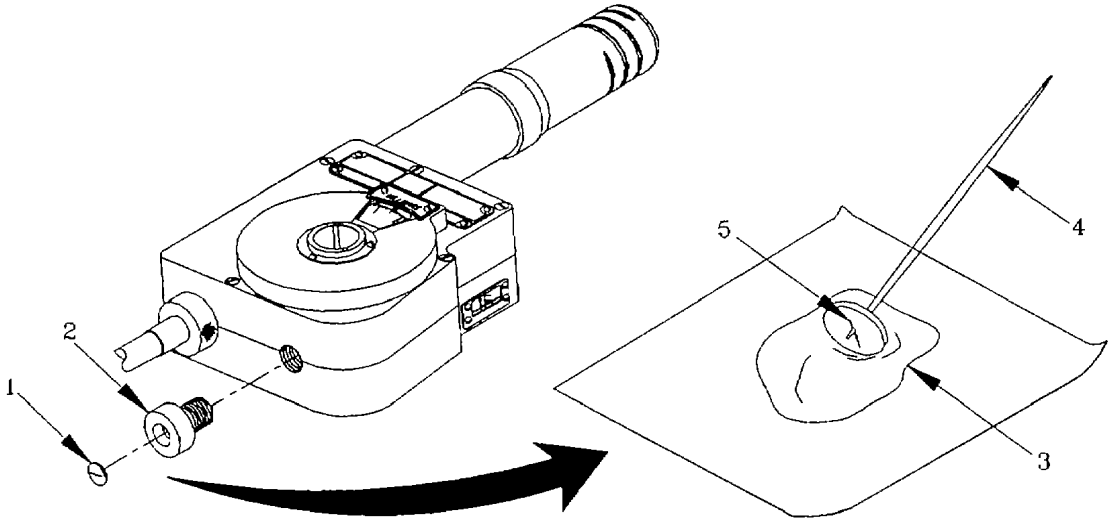
Ensure that no adhesive is allowed to spread on the top or bottom portion of the rubber seal.

3. Holding serviceable seal **(1)** with toothpick or other small, sharp instrument **(4)** inserted in slit **(5)**, slowly rotate seal **(1)** in adhesive **(3)** until all of outer edge of seal **(1)** is lightly coated. Next, tilt seal **(1)** whereby it can be rotated again to apply a light coat of adhesive **(3)** on bottom outer edge of seal **(1)**.

4. Using toothpick or other instrument **(4)**, carefully insert seal **(1)** into bush **(2)**.

5. Remove toothpick or other instrument **(4)** from slit **(5)** and use it to press seal **(1)** fully into the seat of bush **(2)**.

6. Allow bush **(2)** and seal **(1)** to sit for two hours before install into FF-2 Release.



REPLACE

Replace an unserviceable FF-2 Release with a serviceable one from stock.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

AUTOMATIC RIPCORD RELEASE, AR2 JUMP/OFF SWITCH TEST, SERVICE, REPAIR, REPLACE

INITIAL SETUP:

Tools
Knife (WP 0031 00, Table 2, Item 8)
Screwdriver, Slotted, 1/4-inch (WP 0031 00, Table 2, Item 18)
Wrench, Adjustable, 6-inch (WP 0031 00, Table 2, Item 39)

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Cloth, Lint Free, Cleaning (WP 0044 00, Table 1, Item 11)
Isopropyl Alcohol (Anhydrous) (WP 0044 00, Table 1, Item 2)
Lubricant, Antiseize (WP 0044 00, Table 1, Item 27)

Equipment Condition
N/A

NOTE

Shelter requirements and Assembly and Preparation for use are found in TM 10-1670-305-23&P.

GENERAL
This work package contains information and instructions to keep the AR2 JUMP/OFF switch in good repair.

Removal and disassembly of jump/off switch

CAUTION

Ensure that no foreign matter enters the AR2 through power cable openings, push rod opening or screw holes.

1. If replacement is required, remove four screws **(1)** securing JUMP/OFF switch **(2)** and remove JUMP/OFF switch **(2)**. Move JUMP/OFF switch lever back and forth to access screws **(1)**.

2. Remove packing **(3)**, push rod **(4)** and push rod spring **(5)** from body of unit.

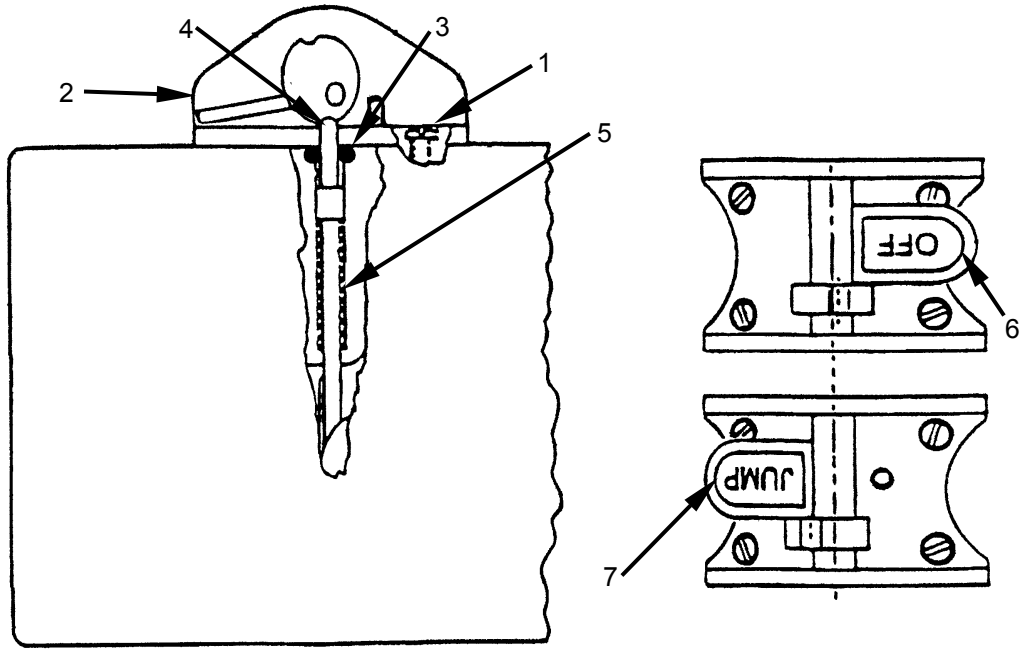
NOTE

Before removing OFF and JUMP decals **(6** and **7)** observe where and how they are positioned.

3. If replacement decals are required, peel off OFF decal (6) and JUMP decal (7).

NOTE

Do not remove SERVICE RECORD decal or altitude cover from AR2 housing.



Assembly and installation of JUMP/OFF switch

WARNING

Make sure the jump and off decals are replaced on the correct sides of the switch lever. Incorrectly placed decals will give a false indication of AR2 condition and may result in death if the AR2 is used in a jump.

1. Use lint-free cleaning cloth moistened with anhydrous isopropyl alcohol to clean areas where decals were mounted. Install new OFF decal **(6)** and JUMP decal **(7)** by peeling protective back from new decals and placing new decals in position. Press each new decal firmly in place.

CAUTION

When replacing the JUMP/OFF switch, always install the new push rod spring, push rod, and packing that are included in the switch kit. **Never use an old push rod spring, push rod, or packing with a new switch.**

2. If removed, lubricate packing (3) with anti-seize lubricant and install new push rod spring, (5) push rod (4) and packing (3).

CAUTION

Use care not to damage packing when installing JUMP/OFF switch.

3. Position and install new JUMP/OFF switch. Move JUMP/OFF switch lever back and forth to access screw holes.
4. Install and tighten self-locking screws.
5. Set the JUMP/OFF switch to OFF.

TEST

Test AR2 in accordance with procedures in TM 10-1670-305-23&P to be sure it functions correctly.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

POWER CABLE ASSEMBLY, MAIN/RESERVE INSPECT, REPAIR, REPLACE

INITIAL SETUP:

Tools
Knife (WP 0031 00, Table 2, Item 8)
Screwdriver, cross tip, No. 2 (WP 0031 00, Table 2, Item 19)
Wrench, Adjustable, 6 inch (WP 0031 00, Table 2, Item 39)

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
Cloth, Lint Free, Cleaning (WP 0044 00, Table 1, Item 11)
Isopropyl Alcohol (Anhydrous) (WP 0044 00, Table 1, Item 2)

Equipment Condition
N/A

GENERAL
This work package contains information and instructions to keep the AR2 power cable assembly in good repair.

WARNING

Do not open or remove screws of AR2 housing. No internal maintenance is authorized. Unauthorized disassembly may cause a malfunction that may result in death of parachutist.

Removal of AR2 and Power Cable Assembly

1. Ensure that the JUMP/OFF switch is OFF.

NOTE

If AR2 has not actuated, go to step 4.

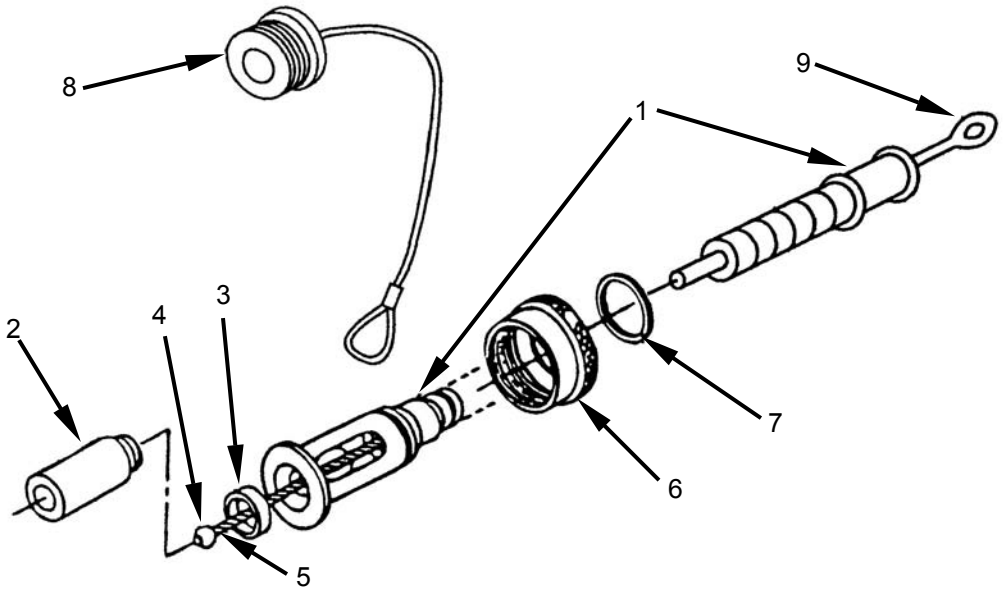
2. If the AR2 has actuated, remove the AR2 and its power cable assembly from the parachute by removing tacking, two screws, nuts and clamps. These parts (hardware) are accessories attached to the parachute.

WARNING

After cocking the AR2 mechanism, always re-inspect the fixed eye **(9)** for distortion or other damage that may cause it to distort so that parachute may not deploy which may result in death of parachutist. Discard and replace any cable showing distortion or damage.

3. Use a screwdriver or other suitable tool, inserted through eye (9) of power cable to form a T-handle. Secure AR2. Pull eye of power cable until the AR2 mechanism reaches the cocked position and power cable remains extended from power housing (requires approximately 70 pounds pull).

4. Unscrew power-housing retainer (6) from spring housing and remove power cable assembly by disengaging ball (4) of power cable from piston rod. Attach storage cable and piston rod cap to AR2.



INSPECT

Inspection of power cable assembly prior to dissassembly

1. Shift power cable back and forth inside power housing as far as possible to expose both ends of cable.

2. Visually inspect the exposed portion of power cable for fraying. Any fraying or broken strands of wire indicate a defective power cable, which must be replaced.

3. Move power cable back and forth within power housing. A slight drag due to power cable seal is normal, but the cable should move smoothly and not bind. If there is any doubt as to the smoothness of motion, disassemble the power cable assembly and inspect all parts for wear or damage. Replace any defective parts, including, if necessary, power housing.

WARNING

The power housing (outer flexible metal casing) must be inspected for looseness between its convolutions. Looseness indicates either damage or a loss of interference fit between the outer housing and teflon liner, which maintains the housing length. Changes in housing length will affect the pulling stroke of the AR2 and could result in incomplete extraction of ripcord pins.

4. Grasp the outer flexible metal housing casing with both hands, thumbs pointing toward each other. Hold the housing firmly by pinching between thumbs and fingers. Placement of thumbs should be two to three inches apart, allowing clear visibility of the casing between thumbs.

5. Alternately push and pull the housing by applying approximately 10 pounds of force. Convolutions must not move relative to each other, but be careful not to mistake small changes in hand position caused by the pushing and pulling action for movement of the convolutions. Casing should look and feel solid, indicating no movement between convolutions.

6. Relocate the hand position and apply the procedure at four-inch to six-inch intervals over the entire length of the power housing. Verify that no movement between the casing convolutions exists. Any relative movement of the housing convolutions indicates a defective power housing, which must be replaced.

REPAIR

Disassembly of power cable assembly

1. Tap flange end of power housing **(1)** on a table top to cause the cable seal retainer **(2)** to protrude from the power housing. If necessary, reach behind the cable seal retainer with a small hooked tool to start it from the power housing so that it may be gripped with the fingers. Slow withdrawal of cable seal retainer will usually bring power cable seal **(3)** with it. If not, use same tool to free power cable seal and remove it.

2. Pull ball **(4)** of power cable through power cable seal **(3)** and remove power cable **(5)** from power housing **(1)**.

3. If power housing (1) or power housing retainer (6) must be replaced, first remove small split retaining ring (7) from flanged fitting using thin screwdriver, knife blade, or other suitable tool. Insert the tool between the two layers of the ring and carefully run the tool around the fitting to cam the ring out of its groove. Be careful not to damage or lose the retaining ring (7).

4. Remove the retaining ring (7), lanyard assembly (8), and power-housing retainer (6) off the small end of power housing (1).

Cleaning

1. Clean exterior of power housing **(1)** by wiping with a clean, lint-free cloth moistened with anhydrous isopropyl alcohol.

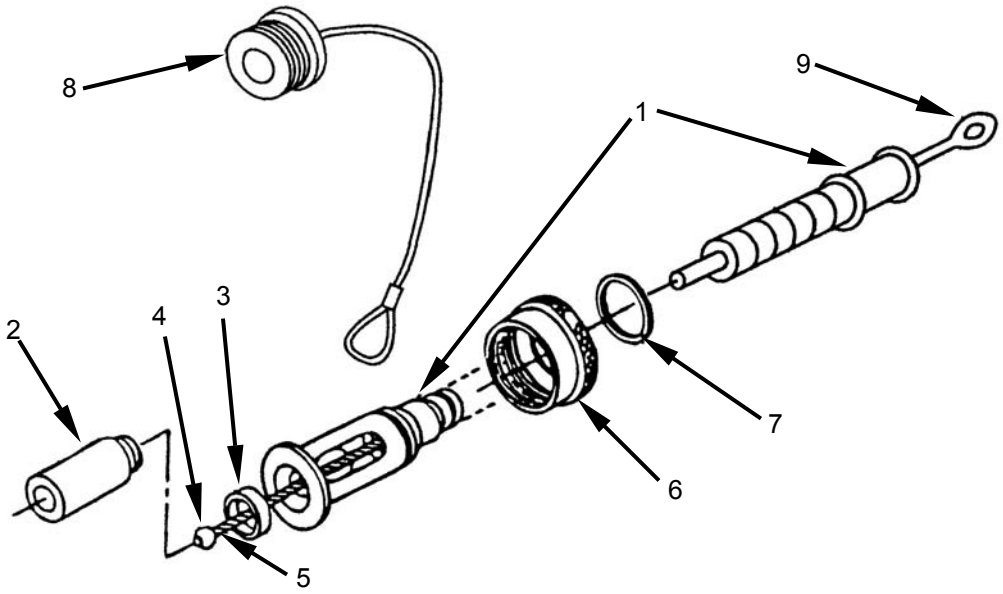
2. Clean all metal parts (except power housing) by washing in anhydrous isopropyl alcohol and dry thoroughly.

INSPECT

1. Visually inspect all components for wear or damage.

2. Discard worn or damaged parts.

3. Visually inspect entire power cable **(5)** for fraying of cable or broken strands of wire. Discard if worn or damaged.



REPLACE

Assembly of power cable assembly

1. If removed, install power-housing retainer **(6)** over small end of power housing **(1)**. Note orientation of threaded end of retainer (refer to the figure).

2. Install lanyard assembly (8) over small end of power housing (1).

3. Reinstall split retaining ring (7) over small end of power housing and start tail of split end into groove in flanged fitting of power housing (1).

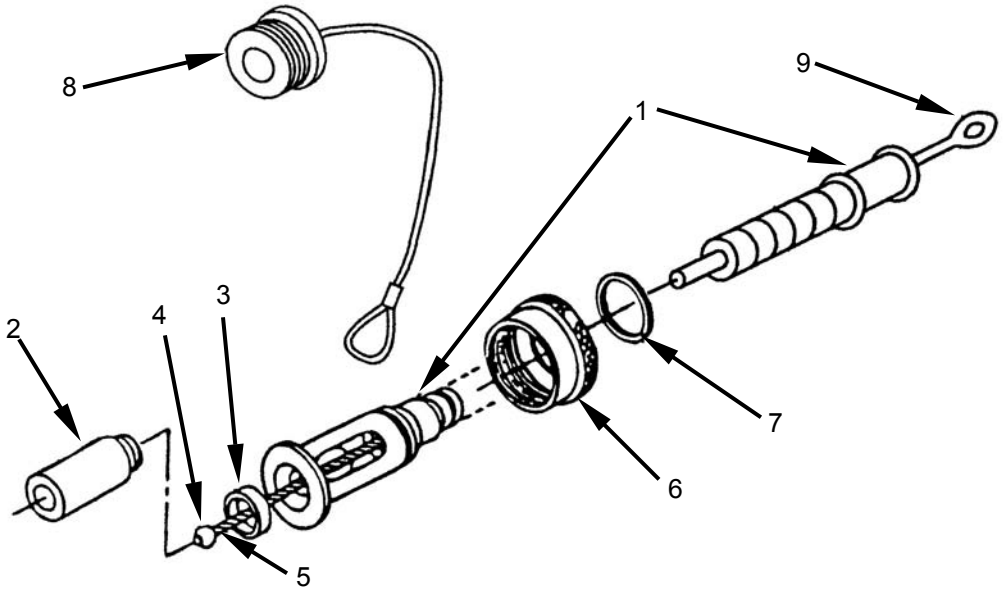
4. Using knife blade or fingernail, run around retaining ring to cam it into groove in fitting.

5. Slide power cable (5) into power housing (1) by inserting ball (4) of power cable (5) into smaller end of power housing (1). Slide power cable (5) completely through power housing (1) until ball (4) protrudes from opposite end of power housing (1).

6. Slip power cable seal (3) over all of power cable (5) and into end of power housing (1). Seat power cable seal (3) fully within power housing by slowly pulling on eye end (9) of power cable.

7. Install cable seal retainer (2) in end of power housing (1) and against power cable seal (3). Use firm thumb pressure to seat nose of cable seal retainer (2) within recess of power cable seal (3).

8. If an AR2 is not immediately attached, thread plug of lanyard assembly (8) into power housing retainer (6).



Install power cable assembly

1. The following instructions describe attachment of the power cable assembly to the AR2. Detailed instructions for installation of AR2 power cable assembly into parachute system are given in TM 10-1670-287-23&P or service specific parachute packing manuals.

WARNING

When attaching the power cable assembly to the AR2, always verify proper engagement of ball end of power cable with piston rod of AR2 by looking through transparent plastic cable seal retainer **(2)**.Cable seal retainer **(2)** and power cable seal **(3)** must be present to ensure correct seating of power cable ball **(4)**. If ball is not engaged with piston rod, or if cable seal retainer **(2)** is missing, actuation of AR2 will fail to pull ripcord pins, which may result in death of parachutist.

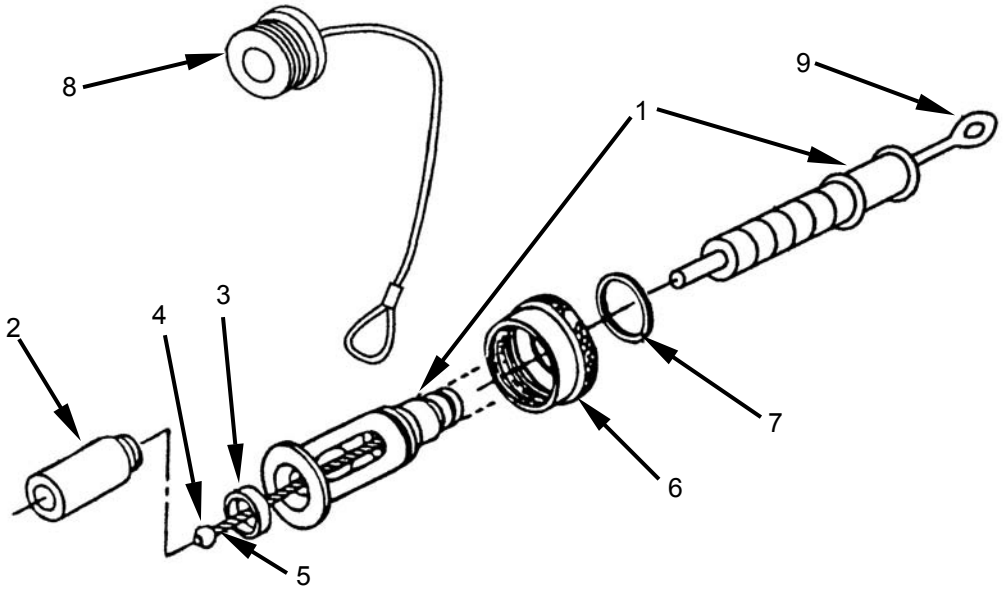
CAUTION

Finger tighten the power-housing retainer **(6)**. **Do not** use pliers or other tools that will over tighten power housing retainer and possibly damage retainer.

NOTE

If AR2 is to be stored, install storage cable and piston rod cap instead of power cable.

2. Hook ball (4) of power cable (5) into recess in piston rod.
3. Slide power housing (1) over piston rod and install power housing retainer (6) finger tight on spring housing.
4. Verify that ball (4) is engaged by looking through transparent cable seal retainer (2).
5. Verify that JUMP/OFF switch is in OFF position.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY EQUIPMENT FOR PERSONNEL PARACHUTE SYSTEM

PARACHUTE DROP BAG (PDB)
INSPECT, REPLACE, REPAIR, INSTALL

INITIAL SETUP:

Tools
- Knife (WP 0031 00, Table 2, Item 8)
- Sewing Machine, HD (WP 0031 00, Table 2, Item 24)
- Sewing Machine, LD (WP 0031 00, Table 2, Item 21)
- Sewing Machine, MD (WP 0031 00, Table 2, Item 25)
- Shears (WP 0031 00, Table 2, Item 28)

Personnel Required
- 92R(10) Parachute Rigger

Materials/Parts
- Cloth duck, textured nylon, Class III, CG483 (WP 0044 00, Table 1, Item 53)
- Dyed dark gray, nylon, 9.0 oz, (WP 0044 00, Table 1, Item 17)
- Tape, binding, type XII (WP 0044 00, Table 1, Item 45)
- Tape, fastener, hook (WP 0044 00, Table 1, Item 19)
- Tape, fastener, pile (WP 0044 00, table 1, item 22)
- Thread, nylon, size E (WP 0044 00, Table 1, Item 42)
- Thread, nylon, size FF (WP 0044 00, Table 1, Item 43)
- Thread, nylon, size 3 (WP 0044 00, Table 1, Item 40)
- Thread, nylon, size 5 (WP 0044 00, Table 1, Item 41)
- Webbing, nylon, type VIII, CG 483, (WP 0044 00, table 1, Item 49)

Equipment Condition
- N/A

INSPECT

Perform a before and after technical/rigger type inspection of the Parachute Drop Bag (PDB) as outlined in WP 0008 00.

REPAIR

The PDB nylon fabric on the main compartment, to include cargo pockets, lowering line stow pocket, incorporated leg strap retainer and retainer flap, incorporated single point release assembly, and exterior and interior shoulder straps may be restitched, darned and patched. When making any of these repairs, remove stitching as necessary to gain access to the damaged area. After repairs have been made, replace any stitching that has been removed, as in the original construction or as specified in each procedure. Repair by restitching, darning, and patching as described below.

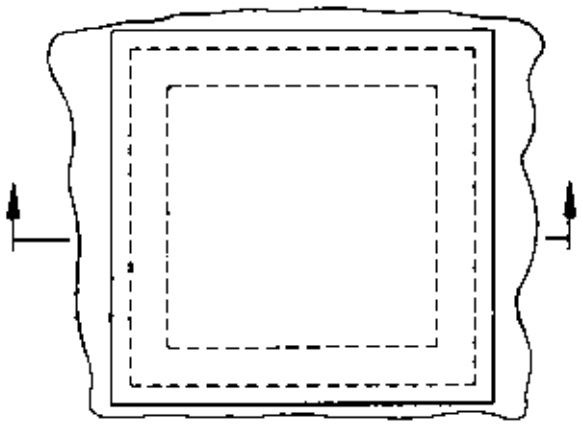
1. Restitching. Restitch the main compartment fabric directly over old stitching using size E thread, 6 to 9 stitches per inch, and a MD sewing machine. Lock stitching at least ½-inch. Restitch loose or broken stitching on the body of the main compartment, outer binding tape, Lowering line stow pocket, incorporated leg strap retainer and retainer flap, YKK zipper, and canteen pockets.

2. Darning. Darn a hole or tear in the main compartment fabric, canteen pockets, or single point release assembly cover that does not exceed 1-inch in length or diameter using size E thread and a darning machine. There is no limit to darns that may be applied, provided they do not weaken or reduce the strength of the fabric more than 10%.

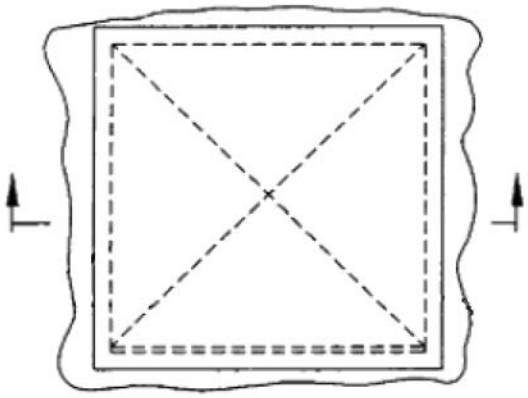
3. Patching. There is no limit to the number of times the main compartment may be patched. Patch a hole or tear that exceeds 1-inch in diameter following the procedures in a) or b) below. Use cloth, duck, textured nylon, Class III on the exterior and dyed dark gray nylon, 9.0 oz on the interior according to the original construction for patching. Use a MD sewing machine, size FF thread, and 6 to 9 stitches per inch.

   a. To patch the main compartment cut the Nylon patch 2-inches beyond circumference of the damaged portion. Turn under edges of patch ½-inch and center patch over the damaged area. Sew to the main compartment with a double row of stitching.

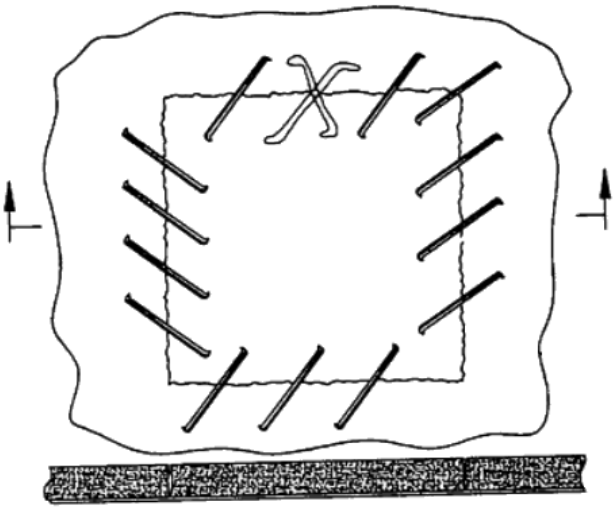
   b. To patch a lined portion of the main compartment, (exterior and interior shoulder straps) when the felt is not damaged, cut the nylon fabric patch two inches beyond circumference of damaged portion. Turn under edges of the patch ½-inch and center patch over damaged area. Sew patch to exterior and interior shoulder straps with a double row of stitching as shown.



c. To patch-lined portion of the shoulder straps when the felt is damaged, remove the damaged felt as described in (d) below. Cut a piece of felt the same size as the piece removed, and position felt plug and cordura patch (with the edges turned under ½-inch) over the damaged area. Sew a single box stitch formation as shown.



d. To plug the felt lining of the container, mark a rectangle around the damaged area. Remove the damaged felt being careful not to damage the nylon material. Cut a piece of felt the size of the piece removed. Position felt plug into area cleared and sew as shown.



4. Repair of binding tape. Overlap the binding tape extending the new tape at least 1-inch beyond the damaged tape. Stitch tape with two rows of stitching ⅛-inch and ¼-inch from edge of the tape as in the original construction using size E thread, 7 to 11 stitches per inch and a MD sewing machine.

5. Repairing webbing **(1)**. If the webbing is inadvertently damaged when stitching is being removed, the webbing will be replaced or the PDB will need to be removed from service.

   a. General. The webbing on the main compartment may be restitched or replaced if authorized in this manual. This includes, the vertical straps, shoulder strap reinforcement, bottom shoulder strap attaching point, bottom vertical strap loop, and shoulder straps.

b. Restiching. Restitch loose, broken or defective stitching according to original construction using size FF thread, 6 to 9 stitches per inch, if webbing is used as a lifting point use size 5 thread, 4 to 6 stitches per inch and a HD sewing machine. Lock stitching at least 1/2-inch.

6. Repair lowering line stow pocket **(2)** by restitching. Use size FF thread, 6 to 9 stitches per inch, and a MD sewing machine. Locking stitching at least 1/2-inch.

7. Repair incorporated leg strap stow pocket by restitching. Use FF thread, 6 to 9 stitches per inch, and a MD sewing machine. Locking stitching at least 1/2-inch.

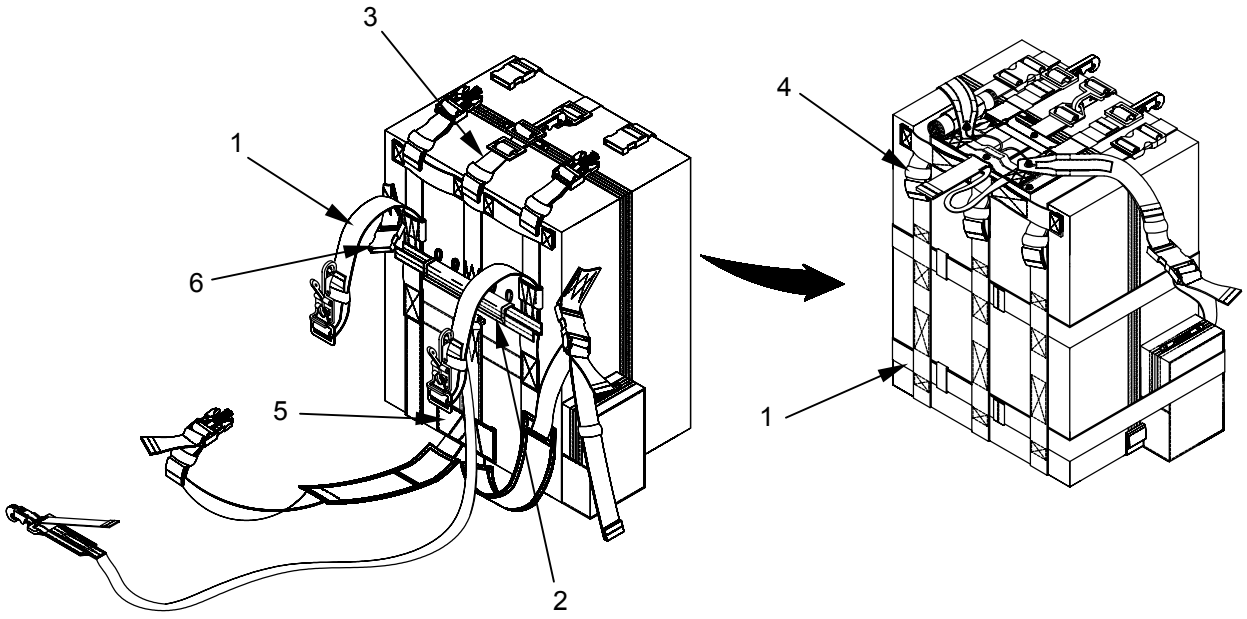
8. Repair vertical straps **(3)** and vertical strap keepers **(4)** by restitching. Use 5 thread for 301 stitching, 4 to 6 stitches per inch, for box X stitching use size 5 thread, 4 to 6 stitches per inch and a HD sewing machine.

NOTE

V stitching runs parallel to webbing edges.

9. Repair Shoulder strap reinforcement **(5)** by restitching using (a double-VV w/Box-Stitch formation) size 5 thread, 4 to 6 stitches per inch and a HD sewing machine.

10. Repair bottom shoulder strap attaching point **(6)** by using a double box X stitch formation using size 3 thread, 5 to 8 stitches per inch and a HD sewing machine.



REPLACE

Only minor replacements will be authorized on the Parachutist Drop Bag (PDB), All major repairs will be sent back to manufacture unless authorized per the instruction in following paragraphs:

1. Vertical Straps Assembly, Center Vertical Strap and Restitch and Replace Metal Hardware.

    a. Center vertical strap **(7)**, webbing, OD, nylon type XIII, if restitching sew using size 5 thread, 4 to 6 stitches per inch, and a MD sewing machine.

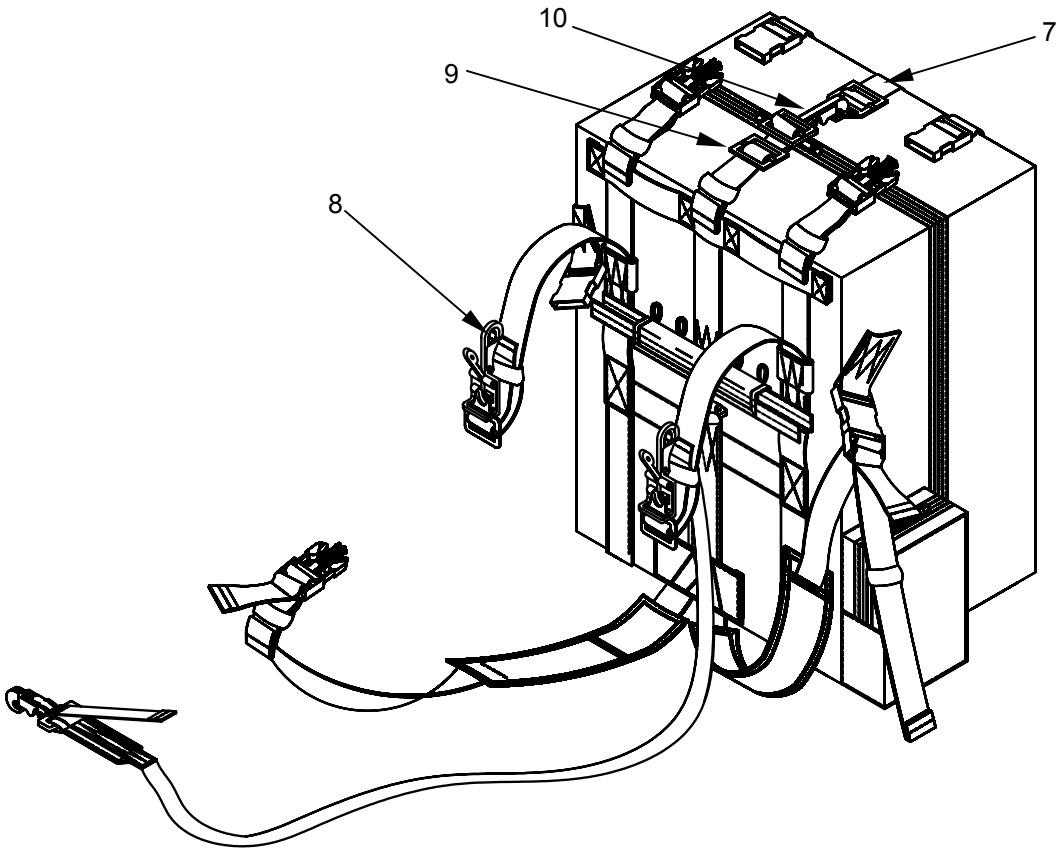
    b. Replace damaged hardware, Ring, V-quick fit, Snap Hook **(8)**, Metal Slide **(9)**, with new metal hardware as in original construction.

        (1) Replace damaged quick fit V-ring **(10)** by pulling the center vertical strap out from under the Single Point Release (SPR) cross strap, remove all access in center vertical strap and remove damaged quick fit v-ring and replace.

        (2) Replace by grasping the center vertical strap at the point where it is sewn to the main compartment, trace the strap upwards toward the SPR assembly removing any twists, routing the center vertical strap up through the center of the quick fit v-ring. Ensure the fat portion of the quick fit v-ring is down and facing towards the bottom main compartment, and route back down through quick fit v-ring.

        (3) Reroute center vertical strap under SPR assembly.

    c. Replace damaged hardware, Snap Hook, (8) or Metal Slide (9) with new metal hardware as in original construction.



NOTE

If replacing Metal Slide, remove and replace with serviceable hardware.

(1) Carefully cut and remove the stitching at the folded end of the Center Vertical Strap. Pull the center vertical strap from metal slide, remove snap hook, and replace.

(2) Replace by grasping the center vertical strap at the point where sewn and routed under the vertical strap loop (Webbing, OD, nylon type XIII).

(3) Trace the center vertical strap upwards toward the SPR assembly, removing any twists. Route the center vertical strap through the snap hook as in original construction. Fold the end of the strap as in original construction and stitch using size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.

2. Outside Vertical Straps. Restitch and Replace Male and Female Fastex Buckles.

   a. Restitch Outside Vertical Strap **(11)**, webbing, OD, nylon seat belt material commercial grade, and restitch using size 5 thread, 4 to 6 stitches per inch and a MD sewing machine as in the original construction. Replace damaged male quick release buckle **(12)** or a female quick release buckle **(13)**. Replace with a serviceable quick release buckle as in original construction.

   b. To replace damaged male quick release buckle **(12)**, or outside vertical strap **(11)**, remove all excess in the outside vertical strap and remove damaged male quick release buckle. Replace with a serviceable quick release buckle.

   c. Replace by grasping the outside vertical strap at the point where sewn to the main compartment, trace the strap upwards toward the buckle assembly removing any twists, routing the outside vertical strap up through the buckle. Ensure the portion of the buckle with the lip is facing up as you route the strap through the bottom of the buckle and route back down through buckle.

   d. To replace damaged, female quick release buckle **(13)**, or outside vertical strap, remove all excess in the outside vertical strap **(11)**, and remove damaged female buckle. Replace with a serviceable buckle.

   e. Replace by grasping the outside vertical strap **(11)** at the point where sewn to the main compartment, trace the strap upwards toward the buckle assembly removing any twists, routing the outside vertical strap up through the buckle. Ensure the portion of the buckle with the lip is facing up as you route the strap through the bottom of the buckle and route back down through buckle.

3. Compression Straps **(14)**. Webbing, OD, nylon seat belt material commercial grade, re-sew using size 5 thread, 4 to 6 stitches per inch and a MD sewing machine as in the original construction. The only authorized repairs will be to restitch or replace female and male quick release buckles. Replace compression strap as described below.

NOTE

No splicing of the compression strap is authorized.

   a. Remove damaged compression strap **(14)** and replace with a new compression strap as in original construction. If restitching, use size FF thread, Box X, stitch formation 6 to 9 stitches per inch and a MD sewing machine.

   b. Remove and replace damaged compression strap, with a new strap as in original construction. Remove compression strap by pulling from one end and removing compression strap from vertical strap channel and discard.

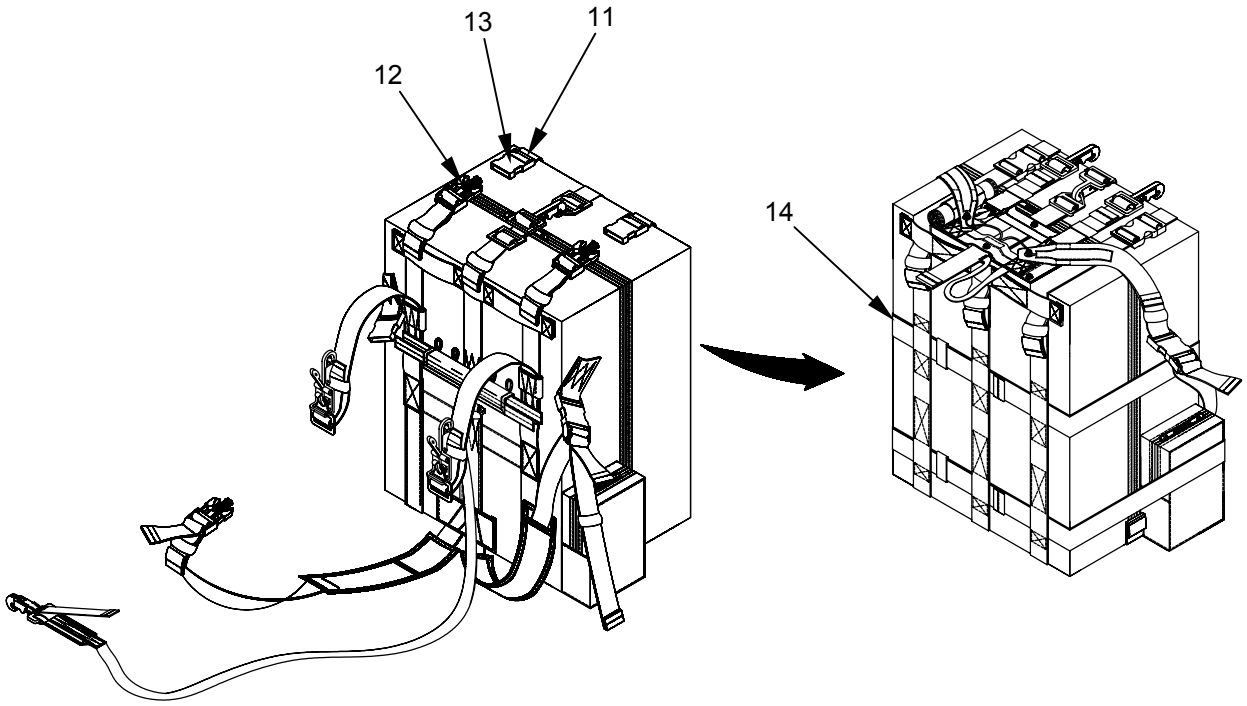
   c. Replace compression strap by re-routing new strap through the vertical strap channels going from one side to the other as in original construction.

   d. If replacing damaged female quick release buckle, remove the compression strap from the main compartment and carefully cut and remove stitching at the folded end and box X, of the compression strap, that secures the damaged buckle.

e. Remove damaged buckle and replace with a serviceable buckle and sew compression strap as in the original construction using size FF thread, 6 to 9 stitches per inch and a MD sewing machine.

f. If replacing damaged male quick release buckle, replace by grasping compression strap and trace to the end ensuring all twists are taken out.

g. Route the compression strap up through the buckle ensuring the portion of the buckle with the lip is facing up as you route the strap through the bottom of the buckle and route back down through buckle.



4. Breakaway Leg Strap **(15)**. Webbing, OD, nylon seat belt material commercial grade, re-sew using size 5 thread, 4 to 6 stitches per inch and a MD sewing machine as in the original construction. The only authorized maintenance on the breakaway leg strap is replacement or restitch as described below:

   a. Replacement of the female quick release buckle is authorized for this item.

   b. Restitching is authorized only to repair broken stitches. If the leg strap is cut it must be replaced with a new item from stock.

   c. To replace damaged female buckle, take up excess in the leg strap and remove buckle. Replace with a serviceable buckle as in the original construction.

   d. When placing a serviceable female buckle back onto the breakaway leg strap, make certain the cable guide, ½-inch OD nylon tape, is facing up.

   e. Route the leg strap up through the female buckle; make certain that the lip on the female buckle is facing up.

5. Lowering Line Assembly **(16)**. The only maintenance authorized on the lowering line assembly is restitching or replacement of hook and pile fastener.

   a. When restitching broken stitching use size FF thread, 6 to 9 stitches per inch and a MD sewing machine on end loops. If repairing or replacing hook & pile tape fastener use size E thread, 7 to 11 stitches per inch and a LD sewing machine.

   b. To replace hook and pile fastener on the lowering line proceed as follows:

      (1) Cut the stitching and remove damaged hook or pile fastener from the lowering line.

      (2) With pile side facing up, cut lengths as prescribed below. Replace both as in original construction; sew using E thread, 7 to 11 stitches per inch and a LD sewing machine.

      (3) If replacing pile fastener on the topside looped end, cut 1-inch pile tape to a length of 11-1/2-inches.

      (4) If replacing pile fastener on the snap hook side cut 1-inch pile tape to length of 2 ½-inches. Replace both as in original construction; sew using E thread, 7 to 11 stitches per inch and a LD sewing machine.

   c. To replace hook fastener proceed as follows:

      (1) Cut the stitching and remove damaged hook fastener from the lowering line.

      (2) With hook side facing up, cut the lengths as prescribed below. Replace as in original construction, sew using size E thread, 7 to 11 stitches per inch and a LD sewing machine.

      (3) If replacing hook fastener on the looped end, cut 1-inch hook tape to a length of 2-inches.

      (4) If replacing hook fastener on the snap hook end, cut 1-inch hook tape to a length of 2 ½-inches.

d. To replace hook and pile fastener on the lowering line stow pocket (2) proceed as follows.

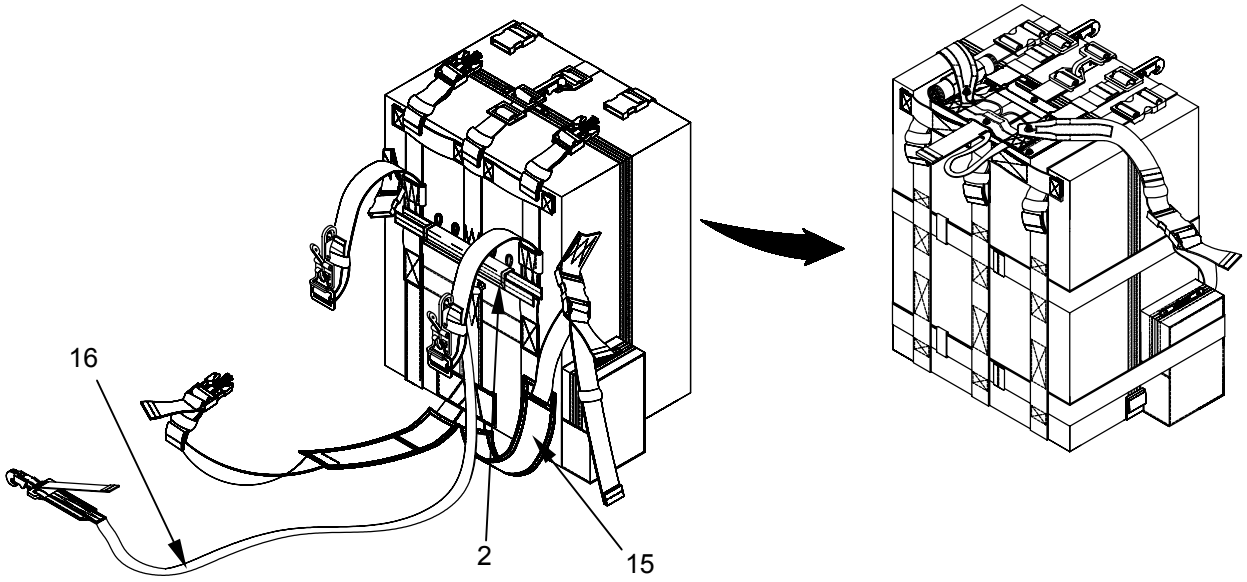
(1) To repair or replace hook & pile fastener, use size E thread, 7 to 11 stitches per inch and a LD sewing machine.

(2) Cut the stitching and remove damaged hook or pile fastener from the lowering line stow pocket. Lowering line stow pocket opened.

(3) To replace the hook fastener, cut a piece of 1-inch hook fastener to length of 13 ½-inches and place on the pocket as in the original construction, sew using E thread, 7 to 11 stitches per inch and a LD sewing machine.

(4) To replace the pile fastener, cut a piece of 1-inch pile fastener to a length of 13 1/2-inches and place on to the pocket as in original construction, sew using E thread, 7 to 11 stitches per inch and a LD sewing machine.

(5) To replace the pile fastener on the outside flap, with the lowering line stow pocket closed, cut a piece of 2-inch pile fastener to a length of 8 1/2-inches and place onto pocket as in original construction, sew using E thread, 7 to 11 stitches per inch and a LD sewing machine.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

HARNESS, SINGLE POINT RELEASE
INSPECT, REPAIR, REPLACE

INITIAL SETUP:

Tools
- Cutter, Cable (WP 0031 00, Table 2, Item 3)
- Cutters, diagonal pliers (WP 0031 00, Table 2, Item 4)
- Knife, (WP 0031 00, Table 2, Item 8)
- Pot, melting (WP 0031 00, Table 2, Item 13)
- Sewing Machine (WP 0031 00, Table 2, Item 23)
- Sewing Machine, Heavy duty (WP 0031 00, Table 2, Item 24)
- Sewing Machine, Medium duty (WP 0031 00, Table 2, Item 25)
- Sewing Machine, Zig Zag (WP 0031 00, Table 2, Item 27)
- Shears, (WP 0031 00, Table 2, Item 28)
- Tool, Compressing (WP 0031 00, Table 2, Item 37)

Personnel Required
- 92R(10) Parachute Rigger

Equipment Condition
- The harness assembly should be clean and dry. Place assembly on worktable.

Materials/Parts
- Cord, Nylon, Red (WP 0044 00, Table 1, Item 14)
- Grommet, Spur type (WP 0044 00 Table 1, Item 24)
- Nylon, Cord, Type III (WP 0044, Table 1, Item 13)
- Tape, Fastener, hook (WP 0044 00, Table 1, Item 19)
- Tape, Fastener, pile (WP 0044 00, Table 1, Item 22)
- Thread, nylon size 3 (WP 0044 00, Table 1, Item 40)
- Thread, nylon size E (WP 0044 00, Table 1, Item 42)
- Thread, nylon, size FF (WP 0044 00, Table 1, Item 43)
- Webbing, tubular, nylon 5/8in (WP 0044 00, Table 1, Item 47)
- Webbing, nylon type VIII (WP 0044 00, Table 1, Item 49)
- Webbing, nylon, Type IV (WP 0044 00, Table 1, Item 48)
- Wire, steel (WP 0044 00, Table 1, Item 51)

INSPECT

Perform a technical/rigger-type inspection of the lowering line before and after repair as outlined in WP 0008 00.

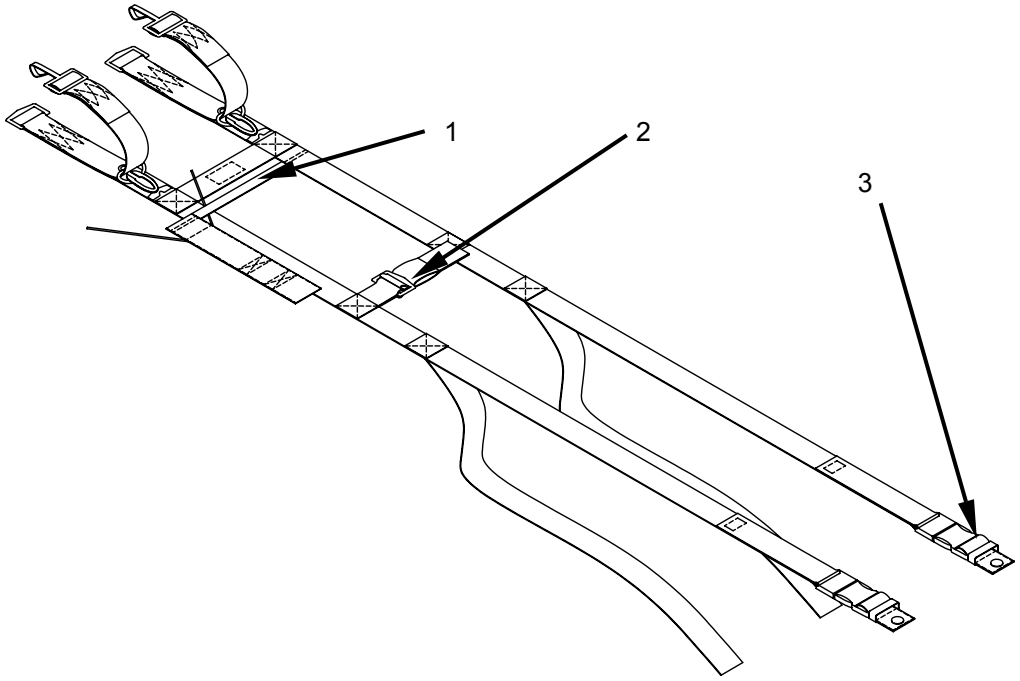
REPAIR

1. Repair harness webbing by restitching or darning. Splicing of webbing is restricted to the release handle lanyard **(1)** and straps not required to be adjusted through quick fit adapters **(2)** or side release buckles **(3)**.

2. Restitching. Restitch the harness webbing directly over old stitching using size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine. Lock stitching at least ½-inch.

3. Darning. Darn a tear in the harness webbing that does not exceed 1-inch in length or diameter using size E thread and a darning machine (DN or ZZ). There is no limit to darns that may be applied; provided they do not weaken or reduce the original strength of the webbing more than 10%.

4. Splicing. Cut a piece of 5/8-inch tubular or 1 ¾-inch wide nylon webbing as appropriate long enough to extend a minimum of 1 inch beyond each side of damaged area and sear ends as described WP 0013 00. Center splicing material lengthwise over damaged area and stitch with a three point WW for the 5/8-inch tubular point WW pattern for the 1 3/4-inch webbing the length of the splice.



REPLACE

1. Replace a damaged cord loop “A”, “B” or “C” as follows:

   a. Replacement of cord loop “A” **(1)**.

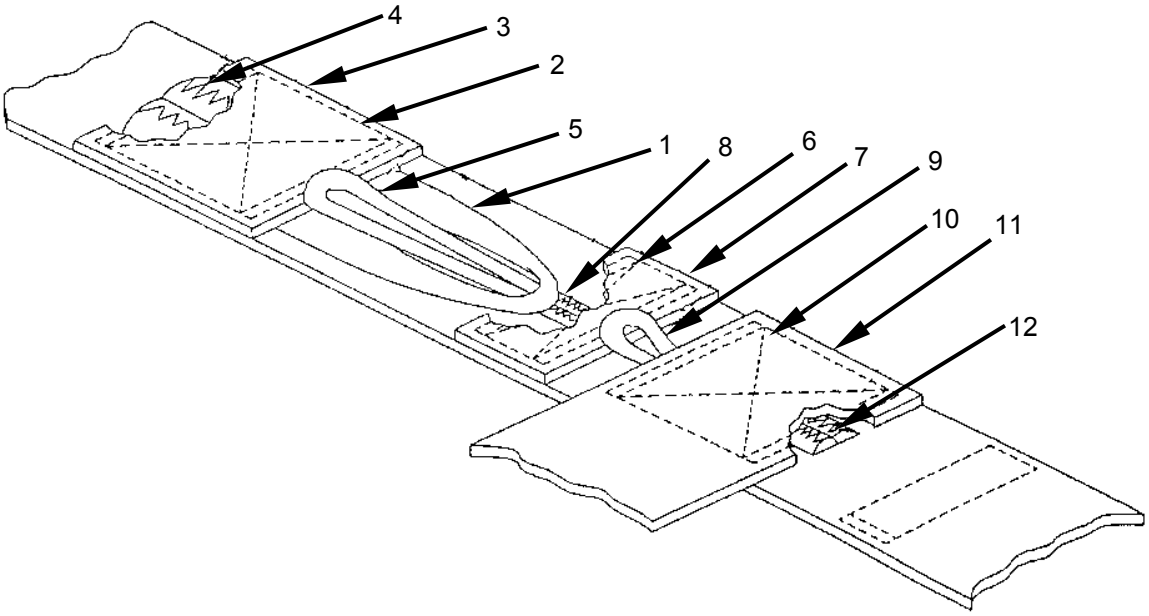
      (1) Carefully cut and remove stitching **(2)** which secures the fixed web keeper **(3)** to the harness. Cut replacement Type VIII nylon web keeper **(3)** the length of the removed keeper **(3)** and sear ends.

      (2) Carefully cut and remove stitching **(4)** that secures the loop **(1)** to the harness in two places **(4)** and discard. Cut an 8 ¼-inch length of ⅝-inch width, natural color tubular nylon and sear ends.

      (3) Position tubular nylon loop **(1)** as in original location and stitch with double-throw zigzag or straight zigzag stitching, two places **(4)** forming loop. Use size E thread, 7 to 10 stitches per inch, and a ZZ sewing machine.

      (4) Position web keeper **(3)** 2 ⅜-inches from outside edge of loop **(1)** as in original and stitch with double box X stitch pattern. Use size FF thread, 6 to 9 stitches per inch,

and a MD sewing machine. The two plies of web keeper **(3)** shall be located on the loop side of the harness.



b. Replacement of cord loop “B” **(5)**.

(1) Carefully cut and remove stitching (2) which secures the fixed web keeper (3) to the harness. Cut replacement Type VIII nylon web keeper (3) the length of the removed keeper (3) and sear ends.

(2) Carefully cut and remove stitching (4) that secures the loop (1) to the harness in two places (4) and discard. Cut an 8 ¼-inch length of 5/8-inch width, natural color tubular nylon and sear ends.

(3) Position tubular nylon loop (1) as in original location and stitch with double-throw zigzag or straight zigzag stitching, two places (4) forming loop. Use size E thread, 7 to 10 stitches per inch, and a ZZ sewing machine.

(4) Position web keeper (3) 2 3/8-inches from outside edge of loop (1) as in original and stitch with double box X stitch pattern. Use size FF thread, 6 to 9 stitches per inch, and a type MD sewing machine. The two plies of web keeper (3) shall be located on the loop side of the harness.

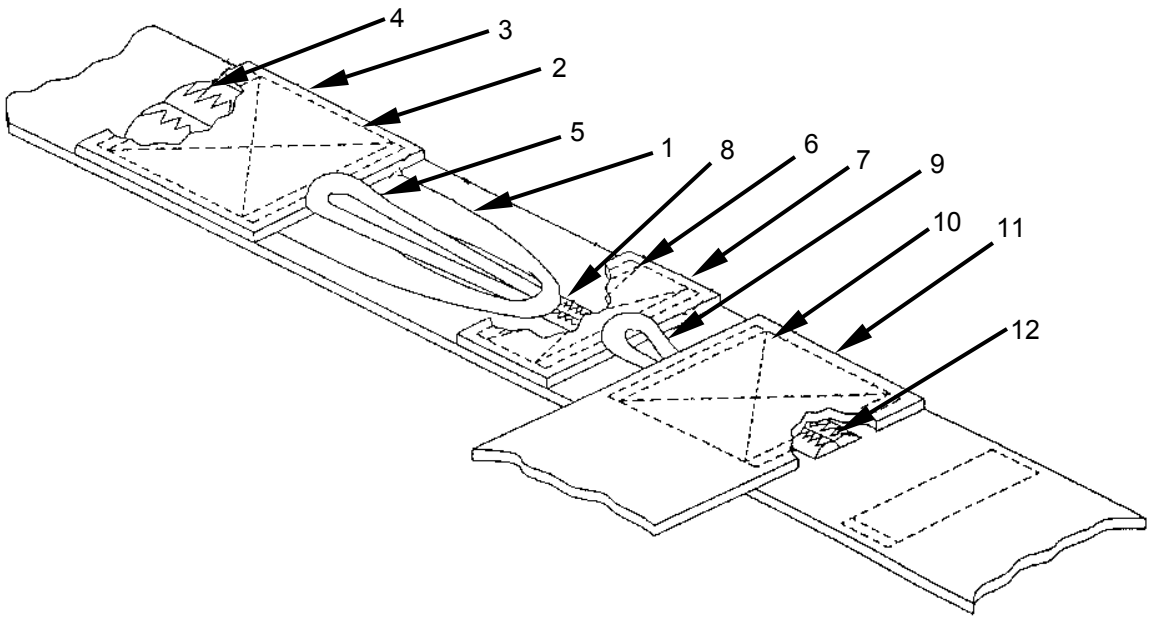
c. Replacement of cord loop “C” (9).

(1) Carefully cut and remove stitching **(10)** that secures the cross strap **(11)** to the harness.

(2) Carefully cut and remove stitching **(12)** that secures the loop **(9)** to the harness in two places **(12)** and discard. Cut a 5 ¼-inch length of Type III, red nylon cord and sear ends.

(3) Position nylon cord (9) as in original location and stitch with double-throw zigzag or single-throw zigzag stitching (12), two places forming loop (9). Use size E thread, 7 to 10 stitches per inch, and a ZZ sewing machine.

(4) Position cross strap (11) 7/8 inch from outside edge of loop with harness strap sandwiched between superimposed cross straps as in original construction and stitch with double box X stitch pattern. Use size 3 thread, 5 to 8 stitches per inch, and an HD sewing machine.



2. Replace damaged cross straps as follows:

   a. Carefully cut and remove without damaging the “C” release loops, the double box X stitching which secures the cross straps **(1)** to the harness **(2)** on both sides.

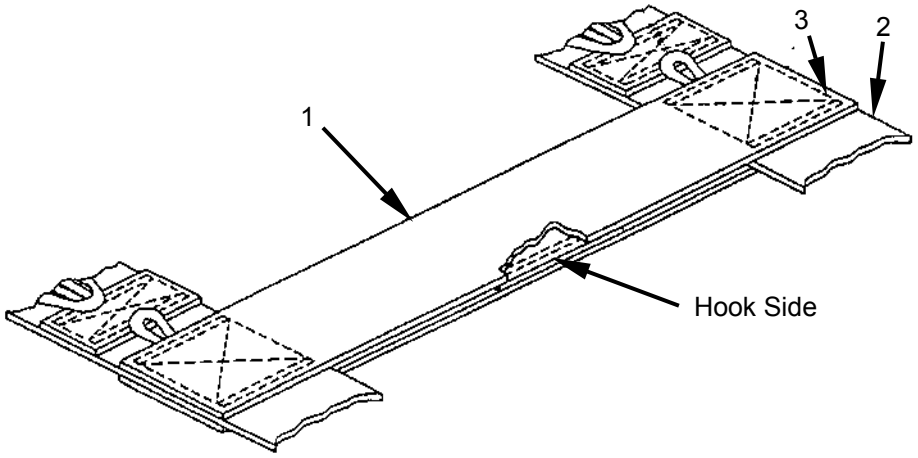
   b. Cut two 8 3/4-inch lengths of Type VIII nylon webbing and sear ends.

   c. Cut a 1 1/2-inch wide X 2-inch long hook tape fastener.

   d. On one cross strap, make a mark 4 3/8 inches for the center line location. From the center line, make a 1-inch mark at each side.

   e. Position replacement 2-inch long hook tape (facing up) between marks and stitch with two rows of box stitching **(3)**. Use size FF thread, 6 to 9 stitches per inch, and a MD sewing machine.

   f. Place cross straps **(1)** together with hook tape on inside bottom layer, and with harness strap **(2)** sandwiched between superimposed cross straps as in original construction and stitch with double box X stitch pattern in two places. Use size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.



3. Replace a damaged adjustable cross strap, chape adapter or quick-fit adapter as follows:

   a. Replacement of adjustable cross strap **(1)**.

      (1) Carefully cut and remove stitching **(2)** that secures the strap **(1)** to harness **(3)**. Remove adapter **(4)** from strap and discard.

      (2) Cut a 21-inch length of Type VIII nylon webbing and sear ends.

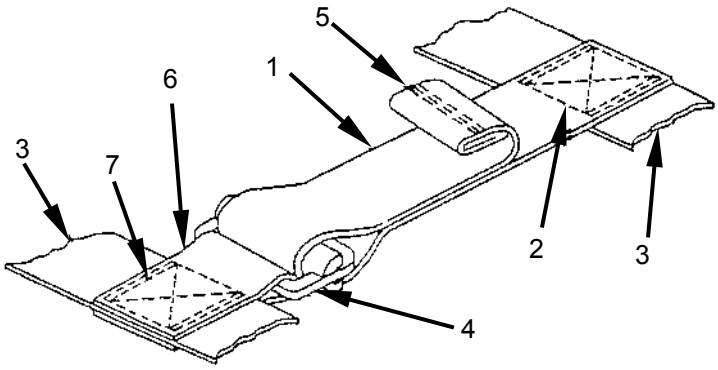
      (3) Position nylon webbing on bottom side of harness **(3)** as in original location and stitch with double box X stitch pattern **(2)**. Use size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.

      (4) Thread other end of webbing through quick-fit adapter **(4)** and fold end eight times (nine plies thick) 1 ½ inches wide and stitch with three rows of stitching **(5)** located in the center. Use size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.

   b. Replacement of chape adapter (6) or damaged quick-fit adapter (4).

      (1) Carefully cut and remove stitching **(7)** which secures the chape adapter **(6)** to the harness **(3)** and discard chape adapter.

      (2) Cut a 5-inch length Type VIII nylon webbing, sear ends and fold in center.



      (3) Unthread folded end of adjustable strap (1) from quick-fit adapter (2).

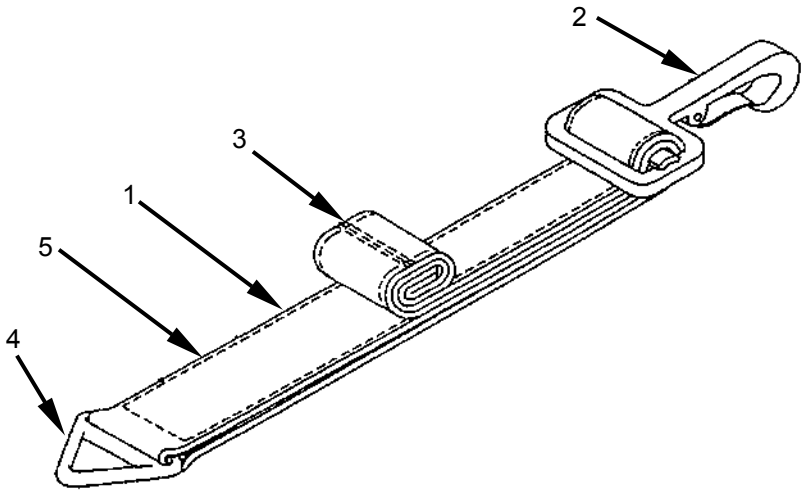
      (4) Place serviceable quick-fit adapter (4) on new chape adapter (6) with harness strap (3) sandwiched between superimposed web chape adapter (6) as in original construction and stitch with double box X stitch pattern (7). Use size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine

4. Replace a damaged Attaching Harness Strap **(1)** with a serviceable item from stock.

   a. Replacement of damaged hardware:

      (1) If only the snap hook **(2)** is damaged, carefully cut and remove the stitching at the folded end of the strap **(3)**. Remove damaged snap hook and replace with serviceable item. Fold end of strap according to original construction and stitch using size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.

      (2) If only the triangular link **(4)** is damaged, carefully cut and remove the stitching at the folded end of the strap **(3)**, sides and link end **(5)** of the strap. Remove triangular link and replace with a serviceable item. Stitch link end **(5)** and sides. Fold end of strap as in the original construction and stitch using size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.

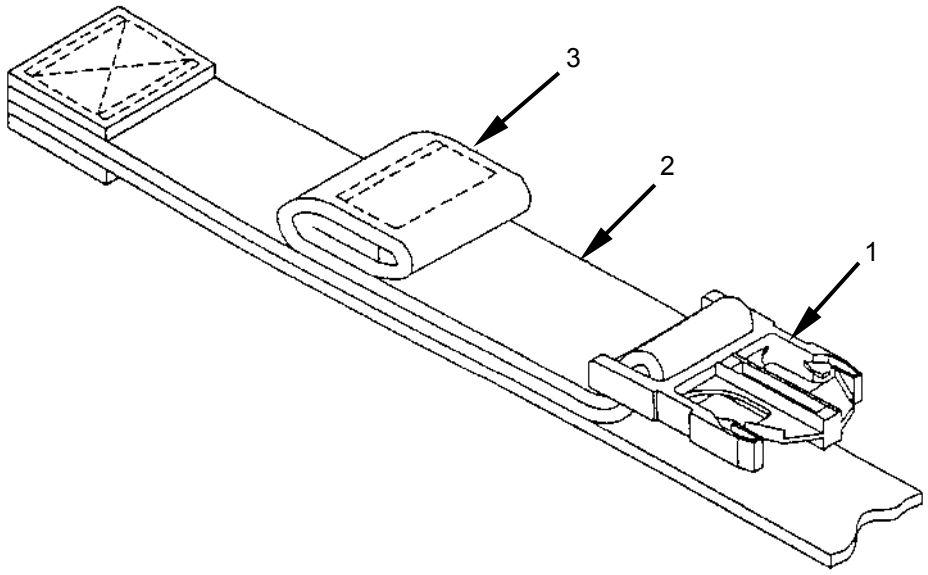


5. Replace a damaged adjustable leg strap by fabricating a new one as described in WP 0045 00.

   a. Replacement of damaged quick release buckle:

      (1) If only the male half quick release buckle **(1)** is damaged, carefully cut and remove the stitching at the folded end of the strap **(2)**. Remove male half of buckle, replace with a serviceable item of like construction and design.

      (2) Thread through replacement buckle as in original construction and fold end **(3)** four times (five plies thick) 1-inch wide and stitch with double box stitch pattern using size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.



6. Replace a damaged Leg Strap Release Assembly with a new one.

   a. Replacement of damaged elastic keeper **(1)**.

      (1) Carefully cut and remove stitching **(2)** that secures the keeper to the strap.

      (2) Cut a 4 3/4-inch length of 1-inch wide elastic webbing and wax dip ends to a depth of 3/8-inch.

      (3) Fold in half with ends aligned and stitch with two rows of stitching 1/2-inch from edge (3). Use size FF thread, 6 to 9 stitches per inch, and a MD sewing machine.

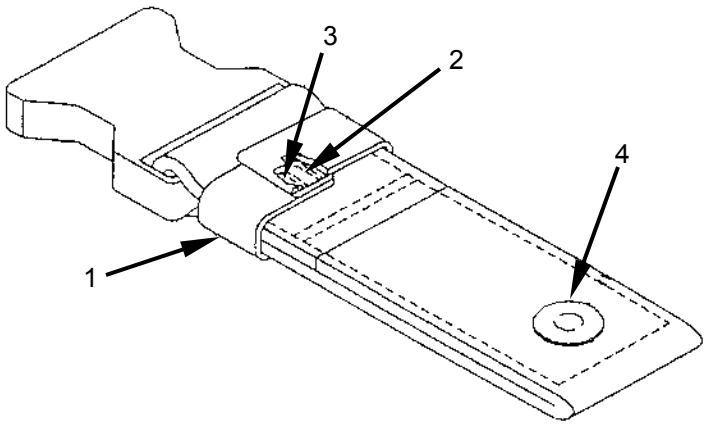
      (4) With keeper (1) turned to inside, position in original location and stitch to strap with two rows of stitching 1/4-inch from edge. Use size FF thread, 6 to 9 stitches per inch, and a MD sewing machine. Turn keeper to outside by passing end of leg strap release assembly through keeper loop.

   b. Replace or reset a loose or damaged grommet (4) in accordance with procedures described in WP 0015 00.

      (1) Resetting. Reset a loose Size 0, Type III Spur Grommet and washer by using appropriate dies.

      (2) Replace. Remove damaged grommet and washer by cutting it with a pair of diagonal wire cutters. Do not damage the webbing.

      (3) Set. Without damage to the webbing, install a replacement grommet of appropriate size, and set using the proper size dies. The grommet half shall be located on the web loop side of the leg strap release assembly.



7. Release Handle Assembly. Replace a damaged cable lanyard or pile fastener tape on the release handle assembly as follows:

   a. Replacement of release handle lanyard **(1)**.

      (1) Cut the tubular lanyard web adjacent to harness **(2)** and handle straps **(3)** and discard.

      (2) Cut a 9 3/4-inch length of 5/8-inch width, natural color tubular webbing and sear ends.

      (3) Position replacement on top of webbing (side opposite the pile tape) to outside edge of webbing and secure to handle assembly using double box stitch pattern **(4)**. Use size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.

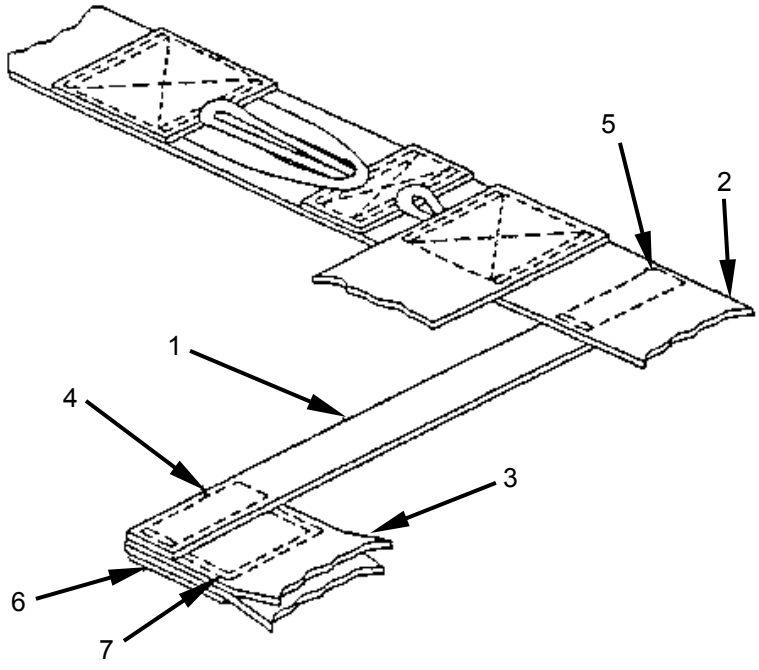
      (4) Superimpose other end of replacement on top of cut lanyard, to outside edge of webbing and secure to harness assembly with double box stitch pattern **(5)**. Use size 3 thread, 5 to 8 stitches per inch, and a HD sewing machine.

   b. Replacement of pile fastener tape (6).

      (1) Carefully cut and remove stitching **(7)** hat secures the pile to the release handle and discard.

      (2) Cut a 1 3/4-inch length of 1 1/2-inch width pile tape.

      (3) Position as in original location and stitch with two rows of stitching 1/8-inch from the edges. Use size FF thread, 6 to 9 stitches per inch, and a MD sewing machine.



   c. Replace or reset a loose or damaged wire cable on the release handle assembly as

follows:

(1) Re-press a loose cable sleeve **(1)** with compressing tool.

(2) Replacement of damaged wire cable.

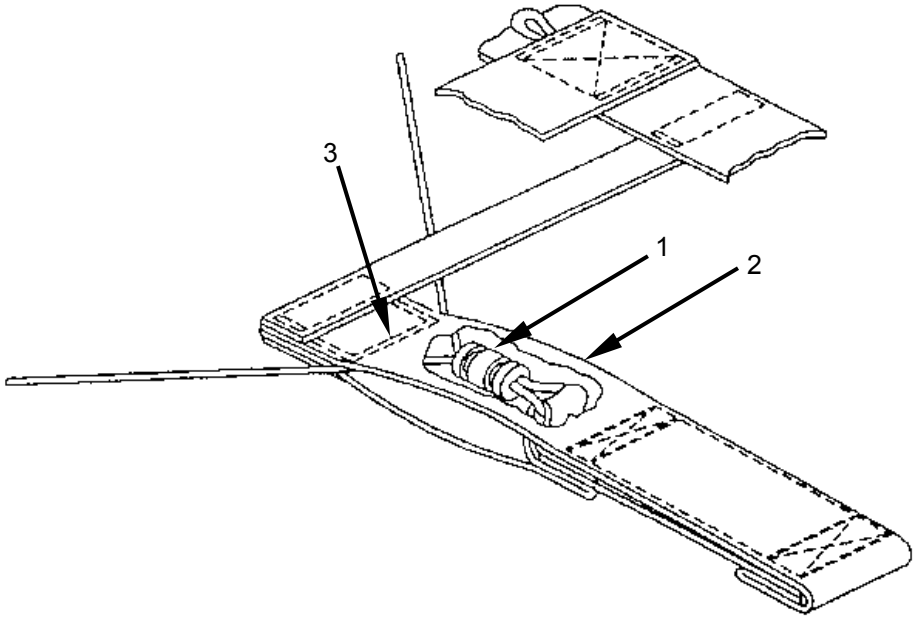
(a) Remove a damaged wire cable by cutting cable at web loop with cable cutter.

(b) Cut a 17-inch length of replacement cable and sear ends of the nylon cable cover coating sealing the ends of the wire material.

CAUTION

Be careful not to cut the wire cable material by compressing the sleeve excessively tight when assembling sleeve to the cable.

(c) Thread one end of cable through the 3/4-inch long wire cable sleeve (1), web loop of handle assembly (2), and opposite side of sleeve until ends are even, forming a 1-inch loop from cable edge to sleeve edge. Compress the sleeve, 3/16-inch from each end of the sleeve (two places) firmly to retain cable. The cable legs shall be positioned between the web plies and to the outside edges of pile tape stitching (3).

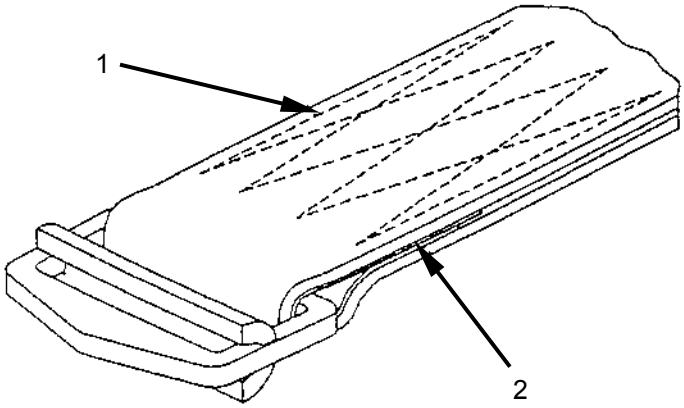


d. Replace damaged retainer strap quick-fit adapter as follows:

(1) Carefully cut and remove the 4-point WW stitch pattern **(1)** which secures the adapter to the harness and discard the buffer **(2)**.

(2) Cut a 3 ½-inch length of Type VIII nylon webbing, sear ends and fold so ends are offset ¼-inch.

(3) Position buffer **(2)** and harness web strap on serviceable adapter as in original and stitch with 3-inch long 4-point WW stitch pattern. Use size 3 thread, 5 to 8 inches per inch, and a HD sewing machine.



END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

PREPARATION FOR STORAGE

INITIAL SETUP:

Tools
N/A

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
N/A

Equipment Condition
Unpacked

STORAGE CRITERIA
Administrative storage of Ancillary Military Free Fall Equipment will be accomplished in accordance with AR 750-1, and the instructions furnished below.

GENERAL STORAGE REQUIREMENTS
To ensure that serviceability standards of the stored items are maintained, every effort will be exerted to adhere to the following general storage requirements:

1. When available, a heated building should be used to store Ancillary Military Free-Fall Equipment.

2. Ancillary Military Free-Fall Equipment will be stored in a dry, well-ventilated location and protected from pilferage, dampness, fire, dirt, insects, rodents, and direct sunlight.

3. Ancillary Military Free-Fall Equipment will not be stored in a manner which would prevent ventilation or interfere with light fixtures, heating vents, fire fighting devices, cooling units, exits, or fire doors.

4. Ancillary Military Free-Fall Equipment will not be stored in a damaged, dirty, or damp condition.

5. All stored items will be marked, segregated, and located for accessibility and easy identification.

6. Ancillary Military Free-Fall Equipment will not be stored in direct contact with any building floor or wall. Storage will be accomplished using bins, shelves, pallets, racks, or dunnage to provide airspace between the storage area floor and the equipment. If the pre-constructed shelving or similar storage accommodations are not available, locally fabricate storage provisions using suitable lumber or wooden boxes.

7. All available material handling equipment should be used as much as possible in the handling of Ancillary Military Free-Fall Equipment.

8. Periodic rotation of stock, conversion of available space, proper housekeeping policies, and strict adherence to all safety regulations will be practiced at all times.

STORAGE SPECIFICS FOR ANCILLARY MILITARY FREE FALL EQUIPMENT
In addition to the storage requirements stipulated in the general storage requirements paragraph, above, Ancillary Military Free-Fall Equipment will be secured from access by unauthorized personnel.

END OF WORK PACKAGE

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

PREPARATION FOR SHIPMENT
IN STORAGE INSPECTION, SHIPMENT

INITIAL SETUP:

Tools
N/A

Personnel Required
92R(10) Parachute Rigger

Materials/Parts
N/A

Equipment Condition
Unpacked

IN-STORAGE INSPECTION

General Information. An in-storage inspection is a physical check conducted on a random sample of airdrop equipment that is located in storage. Authorized rigger personnel (MOS 92R(20)) will conduct this inspection.

Intervals. Ancillary Military Free Fall Equipment in storage will be inspected at least semiannually and at more frequent intervals if prescribed by the local parachute maintenance officer.

Inspection. Inspect to ensure that the Ancillary Military Free Fall Equipment is ready for issue.

1. Check the items for proper identification.
2. Check that no damage or deterioration has been incurred.
3. Ensure that all modifications, or similar requirements, have been completed.
4. Check the adequacy of the storage facilities, efforts taken to control pests and rodents, and protection against unfavorable climatic conditions.

SHIPMENT

Initial Shipment. The initial packaging and shipping of Ancillary Military Free Fall Equipment is the responsibility of item manufacturers, who are required to comply with federal and military packing specifications, as stipulated in contractual agreements. Ancillary Military Free Fall Equipment are normally shipped to depot activities, by domestic freight or parcel post, and packed to comply with overseas shipping requirements. Except for those items that are unpackaged and subjected to random inspections or testing by depot activity, Ancillary Military Free Fall Equipment received by a using unit will be contained in the original packaging materials.

Shipping Between Maintenance Activities. The shipping of Ancillary Military Free Fall Equipment between activities will be accomplished on a signature verification basis using whatever means of military transportation is available. Used items will be tagged in accordance with DA PAM 738-751, and rolled, folded, or placed loosely in a suitable container, as required. Unused Ancillary Military Free Fall Equipment will be transported in original shipping containers. During shipment, every effort will be made to protect equipment from weather elements, dust, dirt, oil, grease, and acids. Vehicles used to transport Ancillary Military Free Fall Equipment will be inspected to ensure the items are protected from the previously cited material damaging conditions.

Other Shipping Instructions. Ancillary Military Free Fall Equipment destined for domestic or overseas shipment will be packaged and marked in accordance with AR 700-15, TM 38-230-1, and TM 38-230-2. Shipment of parachutes will be accomplished in accordance with TM 10-1670-201-23.

END OF WORK PACKAGE

CHAPTER 3

SUPPORTING INFORMATION

ANCILLARY MILITARY FREE-FALL EQUIPMENT

ANCILLARY MILITARY FREE-FALL EQUIPMENT REFERENCES

SCOPE

This work package lists all field manuals, technical manuals, forms, pamphlets, Army regulations, and military standards referenced throughout this manual.

Field Manuals

First Aid for Soldiers	FM 4-25.11
General Repair for Tents, Canvas and Webbing	FM 10-16

Technical Manuals

Ancillary Equipment For: Personnel Troop Parachute System Case, Parachutists, Individual Weapon, M-1950	TM 10-1670-299-20&P/T.O 14D1-2-470-2/NAVAIR 13-1-41
Equipment Maintenance Forms and Procedures	TM 4700-15/1/
General Maintenance of Parachutes and Other Airdrop Equipment	TM 10-1670-201-23/ T.O. 13C-1-41/ NAVAIR 13-1-17
Preservation, Packaging, Packing of Military Supplies and Equipment (Vols. I and 2)	TM 38-230-1 and TM 38-230-2
Procedures for the Destruction of Air Delivery Equipment to Prevent Enemy Use	TM 43-0002-1/ T.O. 13C3-1-10/ NAVAIR 13-1-19

Forms

Equipment Inspection & Maintenance Worksheet	DA Form 2404
Parachute Log Record	DA Form 3912
Product Quality Deficiency Report	SF 368
Recommended Changes to Equipment Technical Publications	DA Form 2028-2
Recommended Changes to Publications and Forms	DA Form 2028
Report of Item Discrepancy	SF 364
Uncorrected Fault Record	DA Form 2408-14

DA Pamphlets

Consolidated Index of Army Publications and Blank Forms	DA PAM 25-30
The Army Maintenance Management System (Aviation)	DA PAM 738-751
The Army Maintenance Management System (TAMMS)	DA PAM 738-750

Technical Bulletins

Maintenance Expenditure Limits for FSC Group 16, FSC Class 1670	TB 43-0002-43

Army Regulations

Air Drop, Parachute Recovery and Aircraft Personal Escape Systems	AR 750-32
Army Material Maintenance Concepts and Policy and Retail Maintenance Operations	AR 750-1
Authorized Abbreviation and Brevity Codes and Acronyms	AR-310-50
Dictionary of United States Army Terms	AR 310-25
Packaging of Material	AR 700-15

Air Force Technical Orders

Cleaning of Parachute Assemblies	T.O. 14D1-1-2
Parachute Logs and Records	T.O. DO-25-241

Air Force Technical Order Forms

Parachute Log	AFTO 391
Parachute Repack Inspection and Component Card	AFTO 392

Marine Corps Forms

Marine Corps Military Incentive Awards Program	MCO 1650.17F
Parachute History Record	NAV WPN CEN or NAV WPNS CL 13512/11
Product Quality Deficiency Report	MCO 4855.10B
Recommended Changes to Technical Publications	NAVMC 10772

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
MAINTENANCE ALLOCATION CHART, INTRODUCTION

INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

The MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit - includes two subcolumns, C (operator/crew) and O (unit) maintenance

Direct Support - includes an F subcolumn

General Support - includes an H subcolumn

Depot - includes a D subcolumn

The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

Maintenance Functions

Maintenance functions are limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.

2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.

3. Service. Operations required periodically to keep an item in proper operating condition, i.e. to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms.

4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

7. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of equipment or system.

8. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the 3rd position code of the Source, Maintenance, and Recoverability (SMR) code.

9. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles, and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services - Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions - Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

10. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

11. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles, etc.) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Column (1) - Group Number. Column (1) lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly.

Column (2) - Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column (3) - Maintenance Function. Column (3) lists the functions to be performed on the item listed in Column (2). (For a detailed explanation of these functions, refer to “Maintenance Functions” outlined above.)

Column (4) - Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary assembly/disassembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

C -- Operator or crew

O -- Unit Maintenance

F -- Direct Support Maintenance

L -- Specialized Repair Activity (SRA)

D -- Depot Maintenance

H -- General Support Maintenance

NOTE

The “L” maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the “H” column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) - Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools) common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) - Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) - Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) - Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) - Nomenclature. Name or identification of the tool or test equipment.

Column (4) - National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) - Tool Number. The manufacturer's part number, model number, or type number.

Explanation of Columns in the Remarks

Column (1) - Remarks Code. The code recorded in Column (6) of the MAC.

Column (2) - Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
MAINTENANCE ALLOCATION CHART

Table 1. Maintenance Allocation Chart (MAC) for Ancillary Military Free-Fall Equipment.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	TOOLS & EQUIPMENT	
GROUP NUMBER	ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	CODE	REMARKS
01	**HELMET, FREE-**	Inspect		0.1					
	FALL	Repair		0.1				1	
	PARACHUTIST'S,	Replace		0.1					
	TYPE I								
0101	EDGE BINDING	Inspect		0.1					
		Repair		0.3					
0102	EAR CUSHION	Inspect		0.1				1	
		Repair		0.5					
02	**HELMET, FREE-**	Inspect		0.1					
	FALL	Repair		0.1				1,2,3	
	PARACHUTIST'S	Replace		0.1					
	TYPE II								
	(W/COMMO)								
0201	EARPHONE	Inspect		0.1					
		Replace		0.5				1,2,3	
0202	EARPHONE	Inspect		0.1					
	CORD	Replace		0.5				1,2,3	
0203	MICROPHONE	Inspect		0.1					
	BOOM	Replace		0.5					
03	**GOGGLES, SUN,**	Inspect		0.1					
	WIND, & DUST	Replace		0.1					
04	**ALTIMETER**	Inspect		0.1					
	BAROMETER	Test		0.4					
		Service		0.3				2	
		Repair		0.2					
		Replace		0.1					
0401	WRISTSTRAP,	Inspect		0.1					
	ALTIMETER	Repair		0.1				3	
05	**SLING,**	Inspect		0.1					
	ASSEMBLY	Repair		0.3					
	EQUIPMENT	Replace		0.1					
	ATTACHING								
06	**LINE,**	Inspect		0.1					
	EQUIPMENT	Repair		0.5					
	LOWERING	Replace		0.1					
	8 FOOT								

Table 1. Maintenance Allocation Chart (MAC) for Ancillary Military Free-Fall Equipment - Continued.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	TOOLS & EQUIPMENT	
GROUP NUMBER	ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	CODE	REMARKS
07	**RELEASE**	Inspect		0.2				4,5	
	ASSEMBLY,	Install		0.5				4,5	
	RIPCORD,	Test		0.5				6,7,8	
	AUTOMATIC,	Service		0.5				3,4,5	
	TYPE FF-2	Adjust		0.5				1	
		Repair		1.0				1,3,4,5	
		Replace		0.2					
		Overhaul					4.0		
08	**AUTOMATIC**	Test		0.3				1,2,3	D
	RIPCORD	Service		0.5					B
	RELEASE	Repair		0.4				7	C
		Replace		1.0					
0801	POWER CABLE	Inspect		0.1					A
	ASSEMBLIES	Repair		0.4				3, 5 & 6	E
		Replace		1.0					
09	**PARACHUTE**	Inspect		0.2					
	DROP BAG	Repair		0.5					A, B
		Replace		0.2					
0901	VERTICAL	Inspect		0.2					
	STRAPS	Repair		0.5					A, B
0902	COMPRESSION	Inspect		0.2					
	STRAP	Repair		0.2					A, B
		Replace		0.5					
0903	LOWERING LINE	Inspect		0.2					A, B
	ASSEMBLY	Rebuild		0.5					
		Repair		0.5					
0904	ATTACHING	Inspect		0.2					
	STRAPS	Repair		0.5					
		Replace		0.2					
0905	BREAKAWAY LEG	Inspect		0.2					A, B
	STRAPS	Repair		0.5					
		Replace		0.5					
010	**HARNESS,**	Inspect		0.3					
	SINGLE POINT	Repair		0.2				1, 2, 3, 4	A
	RELEASE	Replace		0.1					
01001	STRAP, LEG	Inspect		0.1					
	RELEASE	Repair		0.2				1, 2,	A
		Replace		0.1					
01002	HANDLE	Inspect		0.1					
	RELEASE	Repair		0.2				1, 2	A
		Replace		0.1					

Table 1. Maintenance Allocation Chart (MAC) for Ancillary Military Free-Fall Equipment - Continued.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	TOOLS & EQUIPMENT	
GROUP NUMBER	ASSEMBLY	MAINT. FUNCTION	C	O	F	H	D	CODE	REMARKS
01003	STRAP, HARNESS ATTACHING	Inspect		0.1				1, 2	A
		Repair		0.2					
		Replace		0.1					

Table 2. Tools and Test Equipment for Ancillary Military Free-Fall Equipment.

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	O	Awl	5120-00-221-1542	GGG-A-891
2	O	Canvas repair kit	5180-00-754-0731	SC5180-90-CL-N07
3	O	Cutter, cable	5110-01-442-9125	63050-INS
4	O	Cutter, diagonal, pliers	5110-00-293-3209	A-A-2330
5	O	Double bow cutter	5110-00-180-0923	149-1/2
6	O	FF-2 basic tool kit	1670-01-106-9091	ID-54-640
7	O	Key, socket head set	5120-00-729-6392	GGG-K-275
8	O	Knife	5110-00-162-2205	6400 45R
9	O	Knife, hot metal	3439-01-197-7656	4025 (78976)
10	O	Lead Pig	9650-00-264-5050	QQ-C-40
11	O	Needle, tacking	8315-00-262-3733	FF-N-180
12	O	Penlight	6230-00-635-4998	E/N22
13	O	Pot, melting, electric	5120-00-924-5213	L-115
14	O	Press, hand operated	5120-00-880-0619	A741
15	O	Punch and Die for 0-Grommets	5120-00-357-5754	216-0
16	O	Rawhide mallet	5120-00-293-3397	GGG-H-33
17	O	Reset key, FF-2	5315-01-092-2009	ID-62-3323
18	O	Screwdriver, ¼ inch flat tip	5120-00-596-8653	GGG-S-121
19	O	Screwdriver, cross tip, no 2	5120-00-234-8913	64-102
20	O	Sewing machine, industrial: general sewing; 301 stitch; light duty	3530-01-177-8590	OO-S-00256/13
21	O	Sewing machine, industrial; 301 stitch, light duty	3530-01-186-3079	OO-S-00256/13
22	O	Sewing machine, industrial; 301 stitch; double needle	3530-01-182-2873	OO-S-256/15
23	O	Sewing machine, industrial, darning; lock stitch	3530-01-177-8589	OO-S-00256/16
24	O	Sewing machine, industrial; general sewing, 301 stitch, heavy duty	3530-01-177-8588	OO-S-00256/13
25	O	Sewing machine, industrial; general sewing, 301 stitch, medium duty	3530-01-177-8591	OO-S-00256/13

Table 2. Tools and Test Equipment for Ancillary Military Free-Fall Equipment.

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
26	O	Sewing machine, industrial; zig zag, 308 stitch, light duty	3530-01-181-1420	OO-S-00256/14
27	O	Sewing machine, industrial; zig zag; 308 stitch, medium duty	3530-01-181-1421	OO-S-00256/14
28	O	Shears	5110-00-233-6370	GGG-S-278
29	O	Single bow cutters	5110-00-180-0941	GGG-P-833
30	O	Slack checker	Local purchase	451-230-1
31	O	Stirrup cocking tool	Local purchase	
32	O	Stopwatch	6645-01-146-8610	806-344-1
33	O	Test arming pin	1670-01-106-9091	ID-54-60
34	O	Test chamber, FF-2	4940-01-216-8322	ID-07-110-501
35	O	Test chamber, Model 453	1670-01-468-9471	453-001
36	O	Test scale	6635-00-705-5469	80D
37	O	Tool, compressing	5120-00-323-2296	51X850
38	O	Torque driver	5120-00-401-1676	TQS1/TQS1A
39	O	Wrench, adjustable, 6-inch	5120-00-264-3795	5385A12

Table 3. Remarks for Your Ancillary Military Free-Fall Equipment.

REMARKS CODE	REMARKS
A	Inspect is a technical-rigger type inspection.
B	Service is cleaning of equipment.
C	Repair is by replacement of AR2 decals, and jump/off switch
D	Test is to verify that the unit functions within specified ranges.
E	Repair by replacement of components of power cable assembly.

UNIT AND DIRECT SUPPORT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
REPAIR PARTS AND SPECIAL TOOLS LIST INTRODUCTION

SCOPE

This (RPSTL) lists and authorizes spare and repair parts; special tools; special test, measurement and diagnostic equipment (TMDE); and other special support equipment required for performance of ancillary military free-fall equipment, maintenance of the ancillary military free fall equipment. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

GENERAL

In addition to the Introduction Work Package, this RPSTL is divided into the following work packages:

1. Repair Parts List Work Packages. Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.

2. Special Tools List Work Packages. Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.

3. Cross-Reference Indexes Work Packages. There are 2 cross-reference indexes work packages in this RPSTL: (the National Stock Number (NSN) Index work package, and the Part Number (P/N) Index work package). The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The (SMR) code containing supply/requisitioning information, maintenance level authorization criteria and disposition instruction, as shown in the following breakout.

Source Code	Maintenance Code		Recoverability Code
XX	X	X	X
1st two Positions: How to get an item.	3rd Position: Who can install, replace or use the item.	4th Position: Who can do complete repair* on the item.	5th Position: Who determines disposition action on unserviceable items.

* Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanation of source codes follows.

Source Code	Explanation
PA PB PC PD PE PF PG	Stock items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the third position of the SMR code. **NOTE** Items coded PC are subject to deterioration.
KB KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO-Made at Unit/ AVUM Level MF-Made at DS/ AVIM Level MH-Made at GS Level ML-Made at SRA MD-Made at Depot	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO-Assembled by Unit/AVUM Level AF-Assembled by DS/AVIM Level AH-Assembled by GS level AL-Assembled by SRA AD-Assembled by Depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the third position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
XA	Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to the NOTE below.)
XB	If an "XB" item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's P/N.

XD Item is not stocked. Order an XD coded item through normal supply channels using the CAGEC and P/N, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance.

Maintenance Code	Application/Explanation
C	Crew or operator maintenance done within unit/AVUM maintenance.
O	Unit level/AVUM maintenance can remove, replace, and use the item.
F	Direct support/AVIM maintenance can remove, replace, and use the item.
H	General support maintenance can remove, replace, and use the item.
L	Specialized repair activity can remove, replace, and use the item.
D	Depot level can remove, replace, and use the item.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

Maintenance Code	Application/Explanation
O	Unit/AVUM is the lowest level that can do complete repair of the item.
F	Direct support/AVIM is the lowest level that can do complete repair of the item.

H — General support is the lowest level that can do complete repair of the item.

L — Specialized repair activity is the lowest level that can do complete repair of the item.

D — Depot is the lowest level that can do complete repair of the item.

Z — Nonreparable. No repair is authorized.

B — No repair is authorized. No parts or special tools are authorized for the maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR Code as follows:

Recoverability Code	Application/Explanation
Z	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR Code.
O	Reparable item. When uneconomically reparable, condemn and dispose of the item at the unit level.
F	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support level.
H	Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A	Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

NSN (Column (3)). The NSN for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer (individual company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different P/N from the number listed.

DESCRIPTION and Usable On Code (UOC) (Column (6)). This column includes the following information:

1. The federal item name, and, when required, a minimum description to identify the item.

2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.

3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.

4. The statement "END OF FIGURE" appears just below the last item description in Column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of quantity indicates that the quantity is a variable with each application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

National Stock Number (NSN) Index Work Package.

STOCK NUMBER Column. This column lists the NSN in National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN, i.e.,

NSN
5305-01-574-1467
NIIN

When using this column to locate an item, ignore the first four digits of the NSN. Use the complete NSN (13 digits) when requisitioning by stock number.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in the repair parts list and special tools list work packages.

ITEM Column. The Item number identifies the item associated with the figure listed in the adjacent FIG. Column. This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combinations which place the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9, and each following letter or digit in like order).

PART NUMBER Column. Indicates the P/N assigned to the item.

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in adjacent figure number column.

SPECIAL INFORMATION

USABLE ON CODE (UOC). The usable on code appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC: …" in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the usable on codes used in this RPSTL are:

Code	Used On
No usable on codes assigned for this end item.	

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk material are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in WP 0045 00, Illustrated List of Manufactured Items.

Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN / P/N index work packages and the bulk material list in the repair parts list work package."

Illustrations List. The illustrations in this RPSTL contain unit authorized items. Illustrations published in this technical manual contain unit authorized items that appear in this RPSTL. The tabular list in the repair parts list work package contains only those parts coded "O" in the third position of the SMR code, therefore, there may be a break in the item number sequence.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or P/Ns Are Not known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN is Known.

First, if you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When P/N is Known.

First. If you have the P/N and not the NSN, look in the PART NUMBER column of the P/N index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

UNIT MAINTENANCE

ANCILLARY MILITARY FREE FALL EQUIPMENT

HELMET, FREE-FALL TYPE I

REPAIR PARTS LIST

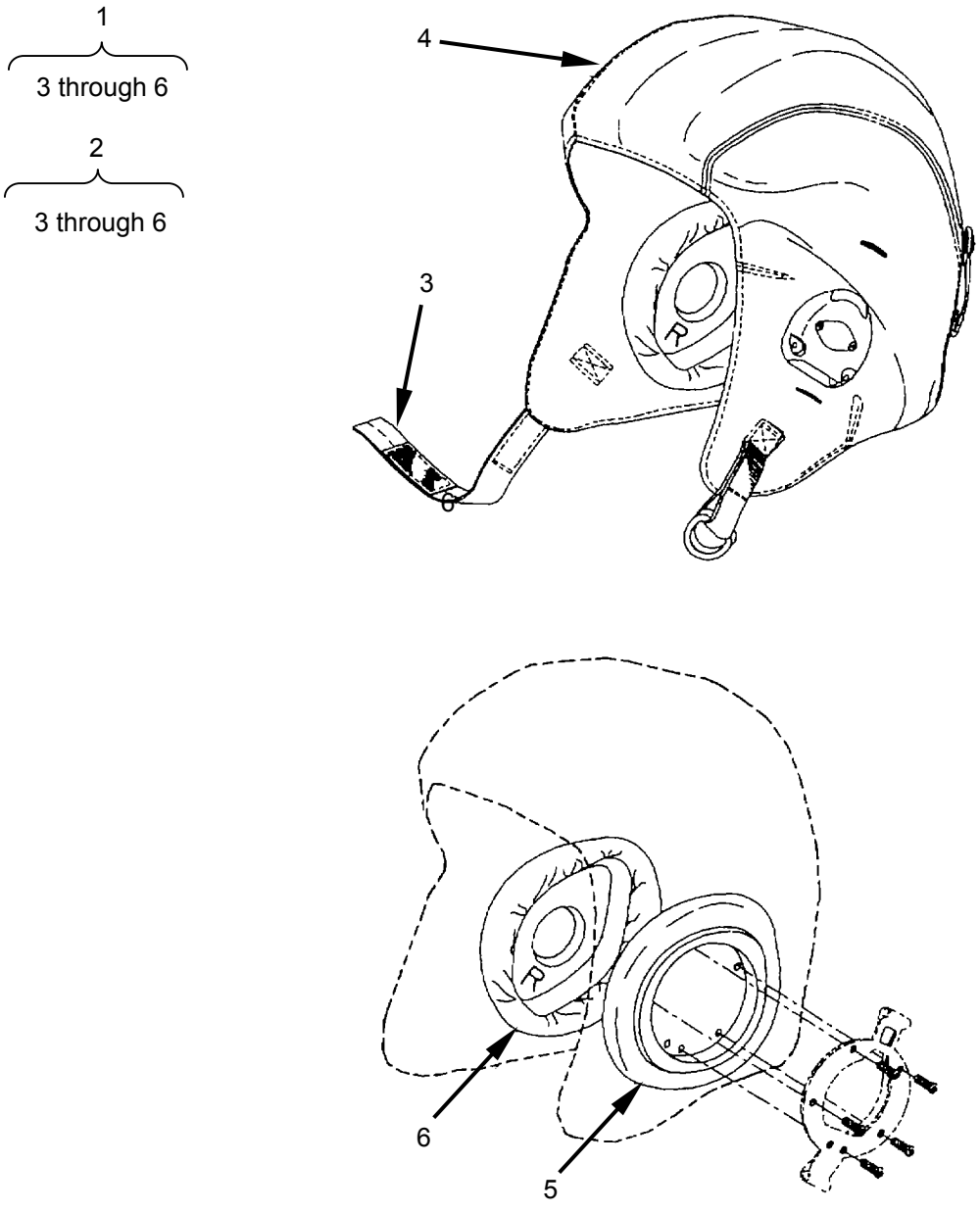


Fig 1. HELMET, FREE-FALL PARACHUTIST, TYPE I, MEDIUM, AND LARGE

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01. HELMET, FREE-FALL PARACHUTIST, TYPE I, MEDIUM, AND LARGE	
					FIG. 1. HELMET, FREE-FALL PARACHUTIST, MIL-H-43174, TYPE I	
1	PAOZZ	8415-01-018-4911	81337	MIL-H-43174	Helmet, Free Fall, Medium, Type I	1
2	PAOZZ	8415-01-018-4912	81337	MIL-H-43174	Helmet, Free Fall, Large, Type I	1
3	XAOZZ		81337	11-1-2968	. Chin Strap.....	1
4	XAOZZ		81349	11-1-398-2	. Shell, Inner & Outer, Medium	1
4	XAOZZ		81349	11-1-398-3	. Shell, Inner & Outer, Large	1
5	XAOZZ		98750	56E1258L	. Ear Cushion, Left	1
6	XAOZZ		98750	56E1258R	. Ear Cushion, Right.....	1
					END OF FIGURE	

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

HELMET, FREE-FALL TYPE 2

REPAIR PARTS LIST

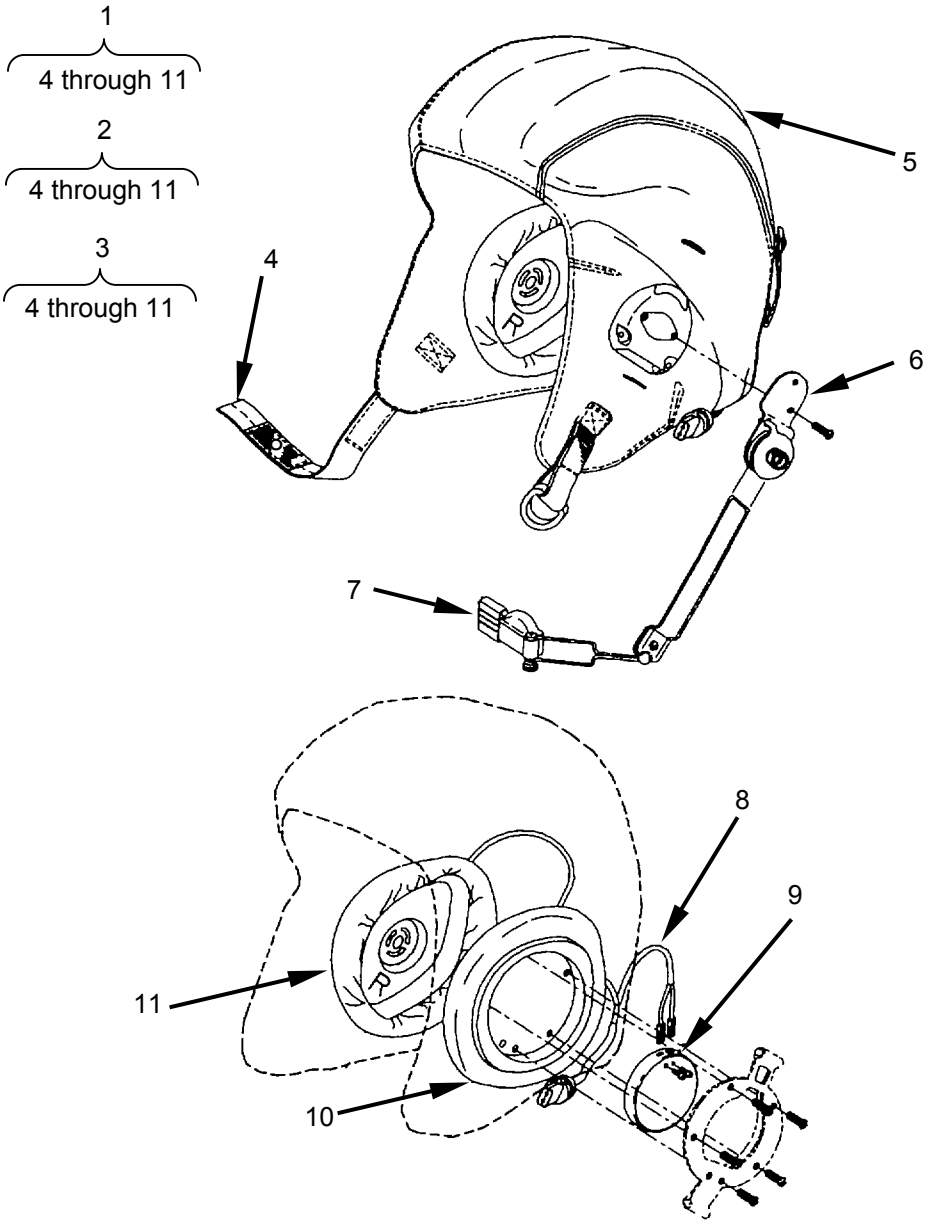


Fig 2. HELMET, FREE-FALL PARACHUTIST, TYPE II, SMALL, MEDIUM, AND LARGE

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02. HELMET, FREE-FALL PARACHUTIST, TYPE II, SMALL, MEDIUM, AND LARGE	
					FIG. 2. HELMET, FREE-FALL PARACHUTIST, MIL-H-43174, TYPE II, SMALL, MEDIUM, AND LARGE	
1	PAOZZ	8415-01-018-4913	81337	MIL-H-43174	Helmet, Free Fall, Small, Type II	1
2	PAOZZ	8415-01-018-4914	81337	MIL-H-43174	Helmet, Free Fall, Medium, Type II	1
3	PAOZZ	8415-01-018-4915	81337	MIL-H-43174	Helmet, Free Fall, Large, Type II	1
4	XAOZZ		81337	11-1-2968	.Strap, Chin.....	1
5	XAOZZ		81349	11-1-398-1	. Shell, Inner & Outer, Small	1
5	XAOZZ		81349	11-1-398-2	. Shell, Inner & Outer, Medium	1
5	XAOZZ		81349	11-1-398-3	. Shell, Inner & Outer, Large.....	1
6	XAOZZ		81337	11-1-952	.Bracket, Microphone.....	1
7	PAOZZ	5965-00-755-4643	81349	MIL-M-26542/2	.Microphone, Dynamic.....	1
8	PAOZZ	5995-00-930-7838	80058	CX-11257/A1C	.Cord Assembly, Electric.....	1
9	PAOZZ	5965-00-615-0104	81339	MIL-E-25670	.Earphone	1
10	XAOZZ		98750	56E1258L	.Ear Cushion, Left.....	1
11	XAOZZ		98750	56E1258R	.Ear Cushion, Right.....	1
					END OF FIGURE	

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

GOGGLES, SUN, WIND AND DUST

REPAIR PARTS LIST

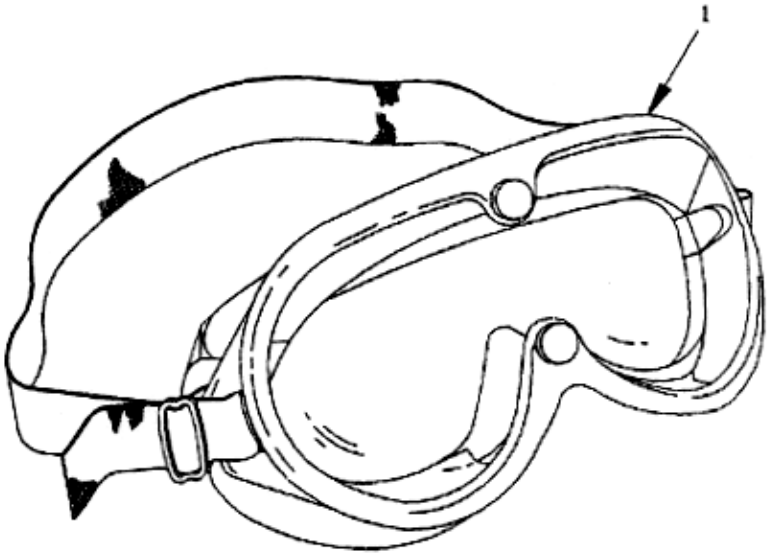


Fig 3. GOGGLES, SUN, WIND, AND DUST

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 03. GOGGLES, SUN, WIND AND DUST FIG. 3. GOGGLES, SUN, WIND, AND DUST	
1	PAOZZ	8465-01-328-8268	99994	43914	Goggles, Sun, Wind, and Dust ..... END OF FIGURE	1

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

ALTIMETER BAROMETER

REPAIR PARTS LIST

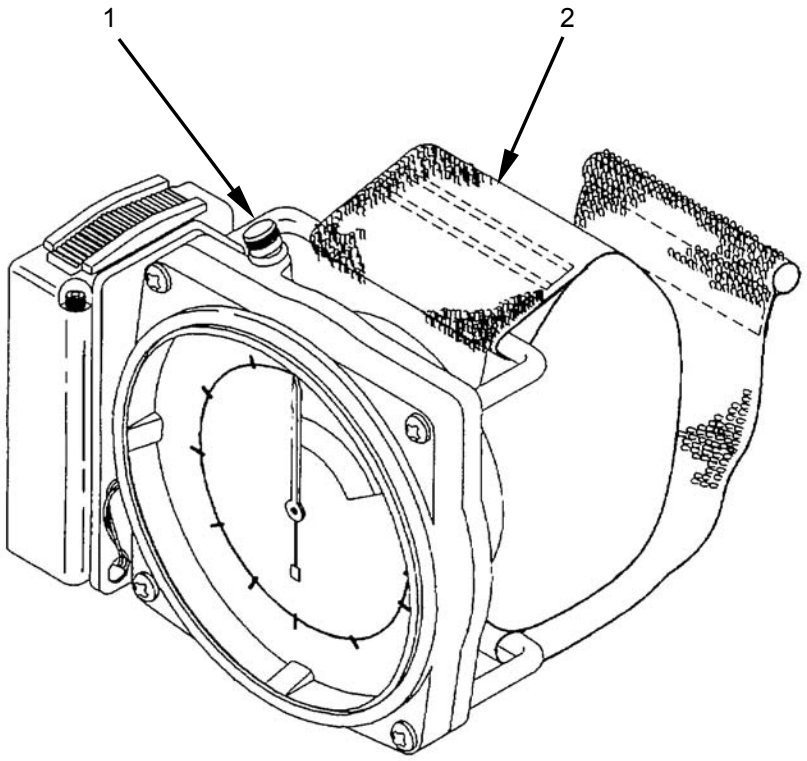


Fig 4. ALTIMETER BAROMETER

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04. ALTIMETER-BAROMETER	
					FIG 4. ALTIMETER-BAROMETER	
1	PAOLL	6660-01-213-9035	81337	11-1-3513	Altimeter-Barometer.....	1
2	MOOZZ		81337	11-1-3513-1	. Strap, Wrist, Altimeter.....	1
					END OF FIGURE	

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

SLING ASSEMBLY, EQUIPMENT ATTACHING
REPAIR PARTS LIST

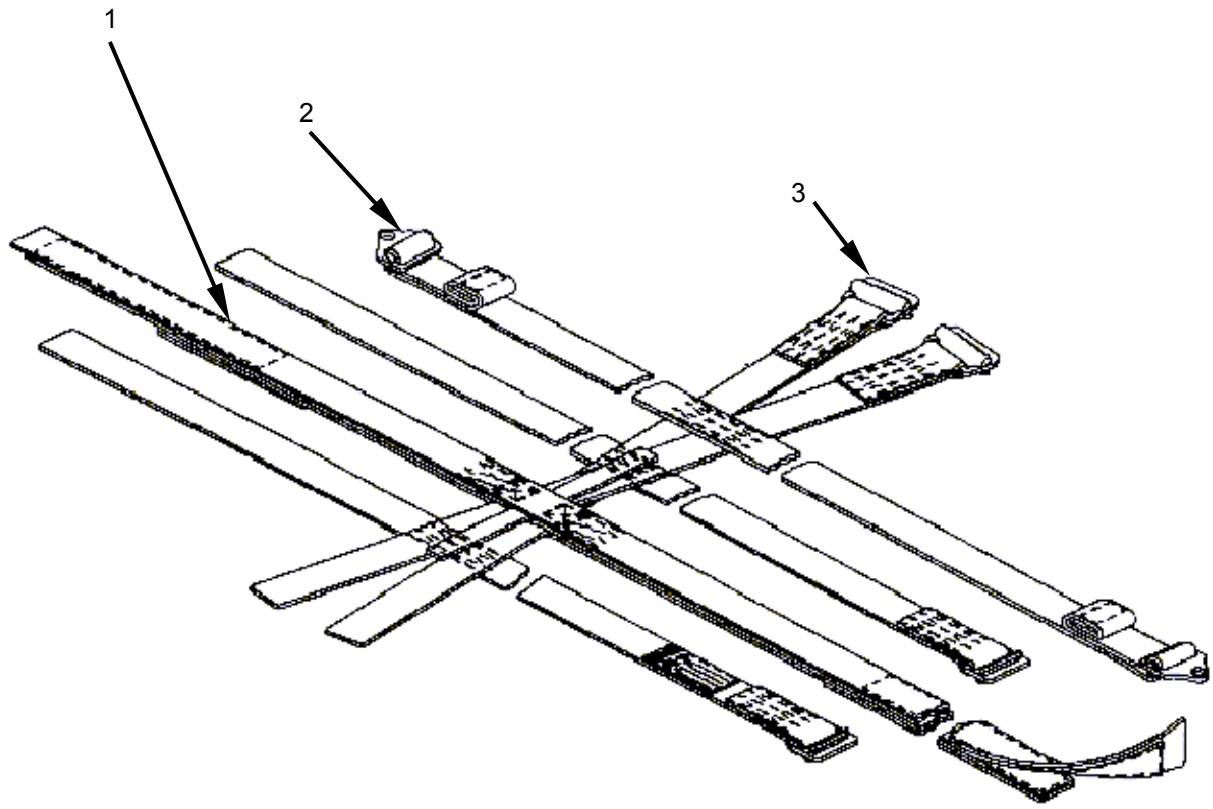


Fig 5. SLING ASSEMBLY, EQUIPMENT ATTACHING

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 05. SLING ASSEMBLY, EQUIPMENT ATTACHING	
					FIG. 5. SLING ASSEMBLY, EQUIPMENT ATTACHING	
1	PAOZZ	1670-01-008-7755	81337	11-1-2529	Sling Assembly, Equipment Attaching	1
2	XAOZZ		81337	MS70116	.Link, Connecting, Quick-Release	2
3	XAOZZ		81337	MS23019	.Adapter, Quick-Fit.....	4
					END OF FIGURE	

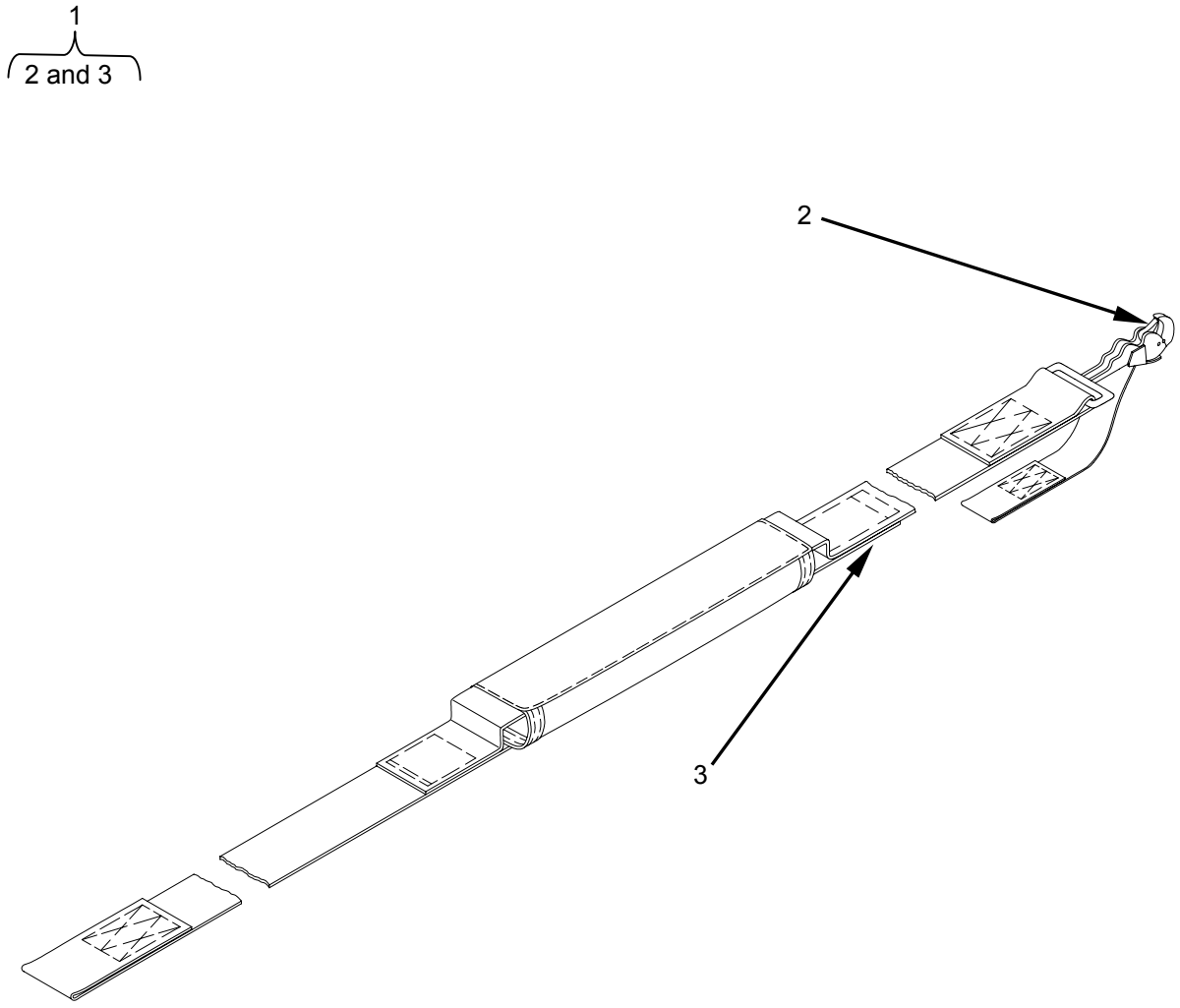


Fig 6. LINE, EQUIPMENT LOWERING, 8 FOOT.

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 06. LINE, EQUIPMENT LOWERING, 8-FOOT	
					FIG. 6. LINE, EQUIPMENT LOWERING, 8-FOOT	
1	PAOZZ	1670-01-067-6838	81337	11-1-2530-1	Line, Equipment Lowering, 15 foot	1
2	PAOZZ	5340-00-491-1065	96906	MS70120	. Snap Hook.....	1
3	MOOOZ		81337	11-1-2530-2	. Line, Equipment Lowering	1
					END OF FIGURE	

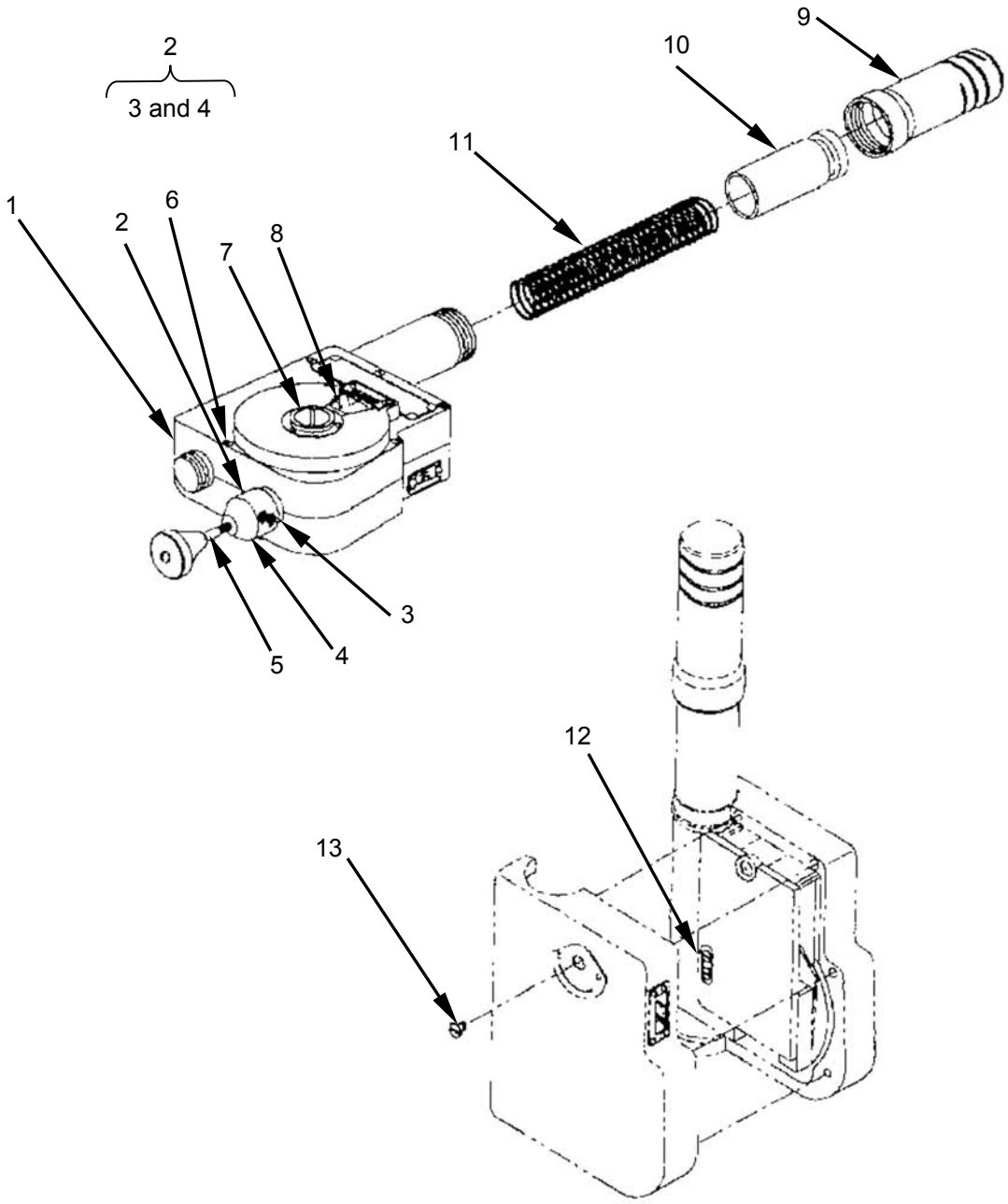


Fig 7. RELEASE ASSEMBLY, RIPCORD, AUTOMATIC, TYPE FF-2

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 07. RELEASE ASSEMBLY, RIPCORD, AUTOMATIC, TYPE FF-2 FIG. 7. RELEASE ASSEMBLY, RIPCORD, AUTOMATIC, TYPE FF-2	
1	PAOZL	1670-01-213-8145	81337	11-1-2155-2	Release Assembly, Ripcord.....	1
2	PAOZZ	5315-01-011-7490	09511	ID-62-6816	. Arming Pin Assembly.....	1
3	PAOZZ	1670-01-118-1878	09511	ID-62-6822	. . Bushing, Arming Pin	1
4	PAOZZ	5330-01-118-1877	09511	ID-62-6821	. . Nut, Plain, Knurled.....	1
5	XAOZZ		09511	ID-62-6819	. . Knob	1
6	PAOZZ	5305-01-130-7218	09511	ID-62-100	. Screw, Case	1
7	PAOZZ	5355-01-149-5807	09511	ID-62-6243	. Knob, Millibar Setting.....	1
8	PAOZZ	1670-01-132-0804	09511	ID-62-6772	. Window.....	1
9	PAOZZ	1670-01-118-1880	09511	ID-62-6623	. Barrel Cap	1
10	PAOZZ	1670-01-118-1876	09511	ID-62-399	. Plunger	1
11	PAOZZ	5360-01-118-1882	09511	ID-62-6162	. Spring	1
12	PAOZZ	1670-01-130-7217	09511	ID-62-6758	. Screw, Timing.....	1
13	PAOZZ	1670-01-093-4751	09511	ID-62-6064	. Screw, Plug	1
					END OF FIGURE	

UNIT MAINTENANCE

ANCILLARY MILITARY FREE-FALL EQUIPMENT

FF-2 POWER CABLE

REPAIR PARTS LIST

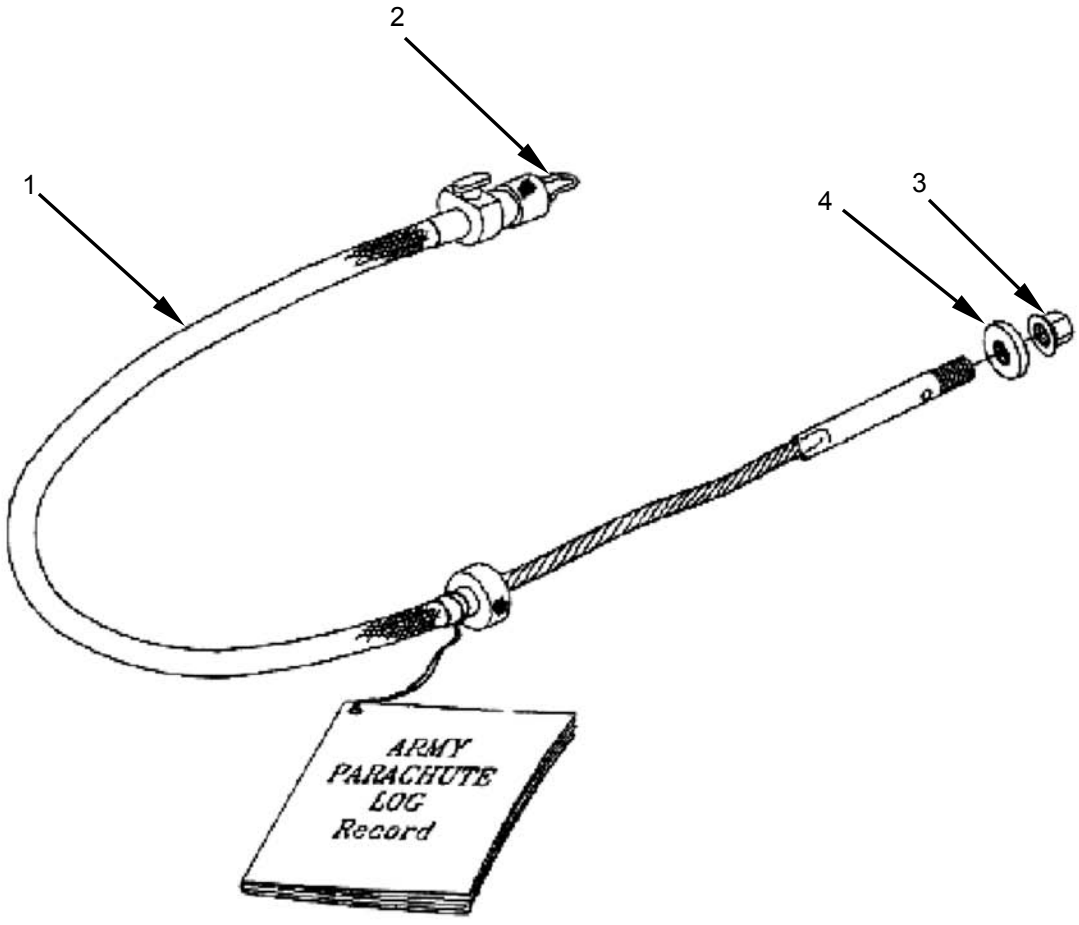


Fig 8. FF-2 POWER CABLE

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 08. FF-2 POWER CABLE	
					FIG. 8. FF-2 POWER CABLE	
1	PAOZZ	1670-01-184-6105	09511	ID-62-6639-B/N	Cable and Housing Assembly, 22-inches ..	1
1	PAOOZ	1670-01-184-6107	09511	ID-62-6639-501	Cable and Housing Assembly, 10.25-inches	1
1	PAOOZ	1670-01-184-6108	09511	ID-62-6639-503	Cable and Housing Assembly, 12.25-inches	1
1	XDOOZ		09511	ID-62-6639-505	Cable and Housing Assembly, 24-Inches ..	1
1	PAOOZ	1670-01-212-5550	09511	ID-62-6639-507	Cable and Housing Assembly, 14.25-inches	1
2	PAOOZ	1670-01-011-7489	09511	ID-62-6331	.Hook	1
3	PAOOZ	5310-00-807-1468	96906	MS21042-4	.Nut, Self-Locking	1
4	PAOOZ	5310-01-118-1881	09511	ID-62-6614	.Washer	1
					END OF FIGURE	

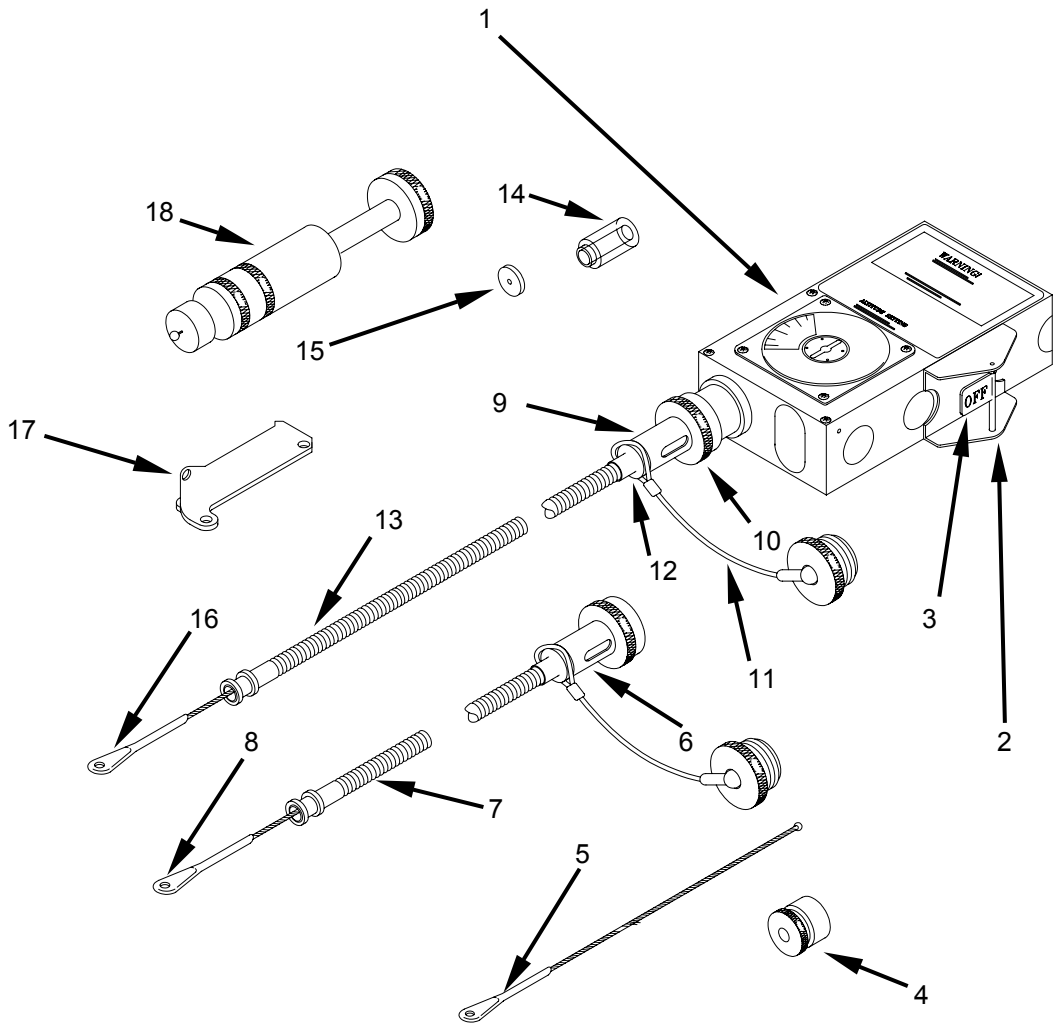


FIG 9. RIPCORD RELEASE ASSEMBLY, AUTOMATIC MODEL 451

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 09. RIPCORD RELEASE ASSY, AUTOMATIC, MODEL 451	
					FIGURE 9. RIPCORD RELEASE ASSY, AUTOMATIC, MODEL 451	
1	PAODD	1670-01-369-7914	81337	11-1-6905-1	Ripcord Release Assembly, Automatic, Model 451	1
2	PAOZZ	5930-01-390-4706	81337	11-1-6908-1	. Switch Assy., JUMP/OFF	1
3	PAOOO	7690-01-390-4702	81337	11-1-6909-1	. Decal, JUMP/OFF	1
4	PAOZZ	1670-01-428-9252	81337	11-1-4053-1	. Cap, Piston Rod	1
5	XDOZZ		81337	11-1-6923-1	. Cable, Storage	1
6	PAOZZ	6150-01-390-4711	81337	11-1-6906-3	. Power Cable Assy., RSV	1
7	XDOZZ		81337	11-1-6924-2	. . Power Housing, Reserve	1
8	XDOZZ		81337	11-1-6925-3	. . Power Cable, Reserve	1
9	PAOOO	6150-01-390-4709	81337	11-1-6906-4	. Power Cable Assy., Main	1
10	XDOZZ		26309	451-059	. . Retainer, Power Housing	1
11	PAOZZ	1670-01-428-3865	81337	11-1-4052-1	. . Lanyard Assy.	1
12	XDOZZ		91906	MS27426-1103D	. . Ring Retainer	1
13	XDOZZ		81337	11-1-6924-1	. . Power Housing, Main	1
14	PAOZZ	5330-01-390-4720	81337	11-1-6914-1	. . Retainer, Cable Seal	1
15	PAOZZ	5330-01-390-4719	81337	11-1-6913-1	. . Seal, Power Cable	1
16	XDOZZ		81337	11-1-6925-4	. . Power Cable Main	1
17	XDOZZ		26309	451-230-1	Slack Checker, Ripcord Release	REF
18	PAOZZ	1670-01-428-7637	81337	11-1-4054-2	Stroke Simulator, Ripcord Release	1
					END OF FIGURE	

UNIT MAINTENANCE

ANCILLARY EQUIPMENT FOR PERSONNEL TROOP PARACHUTE SYSTEM

HARNESS, SINGLE POINT RELEASE

REPAIR PARTS LIST

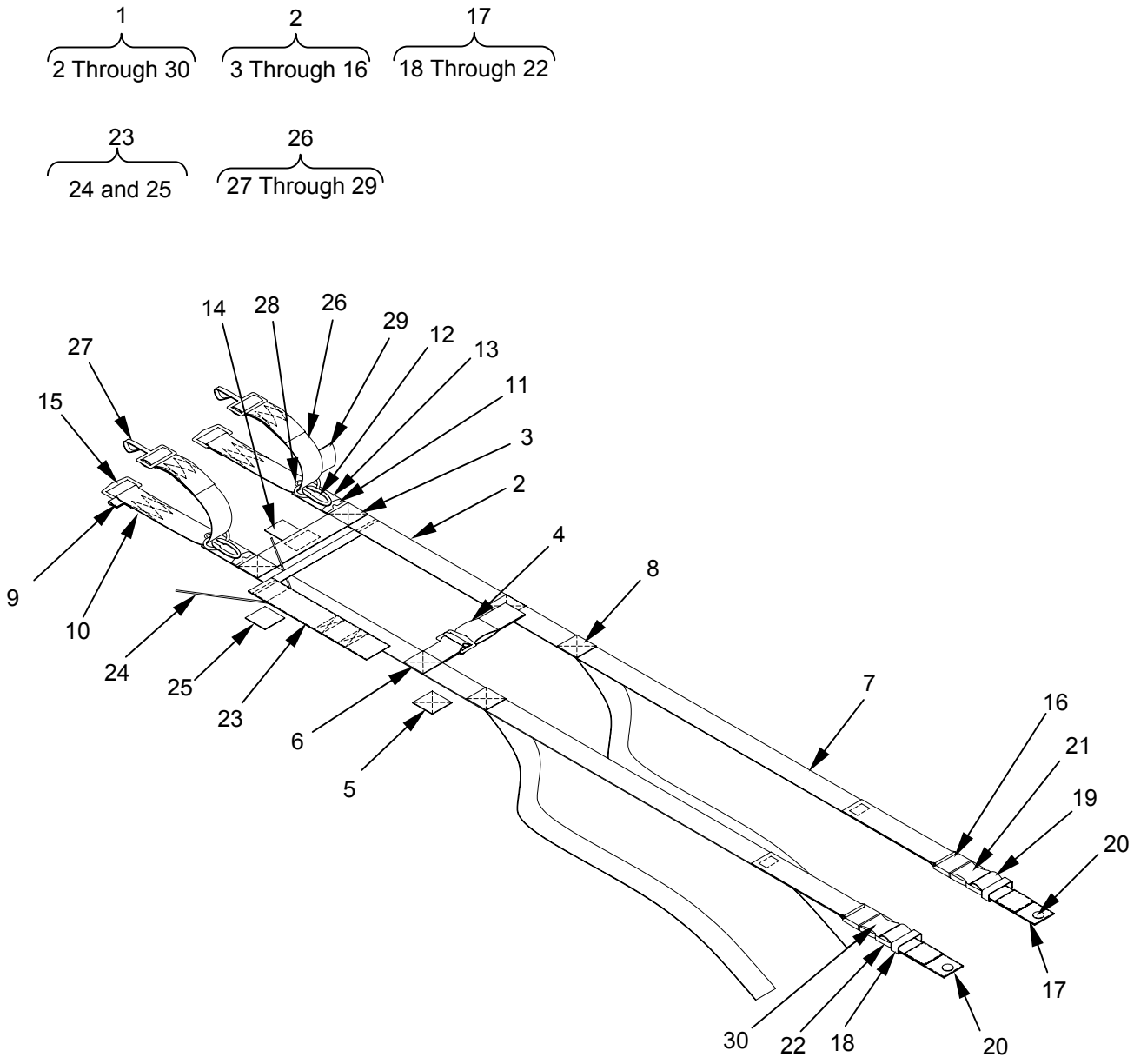


Fig 10. HARNESS, SINGLE POINT RELEASE

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 10. HARNESS, SINGLE POINT RELEASE	
					FIG. 10. HARNESS, SINGLE POINT RELEASE	
1	PAOOO	1670-01-227-7792	81337	11-1-3008	Harness, Parachutist, Single Point Release	1
2	XAOOO		81337	11-1-3009	.Harness Assembly	1
3	MOOZZ		81337	11-1-3009-2	..Strap, Cross	1
4	MOOZZ		81337	11-1-3009-3	..Strap, Cross, Adjustable	1
5	XAOZZ		81337	11-1-3009-1	..Strap, Retainer	1
6	MOOZZ		81337	11-1-3009-4	…Adapter Chape	2
7	MOOZZ		81337	11-1-3009-5	..Strap, Leg	2
8	MOOZZ		81337	11-1-3009-6	..Keeper	2
9	MOOZZ		81337	11-1-3009-7	..Buffer	2
10	MOOZZ		81337	11-1-3012-1	..Web	2
11	MOOZZ		81337	11-1-3009-9	..Loop C	2
12	MOOZZ		81337	11-1-3009-10	..Loop B	2
13	MOOZZ		81337	11-1-3009-11	..Loop A	2
14	MOOZZ		81337	11-1-3009-12	..Fastener, Tape, Hook	1
15	PAOZZ	5340-01-050-7680	96906	MS70101-1	..Adapter, Special	2
16	XAOZZ		IES60	SR-2	..Buckle, Male	2
17	PAOZZ	1670-01-283-6412	81337	11-1-3010	.Strap, Leg Release	2
18	XAOZZ		81337	11-1-3010-2	..Keeper, Elastic	2
19	XAOZZ		81337	11-1-3010-3	..Loop, Web	2
20	PAOZZ	5325-01-028-0945	81337	5-4-1602-12-4	..Grommet, Metallic	2
21	XAOZZ		IES60	SR-2	..Buckle, Female	2
22	XAOZZ		81337	11-1-3010-7	..Buffer	2
23	PAOZO	5340-01-353-0637	81337	11-1-3011	.Lever, Manual Control	1
24	XAOZZ		81337	11-1-3011-2	..Wire Rope Jacket	1
25	MOOZZ		81337	11-1-3011-5	. .Fastener, Tape, Pile	1
26	PAOZZ	5340-01-364-6335	81337	11-1-3012	.Strap, Harness Attaching	2
27	PAOZZ	5340-00-881-3038	96906	MS22043-1	..Snap Hook	2
28	PAOZZ	1670-00-862-5749	96906	MS22020-1	. .Link, Parachute Harness	2
29	MOOZZ		81337	11-1-3012-4	. .Buffer	2
30	PAOZZ	5340-01-097-8651	IES60	SR2	.Buckle, Male/Female	2
					END OF FIGURE	

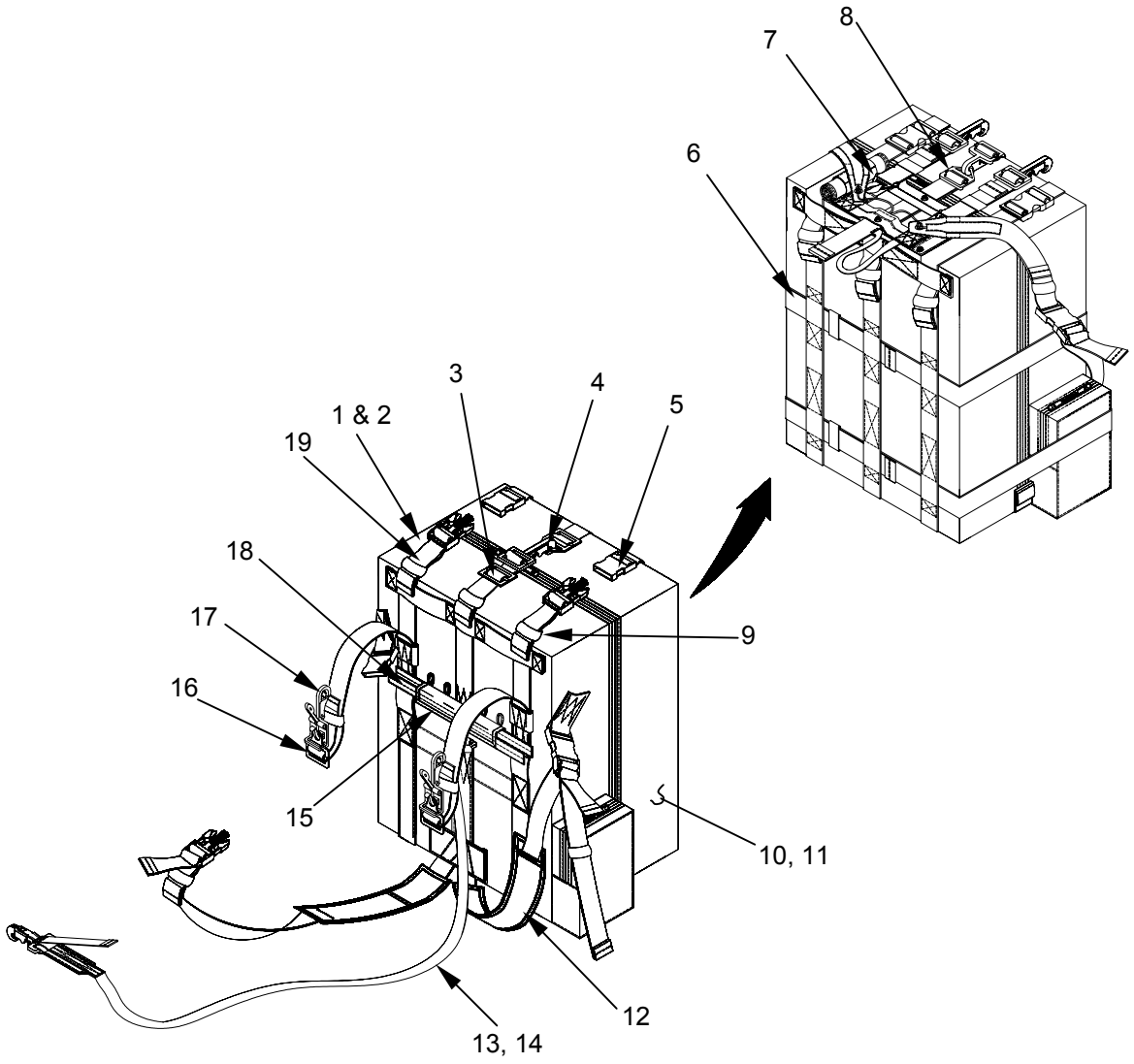


Fig 11. PARACHUTE DROP BAG

(1) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 11. PARACHUTE DROP BAG	
					FIG. 11. PARACHUTE DROP BAG	
1	PAOOZ	1670-01-508-9051	OD1Z5	PDB-SPR/DR-W/HW-1	Drop Bag, Parachute with 7-FT Lowering Line	1
2	PAOOZ	1670-01-508-9053	OD1Z5	PDB-SPR/DR-W/HW-2	Drop Bag, Parachute with 15-FT Lowering Line	1
3	PAOOZ	5342-01-073-5304	96906	MS70101-2	. Adapter, Center Vertical Strap	1
4	PAOOZ	5340-00-881-3038	96906	MS22043-1	. Buckle, Center Vertical Strap	3
5	PAOOZ	1670-01-508-0398	OD1Z5	HP0004-0200	. Buckle, Quick Release	2
6	PAOOZ	1670-01-508-0400	OD1Z5	PDB-SPR-HCS	. Compression Strap, Horizontal	2
7	PAOOZ	1670-00-862-5749	96906	MS22020-1	. Link, Triangular	3
8	PAOOZ	1670-01-508-3185	96906	MS70113-1	. V-Ring, Center Vertical Strap	1
9	PAOOZ	8305-00-270-1894	81349	MIL-W-5664	. Keepers, Elastic	AR
10	PAOOZ	8305-01-506-0532	81349	MIL-C-43734	. Cloth, duck, textured nylon, Class III. CG 483	AR
11	XDOOZ			MIL-C-43734	. Nylon, Dyed, Dark Gray	AR
12	PAOOZ	1670-01-508-0401	OD1Z5	PDB-SPR-BLS	. Leg Straps, Breakaway	2
13	PAOOZ	1670-01-508-0399	OD1Z5	PBD-SPR-15LL	. Line, Lowering, 15-Foot (Static Line)	1
14	PAOOZ	1670-01-508-1565	OD1Z5	PBD-SPR-7LL	. Line, Lowering, 7-Foot (Military Free Fall)	1
15	XDOOZ	8315-00-151-6480	81349	MIL-F-21840	. Fastener, Tape, Hook, 1-inch	AR
16	PAOOZ	1670-01-508-0402	96906	MS70116	. Link, Adjustable, Quick Release	2
17	PAOOZ	5340-01-036-0473	96906	PS70099-1	. Snap Hook, Quick Release	2
18	XDOOZ	8315-00-151-6484	81349	MIL-F-21840	. Fastener, Tape, Pile	AR
19	PAOOZ	1670-01-508-0403	OD1Z5	PDB-SPR-PHAS	. Straps, Attaching	2
					END OF FIGURE	

EXPENDABLE AND DURABLE ITEMS LIST

This work package lists expendable and durable items that you will need to operate and maintain the Ancillary Military Free-Fall Equipment. This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-790, Expendable/Durable Items (except medical, Class V repair parts, and heraldic items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1), Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item.

Column (2), Level. This column identifies the lowest level of maintenance that requires the item.

Column (3), National Stock Number. This is the national stock number assigned to the item which you can use to requisition it.

Column (4), Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number. This provides the other information you need to identify the item.

Column (5), Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, PART NUMBER, (CAGEC)	(5) U/M
1	O	8040-01-090-9320	Adhesive, Pin Seal, MIL-A-46050, (81348)	EA
2	O	6810-00-753-4993	Alcohol, isopropyl, anhydrous, TTI735, (81348)	FT
3	O	5315-01-011-7490	Arming pin assembly, ID-62-6822, (09511)	EA
4	O	1670-01-118-1878	Arming pin guide bush seal, ID-62-6822, (09511)	EA
5	O	Local purchase	Battery, Nickel-Cadmium, 1.5v (AA)	YD
6	O	9160-00-253-1171	Beeswax, Technical, 1 Lb, C-B-191, (81348)	LB
7	O	7920-00-282-2470	Brush, Scrub, Household, H-B-1490, (81348)	EA
8	O	7520-00-248-9285	Brush, Stencilling, H-B-00621, (81348)	EA
9	O	5305-01-130-7218	Case screws, ID-62-100, (09511)	EA
10	O	5350-00-221-0872	Cloth, Abrasive, Ferric Oxide and Quartz, P-C-458, (81348)	EA
11	O	7920-00-044-9281	Cloth, lint-free, cleaning, MIL-C-85043, (81349)	BX
12	O	4020-00-240-2154	Cord, Fibrous, Nylon, Type I, Nat., MIL-C-5040, (81349)	YD
13	O	4020-00-246-0688	Cord, nylon, Type III, OD, MILC5040, (81349)	YD
14	O	4020-00-262-2147	Cord, nylon, Type III, red, MIL-C-5040 Type 3, (81349)	YD
15	O	8040-00-142-9193	Cyanoacrylate Instant cure adhesive	TB
16	O	7930-00-281-4731	Dishwashing compound, Hand, Flake, P-D-410, (81348)	LB
17	O	Commercial	Dyed dark gray nylon, 9.0 oz	
18	O	8315-00-106-5973	Fastener, tape, hook, 1-inch, MIL-F-21840, (81349)	YD
19		8315-00-151-6481	Fastener, tape, hook, 1 1/2-inch, MIL-F-21840, (81349)	YD
20	O	8315-00-450-9837	Fastener, tape, hook, 2-inch, Type II, MIL-F-21840, (81349)	RL
21	O	8315-00-106-5974	Fastener, tape, pile, 1-inch, MIL-F-21840, (81349)	YD
22	O	8315-00-151-6483	Fastener, tape, pile, 1 1/2-inch, MIL-F-21840, (81349)	YD
23	O	8315-00-279-3207	Fastener, tape, pile, 2-inch, Type II, MIL-F-21840, (81349)	RL
24	O	5325-00-231-6589	Grommet, spur, Type-1, size 0, MILG16491, (81349)	EA

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, PART NUMBER, (CAGEC)	(5) U/M
25	O	7510-00-286-5362	Ink, marking, parachute, strata-blue, MIL-I-6903, (81349)	PT
26	O	1670-01-067-6838	Lowering line, 15-foot	EA
27	O	9150-01-007-4384	Lubricant, anti-seize, MIL-G-27617, (81349)	OZ
28	O	9150-01-260-2534	Lubricant, solid film, MIL-L-23398, (81349)	CN
29	O	7520-00-973-1059	Marker, felt tip, black, GG-M-00114, (81348)	BX
30	O	6810-00-281-2785	Methyl ethyl ketone, TTM261, (81348)	GL
31	O	7520-01-060-5820	Pen, ballpoint, black, GG-B-60, (81348)	EA
32	O	7920 -00-205-3570	Rag, wiping, DDD-R-30, (81348)	BL
33	O	Local purchase	Sealant, 2020	OZ
34	O	8030-01-025-1692	Sealing compound, Loctite, 242, (F7121)	OZ
35	O	9310-00-160-7858	Stencilboard, oiled, Type II, UU-S-625, (81348)	SH
36	O	4020-00-753-6555	Tape, lacing and tying, MIL-T-43435, 81349	YD
37	O	7510-00-266-6710	Tape, masking, 2-inch, UU-T-106, (81348)	RO
38	O	8310-01-279-6073	Thread, cotton, ticket, 8/4, NAT., A-A-52094, (81348)	YD
39	O	8310-00-917-3945	Thread, cotton, ticket, 8/7, NAT, A-A-52044, (81348)	YD
40	O	8310-00-267-3027	Thread, nylon, size 3, OD, V-T-295, (81348)	TU
41	O	8310-00-262-2777	Thread, nylon, size 5, OD, V-T-295, (81348)	RL
42	O	8310-00-262-2772	Thread, nylon, size E, OD, V-T-295, (81348)	YD
43	O	8310-00-227-1244	Thread, nylon, size FF, OD, V-T-295, (81348)	RL
44	O	1670-01-130-7217	Timing set screws, ID-62-6758, (09511)	EA
45	O	8305-00-281-3012	Type XII Binding tape, MIL-W-4088, (81349)	RL
46	O	9160-00-285-2044	Wax, paraffin, 1 lb cake, VVW95, (81348)	EA
47	O	8305-00-753-3258	Webbing, nylon, tubular, 5/8-in, OD, MILW5625, (81349)	YD
48	O	8305-00-261-8579	Webbing, nylon, type IV, OD, MILT5038, (81349)	YD
49	O	8305-00-261-8585	Webbing, nylon, type VIII, OD, MIL-W-4088, (81349)	YD
50	O	8305-00-260-4586	Webbing, nylon, type XIII, OD, MIL-W-4088, (81349)	CL
51	O	9509-00-892-4616	Wire, steel, 0.080 dia., QQ-W-423, (81348)	YD

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, PART NUMBER, (CAGEC)	(5) U/M
52	O	1670-01-011-7489	Withdrawal hook, ID-62-6331, (09511)	EA
53	O	8305-01-506-0532	Cloth, duck, textured nylon, Class III, CG 483	YD
54	O	8305-00-281-3012	Webbing, Textile, Type XII, 1 23/32-inch wide, OD	YD

END OF WORK PACKAGE

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
ILLUSTRATED LIST OF MANUFACTURED ITEMS

ILLUSTRATED LIST OF MANUFACTURED ITEMS INTRODUCTION

Scope

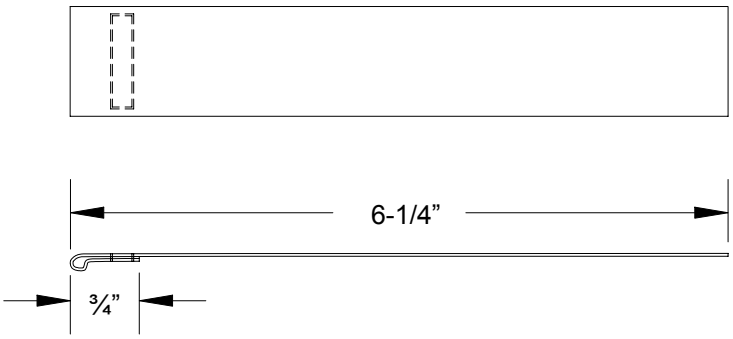
This work package includes complete instructions for making items authorized to be manufactured or fabricated at the unit level.

How to Use the Index of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the page which covers fabrication criteria.

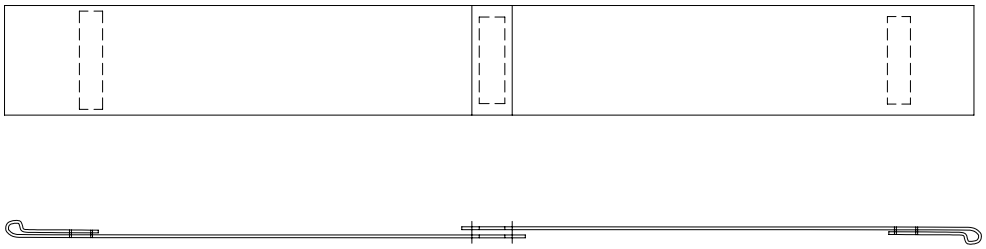
Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.



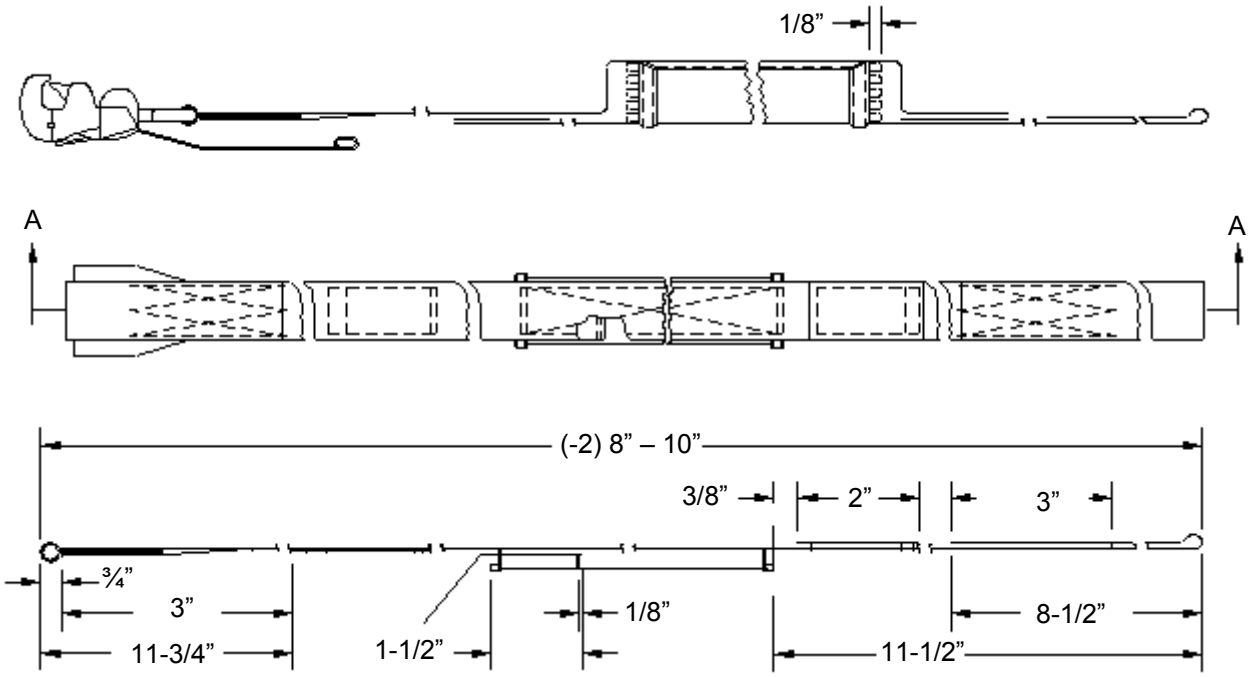
MAKE FROM FASTENER TAPE
HOOK AND PILE. TYPE II
2 IN. WIDE. BLACK.

2 REQ’D (1 EA.; HOOK AND PILE)



OPTIONAL CONSTRUCTION
HOOK AND PILE, SAME FACE

Figure 1. WRISTSTRAP, ALTIMETER

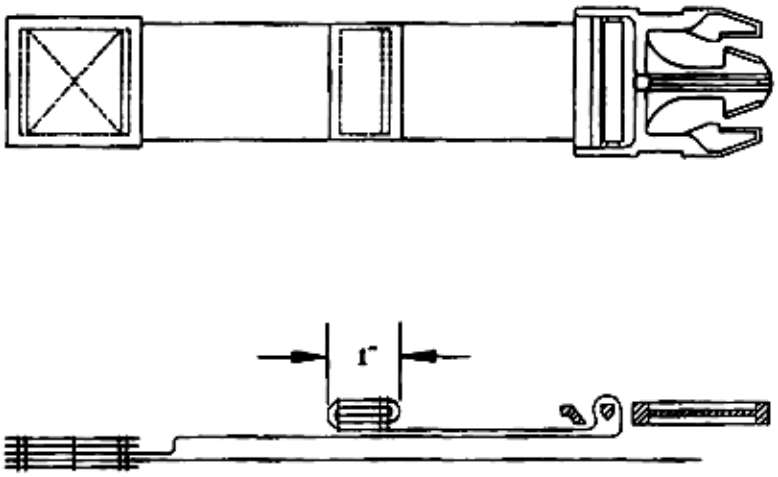


SECTION A-A

NOTES:

1. SEAR ALL EXPOSED RAW EDGES OF WEBBING SMOOTH.
2. SEW AS INDICATED IN WP 0021 00 AND WP 0014 00.
3. WEBBING TO BE TYPE III, 3/4–inch WIDE, CLR OD 7.

Figure 2 LOWERING LINE, 8 FT.



PROCEDURE	MATERIALS	NOTE
1. CUT 62” LENGTH OF WEBBING AND SEAR ENDS.	WEBBING, NYLON TYPE VIII	DIMENSIONS SHOWN ARE IN INCHES.
2. THREAD ON END OF WEBBING THROUGH SIDE RELEASE BUCKLE AND FOLD END FOUR TIMES. SEW WITH SIZE 3 THREAD, 6 TO 8 STITCHES PER INCH AND TYPE HD MACHINE.	THREAD, NYLON, SIZE 3	TOLERANCES IS 1/8

Figure 3 (Harness, Single Point Release) Leg Strap, Adjustable

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
NATIONAL STOCK NUMBER INDEX

FSC	NIIN	FIG.	ITEM
8315	00-151-6480	11	15
8315	00-151-6484	11	18
8305	00-270-1894	11	9
5340	00-491-1065	6	2
5965	00-615-0104	2	9
5965	00-755-4643	2	7
5310	00-807-1468	8	3
1670	00-862-5749	10	28
	00-862-5749	11	7
5340	00-881-3038	10	27
	00-881-3038	11	4
5995	00-930-7838	2	8
1670	01-008-7755	5	1
1670	01-011-7489	8	2
5315	01-011-7490	7	2
8415	01-018-4911	1	1
8415	01-018-4912	1	2
8415	01-018-4913	2	1
8415	01-018-4914	2	2
8415	01-018-4915	2	3
5325	01-028-0945	10	20
5340	01-050-7680	10	15
1670	01-067-6838	6	1
5342	01-073-5304	11	3
5340	01-036-0473	11	17
1670	01-093-4751	7	13
5340	01-097-8651	10	30
1670	01-118-1876	7	10
5330	01-118-1877	7	4
1670	01-118-1878	7	3
1670	01-118-1880	7	9
5310	01-118-1881	8	4
5360	01-118-1882	7	11
1670	01-130-7217	7	12
5305	01-130-7218	7	6
1670	01-132-0804	7	8
5355	01-149-5807	7	7
1670	01-184-6105	8	1
1670	01-184-6107	8	1
1670	01-184-6108	8	1
1670	01-212-5550	8	1
1670	01-213-8145	7	1
6660	01-213-9035	4	1
1670	01-227-7792	10	1
1670	01-283-6412	10	17
8465	01-328-8268	3	1
5340	01-353-0637	10	23
5340	01-364-6335	10	26
1670	01-369-7914	9	1
7690	01-390-4702	9	3
5930	01-390-4706	9	2
6150	01-390-4709	9	9
6150	01-390-4711	9	6
5330	01-390-4719	9	15
5330	01-390-4720	9	14
1670	01-428-3865	9	11
1670	01-428-7637	9	18
1670	01-428-9252	9	4
8305	01-506-0532	11	10
1670	01-508-0398	11	5
1670	01-508-0399	11	13
1670	01-508-0400	11	6
1670	01-508-0401	11	12
1670	01-508-0402	11	16
1670	01-508-0403	11	19
1670	01-508-1565	11	14
1670	01-508-3185	11	8
1670	01-508-9051	11	1
1670	01-508-9053	11	2

UNIT MAINTENANCE
ANCILLARY MILITARY FREE-FALL EQUIPMENT
PART NUMBER INDEX

PART NUMBER	FIG.	ITEM
11-1-2155-2	7	1
11-1-2529	5	1
11-1-2530-1	6	1
11-1-2530-2	6	3
11-1-2968	1	3
	2	4
11-1-3008	10	1
11-1-3009	10	2
11-1-3009-1	10	5
11-1-3009-10	10	12
11-1-3009-11	10	13
11-1-3009-12	10	14
11-1-3009-2	10	3
11-1-3009-3	10	4
11-1-3009-4	10	6
11-1-3009-5	10	7
11-1-3009-6	10	8
11-1-3009-7	10	9
11-1-3009-9	10	11
11-1-3010	10	17
11-1-3010-2	10	18
11-1-3010-3	10	19
11-1-3010-7	10	22
11-1-3011	10	23
11-1-3011-2	10	24
11-1-3011-5	10	25
11-1-3012	10	26
11-1-3012-1	10	10
11-1-3012-4	10	29
11-1-3513	4	1
11-1-3513-1	4	2
11-1-398-1	2	5
11-1-398-2	1	4
	2	5
11-1-398-3	1	4
	2	5
11-1-4052-1	9	11
11-1-4053-1	9	4
11-1-4054-2	9	18
11-1-6905-1	9	1
11-1-6906-3	9	6
11-1-6906-4	9	9
11-1-6908-1	9	2
11-1-6909-1	9	3
11-1-6913-1	9	15
11-1-6914-1	9	14
11-1-6923-1	9	5
11-1-6924-1	9	13
11-1-6924-2	9	7
11-1-6925-3	9	8
11-1-6925-4	9	16
11-1-952	2	6

PART NUMBER	FIG.	ITEM
43914	3	1
451-059	9	10
451-230-1	9	17
5-4-1602-12-4	10	20
56E1258L	1	5
	2	10
56E1258R	1	6
	2	11
CX-11257/A1C	2	8
HP0004-0200	11	5
ID-62-100	7	6
ID-62-399	7	10
ID-62-6064	7	13
ID-62-6162	7	11
ID-62-6243	7	7
ID-62-6331	8	2
ID-62-6614	8	4
ID-62-6623	7	9
ID-62-6639-501	8	1
ID-62-6639-503	8	1
ID-62-6639-505	8	1
ID-62-6639-507	8	1
ID-62-6639-B/N	8	1
ID-62-6758	7	12
ID-62-6772	7	8
ID-62-6816	7	2
ID-62-6819	7	5
ID-62-6821	7	4
ID-62-6822	7	3
MIL-C-43734	11	10
	11	11
MIL-E-25670	2	9
MIL-F-21840	11	15
	11	18
MIL-H-43174	1	1
	1	2
	2	1
	2	2
	2	3
MIL-M-26542/2	2	7
MIL-W-5664	11	9
MS21042-4	8	3
MS22020-1	10	28
	11	7
MS22043-1	10	27
	11	4
MS23019	5	3
MS27426-1103D	9	12
PS70099-1	11	17
MS70101-1	10	15
MS70101-2	11	3
MS70113-1	11	8

PART NUMBER	FIG.	ITEM
MS70116	5	2
	11	16
MS70120	6	2
PDB-SPR/DR-W/HW-1	11	1
PDB-SPR/DR-W/HW-2	11	2
PDB-SPR-15LL	11	13
PDB-SPR-7LL	11	14
PDB-SPR-BLS	11	12
PDB-SPR-HCS	11	6
PDB-SPR-PHAS	11	19
SR-2	10	16
	10	21
	10	30

ALPHABETICAL INDEX

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By Order of the Secretaries of the Army, Air Force and Navy (Including the Marine Corps):

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0417401

MICHAEL E. RYAN
General, USAF
Chief of Staff

Official:
GEORGE T. BABBETT
General, USAF
Commander, Air Force Materiel Command

D.G. MORRAL
Rear Admiral, USN
Program Executive Officer
For Expeditionary Warfare
Naval Sea Systems Command

R.P. SHOCKEY
Director, Program Support
Marine Corps Systems Command

DISTRIBUTION:

To be distributed in accordance with Initial Distribution Number (IDN) 256296 requirements for TM 10-1670-300-20&P.

These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@avma27.army.mil>
To: amssbriml@natick.army.mil

Subject: DA Form 2028

1. From: Joe Smith
2. Unit: home
3. Address: 4300 Park
4. City: Hometown
5. St: MO
6. Zip: 77777
7. Date Sent: 19-OCT-93
8. Pub no: 55-2840-229-23
9. Pub Title: TM
10. Publication Date: 04-JUL-85
11. Change Number: 7
12. Submitter Rank: MSG
13. Submitter FName: Joe
14. Submitter MName: T
15. Submitter LName: Smith
16. Submitter Phone: 123-123-1234
17. Problem: 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. Text:

This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	**DATE** *21 October 2003*

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*
COMMANDER
U.S. ARMY TANK-AUTOMOTIVE AND ARMAMENT COMMAND
ATTN: AMSTA-LC-CECT
KANSAS STREET
NATICK, MA 01760-5052

FROM: *(Activity and location) (Include ZIP Code)*
PFC Jane Doe
CO A 3rd Engineer BR
Ft. Leonardwood, MO 63108

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 10-1670-296-23&P	30 October 2002	Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*
	0036 00-2				*1*	*In table 1, Sewing Machine Code Symbols, the second sewing machine code symbol should be MD ZZ not MD 22.* *Change the manual to show Sewing Machine, Industrial: Zig-Zag; 308 stitch; medium-duty; NSN 3530-01-181-1421 as a MD ZZ code symbol.*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Jane Doe, PFC	508-233-4141	Jane Doe *Jane Doe*

DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPPC V3.00

TO: (*Forward direct to addressee listed in publication)*	**FROM:** (*Activity and location) (Include ZIP Code)*	**DATE**
COMMANDER U.S. ARMY TANK –AUTOMOTIVE AND ARMAMENT COMMAND ATTN: AMSTA-LC-CECT KANSAS STREET NATICK, MA 01760-5052	*PFC Jane Doe* *CO A 3rd Engineer BR* *Ft. Leonardwood, MO 63108*	*21 October 2003*

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	**DATE**	**TITLE**
TM 10-1670-296-23&P	30 October 2002	Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems

PAGE NO.	**COLM NO.**	**LINE NO.**	**NATIONAL STOCK NUMBER**	**REFERENCE NO.**	**FIGURE NO.**	**ITEM NO.**	**TOTAL NO. OF MAJOR ITEMS SUPPORTED**	**RECOMMENDED ACTION**
0066 00-1					*4*			*Callout 16 in figure 4 is pointed to a D-Ring. In the Repair Parts List key for figure 4, item 16 is called a Snap Hook. Please correct one or the other.*

PART III – REMARKS (*Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* Commander, U.S. Army Tank-automotive & Armament Command ATTN: AMSTA-LC-CECT, Kansas Street Natick, MA 01760-5052	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER TM 10-1670-300-20&P	DATE July 31, 2004	TITLE Unit Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Ancillary Equipment for: Military Free-Fall System

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

TO: (*Forward direct to addressee listed in publication)*	**FROM:** (*Activity and location) (Include ZIP Code)*	**DATE**

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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TO: *(Forward to proponent of publication or form) (Include ZIP Code)* Commander, U.S. Army Tank-automotive & Armament Command ATTN: AMSTA-LC-CECT, Kansas Street Natick, MA 01760-5052	**FROM:** *(Activity and location) (Include ZIP Code)*	

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 3 2.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Weights

1 centigram = 10 milligrams = .15 grain
1 decigrarn = 10 centigrams = 1.54 grains
1 gram = 10 decigrams = .035 ounce
1 dekagrarn = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .15 5 sq. inch
1 sq. decimeter =100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	Iiters	.473	milliliters	fluid ounces	.034
quarts	Iiters	.946	liters	pints	2.113
gallons	Iiters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

_F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	_C

PIN: 074132-000