

TECHNICAL MANUAL

UNIT AND DIRECT SUPPORT (DS) MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

FOR

PARACHUTE, CARGO TYPE:

**15-FOOT DIAMETER, CARGO
EXTRACTION PARACHUTE ASSEMBLY**

NSN 1670-01-063-3715

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

*This manual supersedes TM 10-1670-278-23&P, dated 6 November 1989.

HEADQUARTERS, DEPARTMENT OF THE ARMY

31 DECEMBER 2004

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous material warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel.

WARNING

DEATH from burns or parachute failure could result if cleaning solvents other than EVERBLUM GOLD™, also referred to as “Multi-Purpose Industrial Cleaning Fluid, are used in cleaning this equipment. Other solvents shall not be used because of their flammable properties and nylon damaging substances.

Prolonged inhalation of EVERBLUM GOLD™ vapors can cause respiratory injury. Provide adequate ventilation when using it. Repeated exposure can cause injury.

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 parachute or loss of equipment.

CHANGE
NO. 1

HEADQUARTERS, DEPARTMENT OF THE ARMY
WASHINGTON, DC, 31 AUGUST 2005

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TM 10-1670-278-23&P, 31 December 2004, is changed as follows:

1. File this sheet in front of the manual for reference.
2. This change implements Army Maintenance Transformation and changes the Maintenance Allocation Chart (MAC) to support Field and Sustainment Maintenance.
3. New or updated change information is indicated by a vertical bar in the outer margin of the page.
4. Remove old pages and insert new pages as indicated below:

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WP 0053 00
WP 0054 00

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C-2

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Original 31 December 2004
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TECHNICAL MANUAL
UNIT AND DIRECT SUPPORT (DS)
MAINTENANCE MANUAL
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FOR
PARACHUTE, CARGO TYPE: 15-FOOT DIAMETER
CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715

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. Write a letter, complete a DA Form 2028 (Recommended Changes to Publications and Blank Forms), or complete the DA Form 2028-2 that is located in the back of this manual. Mail your recommended changes directly to Commander, U.S. Tank-automotive & Armament Command, ATTN: AMSTA-LC-CECT, Kansas St., Natick, MA 01760-5052. You may also submit your recommended changes by E-mail directly to amssbriml@natick.army.mil. A reply will be furnished to you. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy of the 2028-2.

AIR FORCE

Air Force personnel should submit an AFTO Form 22, Technical Order Publication Improvement Report and Reply, and forward it to the address prescribed above for the Army. An information copy of the prepared AFTO Form 22 should also be furnished to WP-ALC/TILTA, 420 2nd Street, Suite 100, Robins AFB, GA 31098-1640.

MARINE CORPS

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

NAVY

Navy personnel should submit an 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.

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HOW TO USE THIS MANUAL

In this manual, primary chapters appear in upper case/capital letters; work packages are presented in numeric sequence, e.g., 0001 00; paragraphs within a work package are not numbered and are presented in a titles format. For a first level paragraph, title all upper case/capital letters, e.g., FRONT MATTER subordinate paragraph title will have the first letter of the first word of each principle word all upper case/capital letters, e.g., Manual Organization and Page Numbering System. The location of additional material that must be referenced is clearly marked. Illustrations supporting maintenance procedures/text are located underneath, or as close as possible to, their referenced paragraph.

FRONT MATTER. Front matter consists of front cover, warning summary, title block, table of contents, and how to use this manual page.

CHAPTER 1 –GENERAL INFORMATION. Chapter 1 contains general information, equipment description, and theory of operation.

CHAPTER 2 - TROUBLESHOOTING PROCEDURES. Chapter 2 contains trouble shooting procedures when applicable. There are no troubleshooting procedures for the 15-Foot Diameter Cargo Extraction Parachute.

CHAPTER 3 - OPERATOR INSTRUCTIONS. Chapter 3 contains service upon receipt, initial receipt, receipt of used parachute assembly, and preventive maintenance checks and services information and instructions.

CHAPTER 4 – UNIT MAINTENANCE INSTRUCTIONS. Chapter 4 contains maintenance procedures authorized at the unit level.

CHAPTER 5 – DIRECT SUPPORT MAINTENANCE INSTRUCTIONS. Chapter 5 provides maintenance procedures authorized at the direct support level.

CHAPTER 6 - SUPPORTING INFORMATION. Chapter 6 contains references, expendable and durable items list, maintenance allocation chart, repair parts and special tools list, national stock number index, part number index, and illustrated list of manufactured items.

REAR MATTER. Rear matter consists of alphabetical index, DA Form 2028, authentication page, and back cover.

MANUAL ORGANIZATION AND PAGE NUMBERING SYSTEM. The manual is divided into six 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. Each page of a work package has a page number of XXXX YY-ZZ where XXXX is the work package number (e.g. 0010 is work package 10), YY is the revision number for that work package, and 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.

The table of contents permits the reader to find information in the manual quickly. The reader should start there 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 RADIAL WEBBING, which is a unit maintenance topic, the table of contents indicates that unit maintenance information can be found in chapter 4. Scanning down the listings for chapter 4, RADIAL WEBBING information can be found in WP 0023 00 .

An alphabetical index can be found at the back of the manual; specific topics are listed with the corresponding work package number.

CHAPTER 1

**GENERAL INFORMATION, EQUIPMENT DESCRIPTION,
AND THEORY OF OPERATION
FOR
PARACHUTE, CARGO TYPE:
15-FOOT DIAMETER, CARGO
EXTRACTION PARACHUTE**

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
GENERAL INFORMATION**

SCOPE

This manual provides unit and direct support (DS) maintenance instructions for the 15-Foot Diameter Cargo Extraction Parachute NSN 1670-01-063-3715. This manual also provides a repair parts and special tools list (RPSTL) located in Work Packages (WPs) 0055 00 through 0062 00.

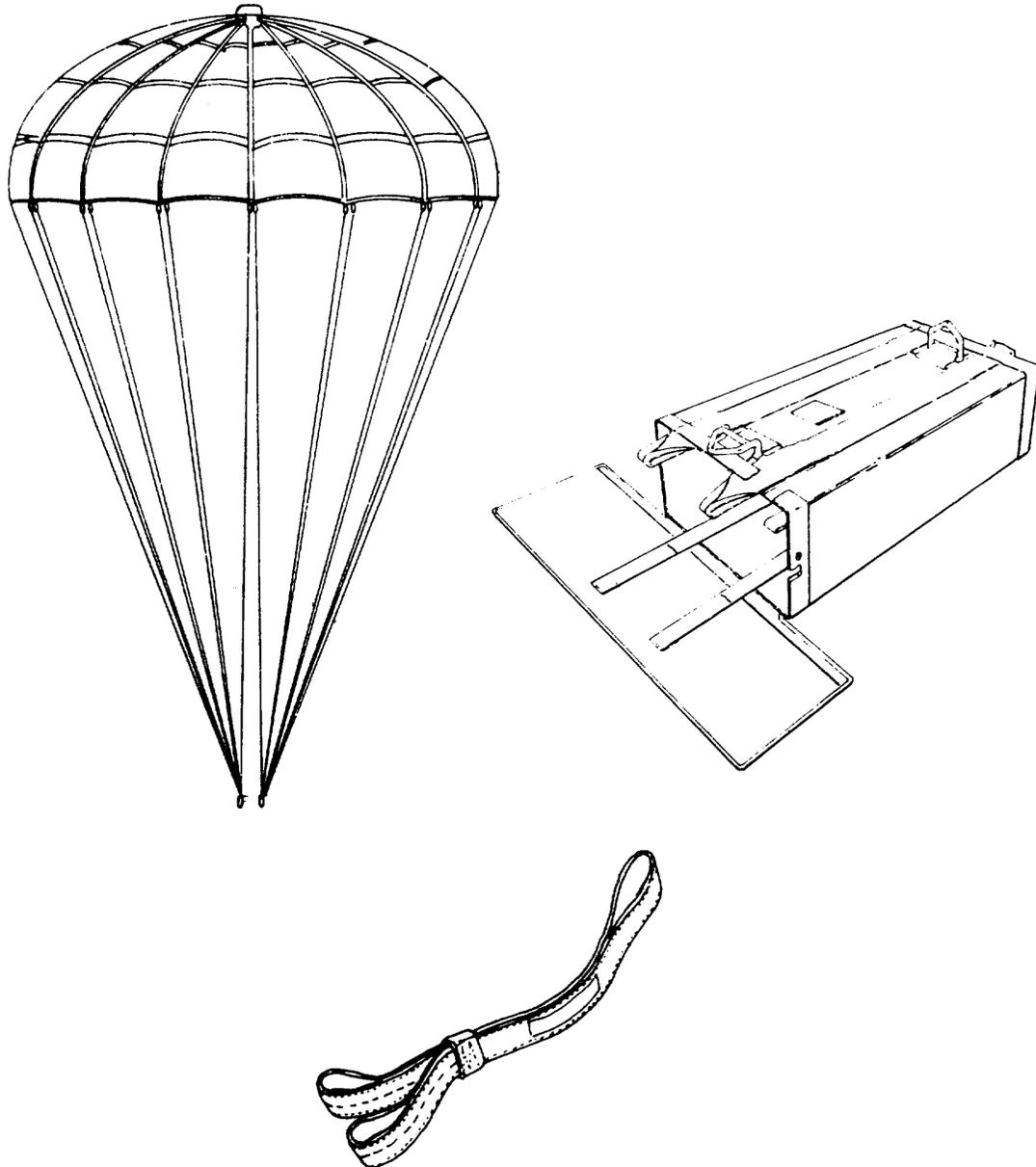


Figure 1. 15-Foot Diameter Cargo Extraction Parachute.

Equipment Name. 15-Foot Diameter Cargo Extraction Parachute, Deployed.

Purpose of Equipment. This parachute provides the force to extract an air delivery load from an aircraft.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS), and DA PAM 738-751. Air Force personnel will use AFR 66-1 for maintenance reporting and TO-00-35D54 for unsatisfactory equipment reporting. Navy personnel will report maintenance performed using the Maintenance Data Collection Subsystem (MDCS) IAW OPNAVINST 4790.2, Vol. 3 and unsatisfactory material/conditions (UR submissions) IAW OPNAVINST 4790.2, Vol. 2, chapter 17. Marine Corps personnel will refer to TM 4700-15/1 for equipment maintenance forms and records.

Reporting of Item and Packaging Discrepancies. Fill out and forward Standard Form (SF) 364 (Supply Discrepancy Report (SDR) as prescribed in AR 735-11-2/DLAR 414-.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

Transportation Discrepancy Report (TDR) (SF 361). Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in Reporting of Transportation Discrepancies in Shipments AR 55-38/NAVUSPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If the design of your 15-Foot Diameter Cargo Extraction Parachute 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. Tank-automotive & Armament Command, ATTN: AMSTA-LC-CECT, Kansas St., Natick, MA 01760-5052. Navy personnel should submit an 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 furnished directly to you.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be 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 a corrosion problem.

If a corrosion problem is identified, it can be reported using a SF 368, Product Quality Deficiency Report. Use of keywords such as "corrosion," "rust," "deterioration," or "cracking" will ensure that the information is identified as a CPC problem.

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

Destruction of Army Materiel to Prevent Enemy Use

General Information:

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, which 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, by 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 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 platform sheeting). 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, which are easily accessible, may be disposed of as follows: Accessible vital parts may be removed and scattered through dense foliage, buried in dirt or sand, or thrown into a lake, 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 OR SHIPMENT**Storage Criteria.**

Administrative storage of the 15-Foot Diameter Cargo Extraction Parachute will be accomplished in accordance with AR 750-1, and the instructions furnished below.

NOTE

**For additional storage information, refer to
TM 10-1670-201-23/T.O. 13C-1-41/NAVAIR 13-1-17.**

General storage requirements:

To ensure that serviceability standards of the stored parachute assembly 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 parachutes.
2. Parachutes will be stored in a dry, well-ventilated location and protected from pilferage, dampness, fire, dirt, insects, rodents, and direct sunlight.
3. Parachutes 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. Parachutes will not be stored in a damaged, dirty, or damp condition.
5. All stored parachute items will be marked, segregated, and located for accessibility and easy identification.
6. Parachutes 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 parachutes.
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 parachutes:

In addition to the storage requirements stipulated in the general storage requirements paragraph, above, the following is a list of specifics that must be enforced when storing parachutes:

1. Except for those assemblies required for contingency operation, parachutes will not be stored in a packed configuration.
2. Stored parachute assemblies will be secured from access by unauthorized personnel.
3. A parachute that is in storage, and is administered a cyclic repack and inspection, will not be exposed to incandescent light or indirect sunlight for a period of more than 36 hours. In addition, exposure to direct sunlight will be avoided entirely.

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. Parachutes 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 parachute is ready for issue:

1. Check the parachute 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 parachutes are the responsibility of item manufacturers, who are required to comply with federal and military packing specifications, as stipulated in contractual agreements. Parachutes are normally shipped to depot activities, by domestic freight or parcel post, and packed to comply with overseas shipping requirements. Except for those parachute that are unpackaged and subjected to random inspections or testing by depot activity, parachutes received by a using unit will be contained in the original packaging materials.

Shipping Between Maintenance Activities. The shipping of parachutes between activities will be accomplished on a signature verification basis using whatever means of transportation is available. Used parachutes and other fabric items will be tagged in accordance with DA PAM 738-751, and rolled, folded, or placed loosely in a parachute pack, deployment bag, or other suitable container, as required. Unused parachutes will be transported in original shipping containers. During shipment, every effort will be made to protect parachute from weather elements, dust, dirt, oil, grease, and acids. Vehicles used to transport parachutes will be inspected to ensure the items are protected from the previously cited material damaging conditions.

Other Shipping Instructions. Parachutes 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.

ACCORDION FOLDING/RIGGER ROLLING

Accordion Folding. Personnel parachute canopy assemblies that are not packed for use should be accordion folded prior to entry into storage. To accordion fold a parachute canopy assembly perform the following:

1. Place the parachute canopy in proper layout under partial tension and dress the outside edges of both gore groups.
2. Fold the left group of gores over the right group. Release the tension.

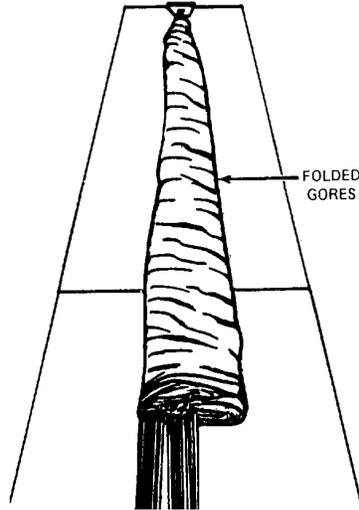


Figure 2. Folding of Gore Groups Completed.

3. Chain the suspension lines and S-fold the chained lines on top of the applicable parachute pack.

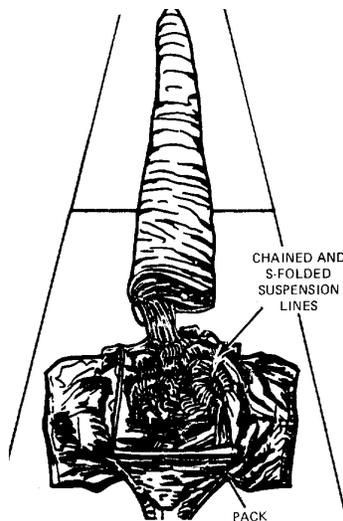


Figure 3. Suspension Lines Stowed on Pack.

4. Place the lower end of the canopy on top of the S-folded suspension lines and locate the lower edge of the canopy skirt at the lower end of the pack.
5. Accordion fold the remaining canopy length neatly on top of the canopy lower end. Turn the canopy vent under the last fold.

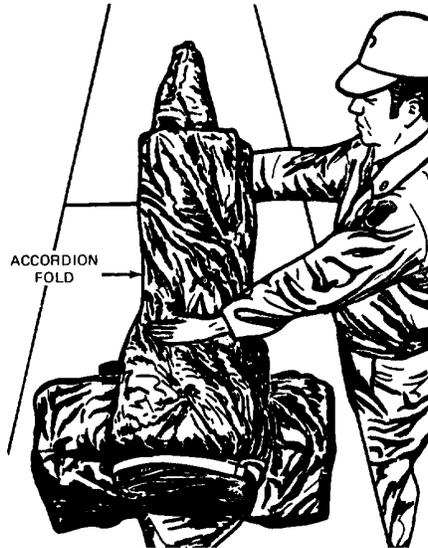


Figure 4. Accordion Folding the Canopy.

6. Temporarily secure the folded canopy to the pack tray with available webbing or pack components. Upon completion of the accordion folding process, place the folded parachute assembly in a suitable type container for storage.



Figure 5. Folded Canopy Secured.

Rigger Rolling. Personnel parachute assemblies will be rigger rolled prior to being sent to, or returned from, a parachute repair activity, for ease of handling and to prevent suspension line entanglement. Rigger roll a parachute as follows:

1. Place the parachute in proper layout and apply partial tension.
2. Grasp the right and left suspension line groups. Using a fast circular motion, flip each of the two gore groups up and to the center radial seam. Tighten each gore group roll by hand; bring both rolled gore groups together at the center radial seam.

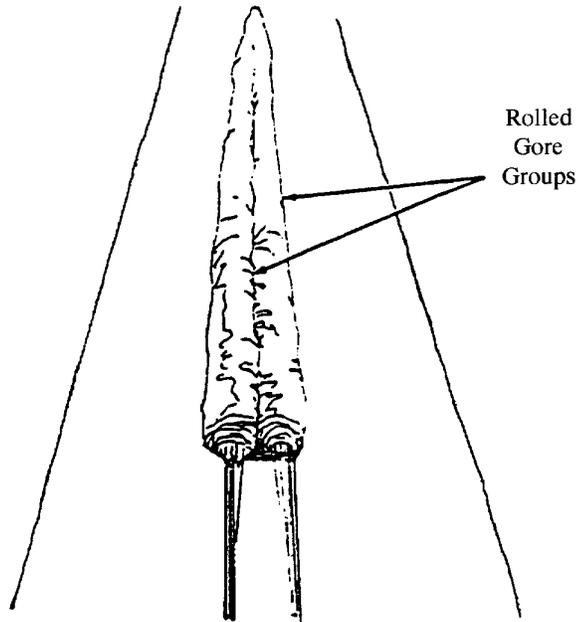


Figure 6. Individual Gore Group Rolling Completed.

3. Release tension and disconnect the canopy vent from the vent-attaching device.
4. Fold the canopy vent down between the rolled gore groups to a point within 18-inches of the canopy skirt lower edge.

5. Beginning at the folded upper end of the canopy, roll the canopy tightly toward the canopy skirt. Ensure the width of the rolled canopy does not exceed the width of the applicable parachute pack tray.

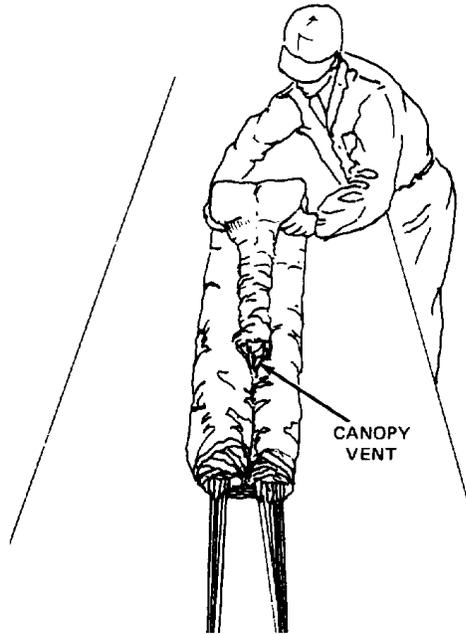


Figure 7. Rolling the Canopy.

6. Continue rolling the canopy toward the lower end of the suspension lines and risers. If applicable, locate the lines and riser webbing around the center of the roll.

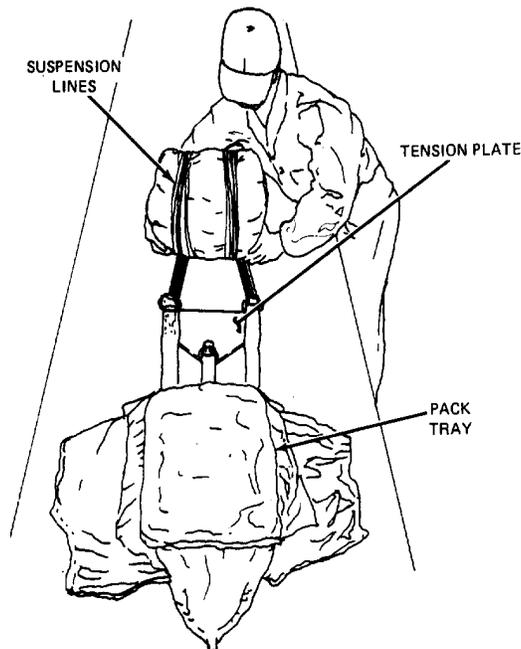


Figure 8. Suspension Lines Rolled on Canopy.

7. As applicable, disconnect the suspension lines/risers from the attaching device and place the rolled canopy assembly on top of the pack tray.
8. Secure the rolled canopy assembly within the confines of the pack tray, using either the straps or webbing of the pack tray, or a length of suitable type cord.

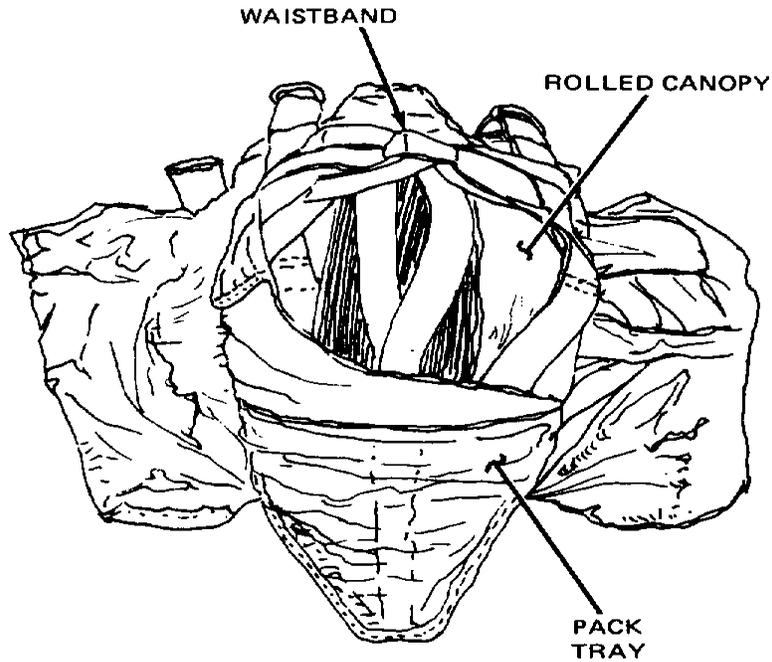


Figure 9. Rolled Canopy Assembly on Parachute Pack Tray.

WARRANTY INFORMATION

The 15-Foot Diameter Cargo Extraction Parachute does not contain warranty provisions.

NOMENCLATURE CROSS-REFERENCE LIST

Common Name	Official Nomenclature
15-Foot Extraction Parachute	15-Foot Diameter Cargo Extraction Parachute

LIST OF ACRONYMS AND ABBREVIATIONS

BOI	Basis of Issue
C/W	Complied With
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
ESD	Electrostatic Sensitive Discharge
EIR	Equipment Improvement Recommendation
F	Fahrenheit
FSC	Federal Supply Classification
Ft.	Feet
IAW	In Accordance With
IN.	Inches
IP	In-Process Inspector
Lbs	Pounds
LG	Long
Ltrs	Liters
MAC	Maintenance Allocation Chart
MDCS	Maintenance Data Collection Subsystem
MTG	Mounting
MTOE	Modified Table of Organization and Equipment
MWO	Modification Work Order
NF	National Fine (Thread)
NIIN	National Item Identification Number
NMP	National Maintenance Point
No.	Number
NSN	National Stock Number
OD	Olive Drab
OG	Olive Green
Oz.	Ounces
PAM	Pamphlet
PMCS	Preventive Maintenance Checks and Services
PQDR	Product Quality Deficiency Report
Psi	Pounds Per Square Inch
ROD	Report of Discrepancy
RPSTL	Repair Parts and Special Tools List
SF	Standard Form
SMR	Source, Maintenance and Recoverability
TB	Technical Bulletin

LIST OF ACRONYMS AND ABBREVIATIONS--continued

TDR	Transportation Discrepancy Report
TMDE	Test Measurement and Diagnostic Equipment
UOC	Usable on Code
WP	Work Package

QUALITY OF MATERIAL

Material used for replacement, repair, or modification must meet the requirements of TM 10-1670-278-23&P. If the quality of the material requirements is not stated in TM 10-1670-278-23&P, the material must meet the requirements of the drawings, standards, specifications, or approved engineering change proposals applicable to the subject equipment.

SAFETY, CARE AND HANDLING

The following subparagraphs summarize the safety, care, and handling requirements for the parachute assembly.

Safety. Use care in handling packed parachutes as exposed metal parts could cause injuries.

Care and Handling. Every effort should be made to protect the parachute from weather elements, dust, dirt, oil, grease, and acid. An unpacked parachute should be placed in a suitably sized container. When available, an environmentally controlled building should be used to store parachutes. Parachutes should be stored in a dry, well-ventilated location and protected from pilferage, dampness, fire, dirt, insects, rodents, and direct sunlight.

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

SPECIAL TOOLS, TEST MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE), AND SUPPORT EQUIPMENT

Special Tools, TMDE, and support equipment are not required.

REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

Repair parts and special tools list are listed and illustrated in WP 0055 00 through WP 0062 00 of this manual.

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
EQUIPMENT DESCRIPTION AND DATA**

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Characteristic. Provides the capability to extract an air delivery load from an aircraft.

Capabilities and Features.

Used as an extraction parachute with the C-130, C-141, C-5, and C-17 aircraft.

Used as a drogue parachute for the C-17 aircraft.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Canopy. The canopy is a 15-foot diameter, flat circular, ring-slot canopy constructed with five concentric rings of nylon fabric that are supported by radial webs. There are 16 suspension lines that are attached on one end to the canopy. The opposite end of the suspension lines are connected to two connector links that connect to an adapter web.

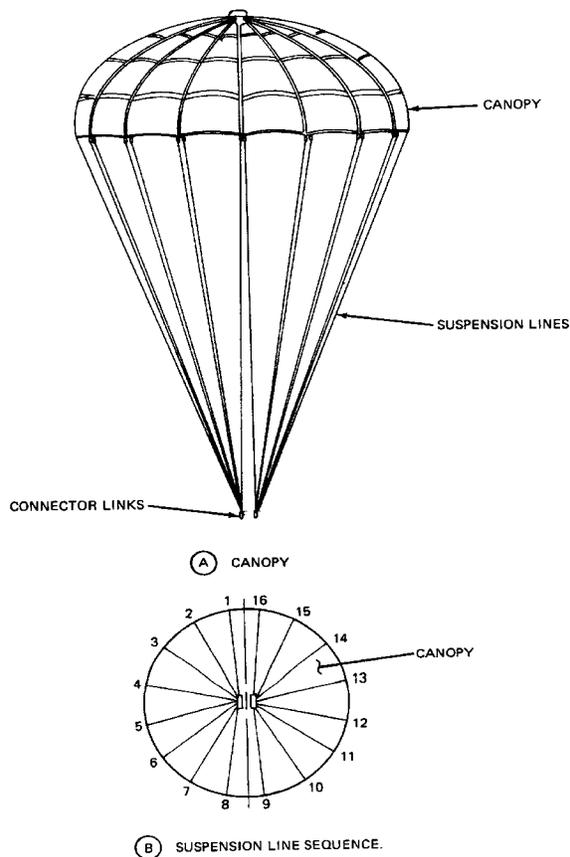


Figure 1. Canopy Assembly.

Adapter Web. The adapter web is constructed of type XXVI nylon webbing and is used for attaching all lengths of extraction lines.

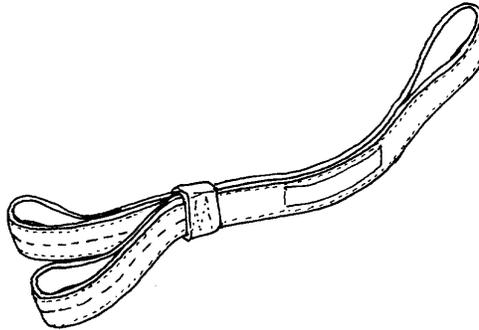


Figure 2. Adapter Web.

Deployment Bag. The deployment bag is used to stow the parachute and is constructed with one bridle loop, one V-ring, one bent V-ring, and a suspension-line stowage flap. The deployment bag is secured to the canopy with a bag-retaining tie.

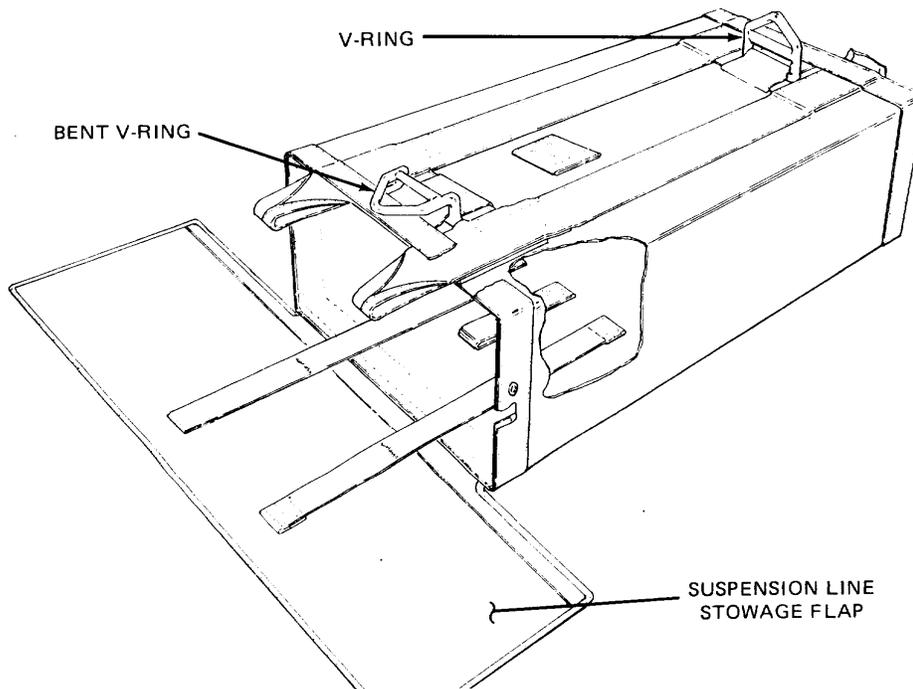


Figure 3. Deployment Bag.

EQUIPMENT DATA

The following listing summarizes the specific capabilities and limitations of the equipment and other critical data needed by the unit and direct support (DS) maintenance personnel for maintenance of the 15-foot diameter cargo extraction parachute assembly.

15-FOOT DIAMETER CARGO EXTRACTION PARACHUTE ASSEMBLY**General:**

Total weight (packed for use)	27 pounds
Dimensions (packed for use)	17 inches long by 10 inches wide by 9 inches high
Cube (packed for use)	9 cubic feet

Assembly Specifics:

Canopy Assembly.

Shape	Flat-circular
Diameter	15 feet
Design	Ring-slot
Number of Gores	16
Number of Sections Per Gore	5
Gore material	Type I, 2.25-ounce nylon
Number of vent lines	4
Number of suspension lines	16
Suspension line material	Type IV coreless nylon cord
Suspension line length (from connector link to lower lateral band)	15 feet
Canopy length (from lower lateral band to upper lateral band)	7 feet
Number of pocket bands	16
Number of connector links	2

Deployment Bag.

Pendulum line material	Type IV coreless nylon cord
Pendulum line length	85 inches

Adapter Web.

Length	3 feet
Type of material	Type XXVI nylon

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
THEORY OF OPERATION**

15-FOOT DIAMETER CARGO EXTRACTION PARACHUTE ASSEMBLY

The 15-foot diameter cargo extraction parachute is a flat, circular, ring-slot parachute system used to either initiate the deployment sequence of larger cargo parachutes that are connected to cargo extracted loads from the back of an Air Force Cargo Aircraft or act as a drogue parachute used to extract larger cargo extraction parachutes for the same purpose as mentioned above.

The extraction parachute is attached to a specific point in the Air Force Cargo Aircraft and to the extraction line. The extraction line is then attached to the cargo load. At the designated release point, the Air Force Loadmaster releases the extraction parachute from the back of the aircraft and the 15-foot cargo extraction parachute initiates the "extraction" sequence.

In an emergency, the Loadmaster has the ability to release the extraction parachute from the cargo load by simply initiating the Extraction Parachute Jettison Device (EPJD) or by manual means.

1. Canopy. The canopy is a 15-foot diameter, flat, circular, ring-slot canopy constructed with five concentric rings of nylon fabric that are supported by radial webs. There are 16 suspension lines that are attached on one end to the canopy. The opposite end of the suspension lines are connected to two connector links that connect to an adapter web.
2. Adaptor Web. The adapter web is constructed of type XXVI nylon webbing and is used for attaching all lengths of extraction lines.
3. Deployment Bag. The deployment bag is used to stow the parachute and is constructed with one bridle loop, one V-ring, one bent V-ring, and a suspension-line stowage flap. The deployment bag is secured to the canopy with a bag-retaining tie.

END OF WORK PACKAGE

CHAPTER 2
TROUBLESHOOTING PROCEDURES
FOR
PARACHUTE, CARGO TYPE:
15-FOOT DIAMETER, CARGO
EXTRACTION PARACHUTE

UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
TROUBLESHOOTING INDEX

Not Applicable

END OF WORK PACKAGE

CHAPTER 3
OPERATOR MAINTENANCE INSTRUCTIONS
FOR
PARACHUTE, CARGO TYPE:
15-FOOT DIAMETER, CARGO
EXTRACTION PARACHUTE

**OPERATOR MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SERVICE UPON RECEIPT**

INITIAL SETUP:**Tools**

Needle, Tacking (Item 11, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Materials/Parts

Tape, Lacing and Tying (Item 19, WP 0065 00)

Equipment Condition

All equipment should be serviceable and ready for use.

OVERVIEW

This chapter contains information necessary to maintain the 15-Foot Diameter Cargo Extraction Parachute on the unit and direct support (DS) maintenance levels in accordance with the Maintenance Allocation Chart (MAC) for the equipment. It includes the following:

1. Procedures for processing a new or used parachute assembly upon receipt.
2. Assembly of components prior to packing.
3. Preventive maintenance procedures to ensure continued serviceability of all components.
4. As required, inspections and maintenance procedures (such as shakeout and airing, cleaning and drying, and salt-water contamination inspections) are performed prior to packing.
5. Detailed packing procedures.
6. Repair methods and repair or replacement procedures for all components of the parachute assembly.

INITIAL RECEIPT

The following describes the procedures for processing parachutes upon initial receipt.

General Procedures for Air Delivery Equipment. When the air delivery equipment is initially procured from a supply source and issued to a using unit, the items will be unpacked from the shipping containers and inspected by a qualified parachute rigger (MOS 92R). The inspection performed will be a technical/rigger-type, which will be conducted as outlined in WP 0011 00. Upon completion of the inspection, the items will be tagged as prescribed in DA PAM 758-751. Serviceable equipment may then be entered either into storage or into use in air delivery operations, as applicable. An unserviceable item will be held and reported in accordance with DA PAM 738-750. Marine Corps users refer to MCO 4855.10.B.

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

Configuration/Condition. Acceptance of new equipment from the manufacturer is based upon inspections made of randomly selected sample lots 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 to make deviations in material and construction techniques. Air delivery 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 should be air worthy, safe, of the desired configuration, and adequate for intended use.

Marking Parachutes. Prior to being placed into service, parachutes that have had no previous use will be marked to reflect the date of entry into service. The marking will be made on the canopy information data block by stenciling the lettering in ½-inch characters, using the marking and restenciling repair procedures detailed in WP 0016 00. Other applicable parachute components will be marked adjacent to existing data. The stenciled data will appear on IN-SVC followed by the date, which will indicate the month and calendar year, such as *Jan. 04*. Ensure the added marking does not infringe upon, or obliterate, any original data on the information data block.

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 the parachute canopy and pack tray assemblies through the period of service of the individual assembly. The log record provides a means of recording maintenance actions performed on a parachute canopy assembly. Normally, a log record is initiated and attached to the deployment bag upon receipt 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 affixed parachute log record/inspection data pocket until such time as the parachute canopy assembly is destroyed or rendered unfit for further use or repair.

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

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

Installing Attaching Tie. Install the attaching tie as follows:

1. Cut a 30-inch length of tape, lacing and tying waxed nylon thread, and double the lacing length to form a 15-inch-long double strand.
2. Pass the looped end of the double lacing length around the centerfold of the log record, and form a slip loop on the outside at the log record top.

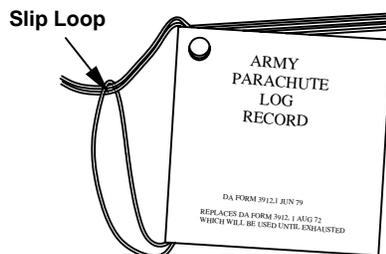


Figure 1. Forming Slip Loop.

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

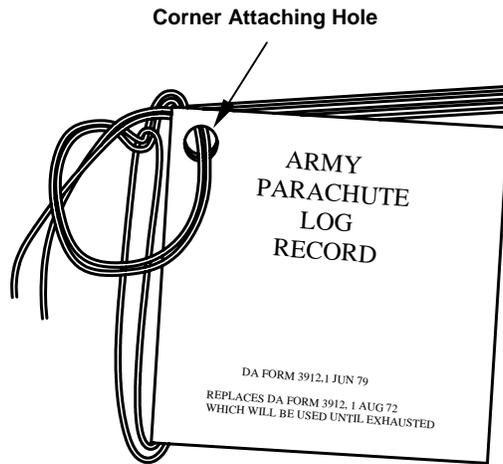


Figure 2. Passing Lacing Loose Ends Through Corner Attaching Hole.

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

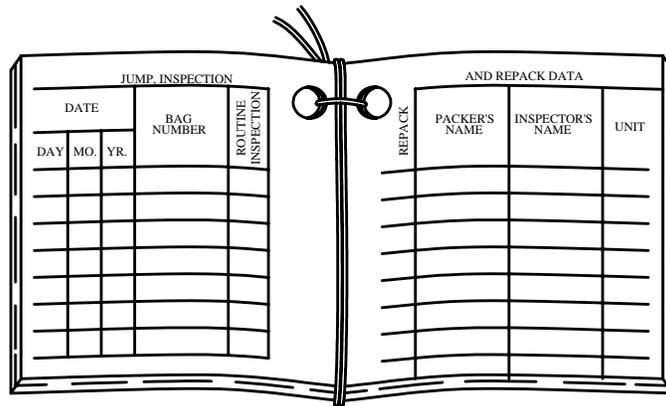


Figure 3. Routing Lacing Loose Ends Through Log Record Centerfold.

5. Complete the attachment tie by making a half hitch on top of the slip loop made in step 2. above.
6. Thread one running end of the log record attachment tie in a tacking needle, and pass the tacking needle with attached lacing end through the edge binding of the applicable parachute log record/inspection data pocket.
7. Remove the lacing end from the tacking needle, and make a finished 10-inch-long log record attaching loop by securing the two lacing ends together with an overhand knot.

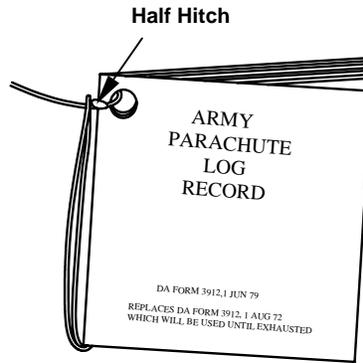


Figure 4. Log Record Attachment Tie Completed.

8. Insert the log record into the pocket, and secure the record within the pocket using the pocket flap and applicable flap fastener.

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 parachute or applicable type parachute harness 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).

1. 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 continued on the inside of the back cover, if necessary.

SERIAL NO.	○
TYPE	
PART NO.	
DATE OF MFG. (Month & Year)	
MANUFACTURER	
CANOPY CONTRACT NO.	
MO/YR CANOPY PLACED IN SERVICE	
STATION & UNIT	
(Continued on inside back cover)	

Figure 5. Inside-Front Cover of Parachute Log Record.

NOTE

A parachute canopy 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 (PQDR) documentation, and to ensure that the correct original record is reattached should the record become detached. A canopy serial number will not be used for property accountability, except in test projects or other special instances.

- a. Serial Number. Enter the parachute canopy assembly serial number.
 - b. Type. Enter the parachute type.
 - c. Part Number. Enter the part number of the parachute canopy.
 - d. Date of Manufacture. Enter the month and year the parachute canopy was manufactured.
 - e. Manufacturer. Enter the name of the parachute canopy manufacturer.
 - f. Canopy Contract Number. Enter the entire contract number specified for the parachute canopy.
 - g. Station and Unit. Enter the name of the station and unit to which the parachute canopy is currently assigned. When a parachute is transferred permanently to another station and/or unit, original entry will be lined out, and the name of the receiving station and/or unit will be entered.
2. Inside Back Cover. Entries may be continued on the inside back cover, if necessary.

The diagram shows a rectangular box representing the inside back cover. In the top-left corner, there is a circle representing a hole punch. To the right of the hole punch, the text "STATION & UNIT (Continued)" is printed. Below this text, there are ten horizontal lines spaced evenly down the page, intended for handwritten entries.

Figure 6. Inside Back Cover of Parachute Log Record.

3. Modification Work Order (MWO) Compliance Record Page. When a modification is performed on a parachute canopy, the following entries will be made on the MWO Compliance Record pages of the log record.

Modification Work Order		Compliance Record					
MWO Number	MWO Title	Modified By (Name)	INSP By	UNIT	Date		
					Day	MO.	YR.
10-1670-278-23&P 15 JULY 01	Apex Mod	WOLKMAN	TR	EBSON	24	3	02
10-1670-278-23&P 15 JULY 01	Apex Mod	C/W	TR	EBSON	24	6	02

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

Figure 7. Log Record Entries for the MWO Compliance Record Page.

- a. MWO Number. Enter the publication number and date of the MWO that describes the MWO (Item 1, Illustration on following page).
- b. MWO Title. Enter a short, abbreviated title extracted from the MWO prescribing the work.
- c. Modified By. Enter the last name of the individual who has performed the modification. If the original log record for the parachute 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) (see Illustration below), which signifies the applicable MWO has been complied with.
- d. Inspected By. The individual who accomplished the inspection-required-after-modification will sign this entry with his/her last name only.
- e. 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.
- f. Date. Enter the date (day, month, and year) the modification was completed.

UNIT & INTERMEDIATE	REPAIR & INSPECTION DATA				
TYPE OF REPAIR	INSP BY	UNIT	DATE		
			DAY	MONTH	YEAR
			INITIAL INSPECTION 1 SEC and 4 Lines Replaced MWO 10-1670-287-20-1	Venckus	SBCCOM
	Cravel	SBCCOM	3	3	01
	Borson	SBCCOM	10	4	01

← 1. Completion of Initial Inspection
← 2. Repair Accomplishment
← 3. MWO Inspection Compliance

Figure 8. Log Record Entries for Unit and Direct Support Repair and Inspection Data Page.

4. Unit and Direct Support Repair and Inspection Data. When a parachute canopy assembly 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 individual log record. Additional entries will also be made on this page each time the canopy assembly is repaired or is inspected in compliance with a Maintenance Advisory Message (MAM) or Ground Precautionary Message (GPM). The page completion criteria are as follow:
 - a. Type of Repair. Enter the type of repair, completion of initial inspection, repair accomplishment, or MAM or GPM compliance.
 - b. Inspected By. The individual who accomplished the inspection-required-after-modification will sign this entry with his/her last name only.
 - c. Unit. Enter the unit designation responsible for performing the type of repair.
 - d. Date. Enter the date (day, month and year) the repair was performed.
 - e. Note page. A page is provided at the back of a parachute log record to accommodate recording of additional data pertinent to the serviceability of a parachute canopy assembly. This shall also include the month and year the item was placed in service.

NOTES
RISER MFG DATE: 7 JAN 2000
PLACED IN SERVICE: 7 JAN 2001
IMMERSED IN SALT WATER: 26 JULY 2001
RINSED: 27 JULY 2001

Figure 9. Data Entries for a Log Record Note Page.

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. Jump, Inspection, and Repack Data Page. Beginning with the initial packing of a parachute, and each time a parachute is repacked or administered a routine inspection, make the applicable entries on the Jump, Inspection, and Repack Data page of the log record as follows:

JUMP, INSPECTION,				ROUTINE INSPECTION	AND REPACK DATA			
DATE			BAG NUMBER		REPACK	PACKER'S NAME	INSPECTOR'S NAME	UNIT
DAY	MO.	YR.						
6	1	02	005439		IN Gravel	Senckus		

Figure 10. Log Record Jump, Inspection, and Repack Data Entries.

- a. Date. Enter the date (day, month, and year) of each inspection and packing action applied to the parachute. These actions include the initial pack, after-use repack, 120-day inspection and repack, and routine inspection.
- b. Bag Number. If the parachute is of troop-type design, enter the deployment bag number that is marked on the bag-suspension-line protector flap.
- c. Routine Inspection. Enter a checkmark when an emergency-type personnel parachute is administered a routine inspection.
- d. Jumped or Dropped. No entry required.
- e. Repack. For initial packing, enter IN. Thereafter, enter a checkmark in the column each time the parachute is repacked.
- f. Packer's Name. The packer performing the initial pack, repack, or routine inspection, as applicable, will sign this entry.
- g. Inspector's Name. The inspector who has performed the pack-in-process inspection or routine inspection, as applicable, will sign this entry.

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.

6. 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 canopy 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 of the original data has been transcribed, destroy the original log record.

7. Replacing a lost log record.

NOTE

Any time a log record is discovered missing from a parachute, a placement log record will be initiated during repack or 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. The age life of the canopy will be obtained from the date of manufacture or, if available, the date that the canopy was placed into service as indicated in the canopy information data block. Enter the date placed in service (initial) and other applicable data on the Jump, Inspection, and Repack Data page of the log record. Enter IN if the date placed in service is known. If unknown, enter UNK.
- d. If it can be ascertained by inspection that a previous Modification Work Order (MWO) 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 log record/inspection data pocket using the procedures detailed above.

RECEIPT OF USED PARACHUTE

Upon initial receipt of a used parachute proceed as follows:

1. Follow the procedures given in the General Procedures For Air Delivery paragraph at the beginning of this WP, and check each component for excessive wear and tear.
2. If defects or damages are discovered, process the parachute for maintenance at the maintenance level assigned by the MAC (WP 0056 00).

AFTER-USE RECEIPT

When a parachute is received at the maintenance activity following its use during airdrop, it must be given a shakeout and aired (WP 0009 00), and, if necessary, cleaned (WP 0010 00) before it can be returned to service. If a parachute is issued but not used, it does not need to be given a shakeout; however, it must be aired if it has been subjected to conditions of dampness.

CHECKING UNPACKED EQUIPMENT AFTER SHIPMENT

1. Inspect equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on an SF 364, Supply Discrepancy Report (SDR).
2. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in AR 735-11-2, Reporting of Item and Packaging Discrepancies.
3. Check to see whether the equipment has been modified.

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
ASSEMBLY**

ASSEMBLY

NOTE

The procedure for assembling components of the parachute is incorporated in WP 0013 00, Packing Procedures.

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), INTRODUCTION**

GENERAL

The following paragraphs describe PMCS procedures on the unit and direct support levels. The purpose of PMCS is to ensure the 15-Foot Diameter Cargo Extraction Parachute is in proper operating condition and ready for its primary use.

SCOPE

Work Packages 0009 00 through 0050 00 contain maintenance procedures that are the responsibility of the maintenance supervisor, 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.

PARACHUTE REPACK INTERVAL

The 15-Foot Diameter Cargo Extraction Parachute will be repacked at a scheduled interval to ensure airworthiness. When necessitated by climate/storage/use condition, the local air delivery equipment maintenance officer may require more frequent repack intervals. In this regard, a major concern would be rapid fluctuations of temperature (fluctuations around 32 degrees Fahrenheit, freezing point), sustained high or low temperature, or high humidity and heavily polluted atmosphere. The 15-Foot Diameter Cargo Extraction Parachute will be repacked at a 365-day interval. However, the repack cycle of the 15-Foot Diameter Cargo Extraction Parachutes stored in depots and facilities that maintain contingency stocks of 15-Foot Diameter Extraction Parachutes, which are specifically identified as *PACKED FOR CONTINGENCY* and stored separately from normal parachute stock, will be repacked at a 144-month interval. This is only to occur providing the storage conditions are IAW this TM and TM 10-1670-201-23.

DROP-TESTING CRITERIA

Drop-testing the 15-Foot Diameter Cargo Extraction Parachute consists 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 is as follows:

1. During the drop-test of any type parachute, the deployment of the parachute will be thoroughly monitored and observed to detect any indication of malfunction or defect. Any defect or malfunction detected in a drop-test will be annotated in the log record book using procedures outlined in WP 0005 00, SERVICE UPON RECEIPT.
2. 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 0011 00, INSPECTION.
3. 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 0011 00, INSPECTION. If serviceable, the items may then remain in use.

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)**

GENERAL

The following paragraphs describe PMCS procedures on the unit and direct support levels. Table 1 has been provided to ensure the 15-Foot Diameter Cargo Extraction Parachute is in proper operating condition and ready for its primary mission.

Warnings and Cautions. Warnings and cautions appear before applicable procedures. You must observe these warnings and cautions to prevent serious injury to yourself and others and to prevent damage to equipment.

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

PMCS Table Column Entries. Enter data in the columns as follows:

Item number. Item number required for the TM number column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) when recording the results of PMCS.

Interval. Required PMCS level.

Item to be inspected. Common name of the item to be inspected.

Procedures. Brief description of the procedure by which the checks are to be performed.

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

Conservation of Resources. To conserve time and labor, and to avoid evacuation to an intermediate maintenance activity, unit/detachment commanders may designate, in writing, rigger personnel to accomplish classification inspection of overage air delivery equipment. The 15-Foot Cargo Extraction Parachute has no age or service life.

Inspection Function Requirement. Normally, airdrop 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 surface or suitably sized floor area.

Should any 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 the 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, small-cargo table.

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 for further determination of economic repair and repair accomplishment, if applicable.

NOTE

Parachutes that are deemed unserviceable by a packing or rigging activity will be rigger-rolled in accordance with WP 0001 00, PREPARATION FOR SHIPMENT (Accordion Folding/Rigger Rolling) prior to being sent to a repair activity.

Table 1. Preventive Maintenance Checks and Services (PMCS)

B – Before

D – During

A – After

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED	PROCEDURES
	B	D	A		
00	•		•	The 15-Foot Diameter Cargo Extraction Parachute	Verify that assembly is complete and no components are missing. Check for proper assembly, foreign material, mildew or stains, and log record book.
01	•			Parachute <i>(Packed for Use)</i>	Visually check visible parts for serviceability and completeness without opening pack. Check parachute inspection data record for pack date.
02	•		•	Canopy	As canopy is raised, suspended, and lowered during shakeout, check for dampness, mildew, acid, grease, oil, dirt, foreign material, holes, cuts, tears; broken lines, and webbing. <i>Fabric Material.</i> Legibility of marking data; completeness; dampness, mildew, dirt, acid, grease, oil, foreign material, rips, burns, cuts, breaks, frays, tears, holes, thin spots, loose weaving; loose or broken stitching, lines, and webbing. <i>Hardware Components.</i> Corrosion, rough spots, burrs, breaks, cracks, bends; loose or missing screws.
03	•		•	Deployment Bag	Completeness, dampness, mildew, acid, grease, oil, dirt, foreign material, holes, cuts, and breaks. <i>Fabric Material.</i> Completeness; dampness, mildew, dirt, acid, grease, oil, foreign material, rips, burns, cuts, breaks, frays, tears, holes; loose or broken stitching. <i>Hardware Components.</i> Corrosion, rough spots, burrs, breaks, cracks, bends; loose or missing grommets.

Table 1. Preventive Maintenance Checks and Services (PMCS)-continued

B – Before

D – During

A – After

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED	PROCEDURES
	B	D	A		
04	•		•	Adapter Web	<p><i>Webbing Length.</i> Dampness, mildew, acid, grease, oil, dirt, foreign material, cuts, burns, frays, missing keeper, loose or broken stitching.</p> <p><i>Attaching Loops.</i> Damaged or missing buffers or loose or broken tacking.</p>

LUBRICATION SERVICE INTERVALS

The 15-Foot Diameter Cargo Extraction Parachute does not require lubrication service.

END OF WORK PACKAGE

CHAPTER 4
UNIT MAINTENANCE INSTRUCTIONS
FOR
PARACHUTE, CARGO TYPE:
15-FOOT DIAMETER, CARGO
EXTRACTION PARACHUTE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SHAKEOUT AND AIRING

INITIAL SETUP:**Tools**

Brush, Scrub, Household (Item 2, WP 0054 00)

Personnel Required

Two, 92R (10) Parachute Riggers

Equipment Condition

Parachute suspended

SHAKEOUT

A two-person team, either indoors within a shakeout room or outdoors at a shakeout tower, will accomplish the shakeout. Each parachute will be suspended by the canopy bridle loop and all debris will be removed by shaking the canopy thoroughly, or by brushing it with a dry, soft-bristled brush as detailed below:

1. With assistance from the no. 2 person, the no. 1 person will connect the snap on a pulley rope to the canopy bridle loop.

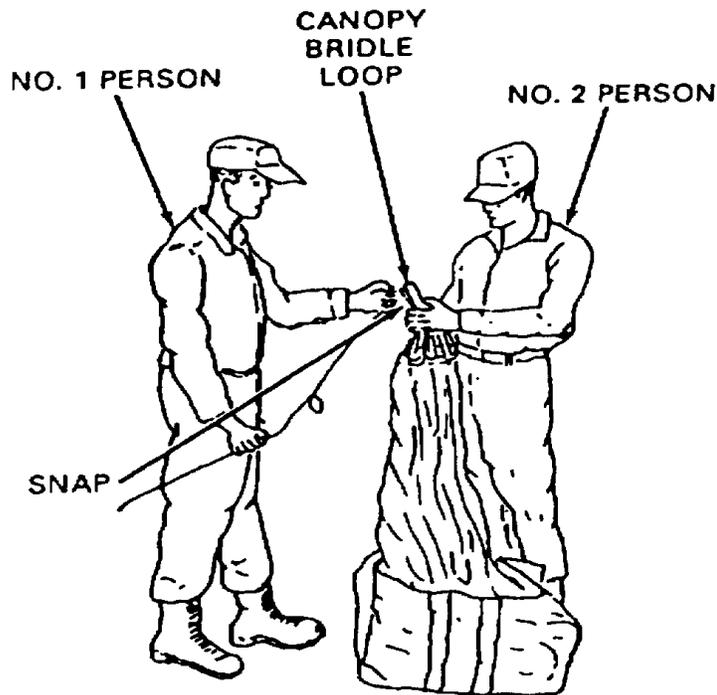


Figure 1. Attaching Canopy Bridle Loop to Pulley Rope.

2. Through the use of a pulley rope, the no. 2 person will raise the canopy to a suitable height, which will enable the no. 1 person to perform the shakeout on each of the canopy gores. Until the gore-shaking process is completed, the no. 2 person will maintain a steady pull on the pulley rope to hold the suspended canopy at the working height needed by the no. 1 person.
3. The no. 1 person will grasp any two consecutive suspension lines, one in each hand, and vigorously shake the first gore. When the gore is free of debris, the no. 1 person passes the line from the right hand to the left hand and grasps the next consecutive suspension line in the right hand. The no. 1 person will shake out each consecutive gore until all suspension lines are held in the left hand, and all gores are free of debris.

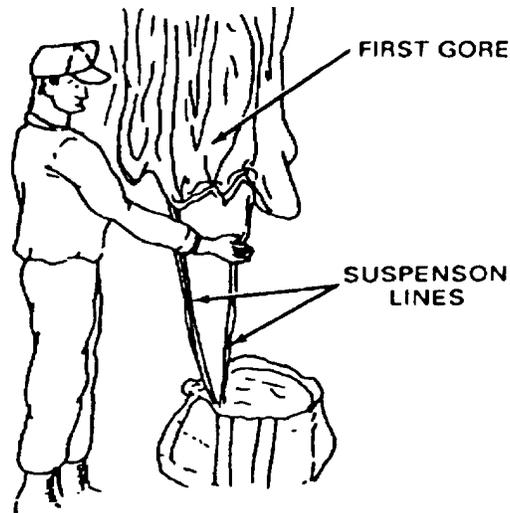


Figure 2. Canopy Gore Shakeout Process.

4. Once the gore shaking process is completed, the no. 2 person will slowly raise the suspended canopy higher as the no. 1 person clears the suspension lines of debris and removes entanglements when possible.

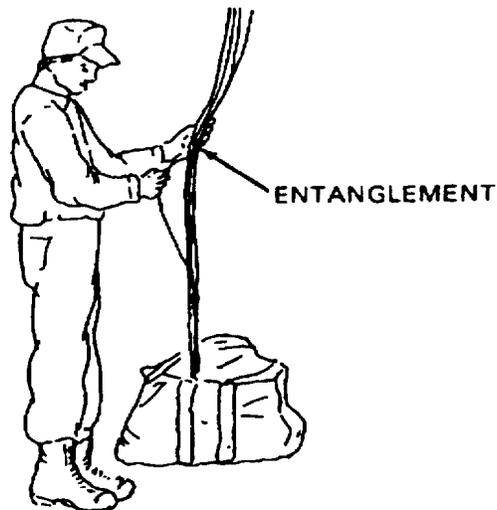


Figure 3. Removing Turns, Tangles and Twists.

5. After the suspension lines have been cleared, the no. 2 person may hold or temporarily secure the pulley rope while the no. 1 person proceeds to clear debris from the other parachute components such as the risers, harness, pack, or deployment bag. When all components are free of debris, the no. 2 person will slowly lower the canopy while the no. 1 person S-folds the suspension lines into a suitably sized container. After the suspension lines have been completely folded, the no. 1 person will accordion-fold the canopy length on top of the folded lines.

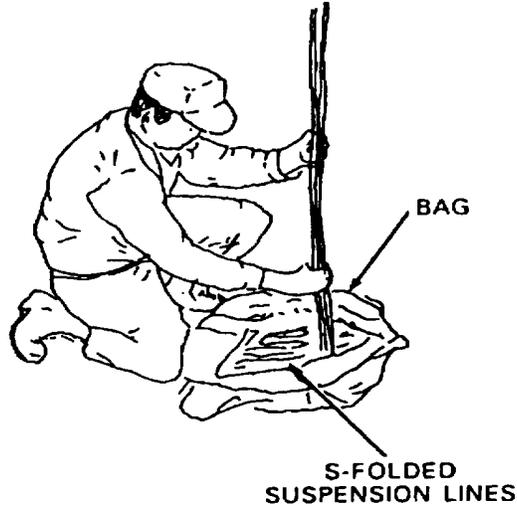


Figure 4. Lowering Canopy Into Deployment Bag.

6. As the canopy folding is being completed, the no. 1 person will disconnect the canopy bridle loop from the pulley rope snap. Secure the folded canopy assembly for further handling.

NOTE

Do not dry fabric items in direct sunlight or by laying an item on the ground.

AIRING

Where dampness and mildew are prevalent, air delivery equipment will be aired at frequent intervals according to the severity of the prevailing conditions. Parachutes that have been previously packed or are unpacked, and have been subjected to conditions of dampness or mildew, will be aired for a period of at least 6 hours prior to being repacked. 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 entire exposure to the circulation of air may accomplish airing. Outside facilities used for the shakeout of parachutes 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 by draping over suitable type objects that would not cause damage.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
CLEANING AND DRYING

INITIAL SETUP:**Tools**

Brush, Scrub, Household (Item 2, WP 0054 00)
File, Flat (Item 5, WP 0054 00)

Materials/Parts

Cloth, Abrasive (Item 4, WP 0065 00)
Dishwashing Compound (Item 9, WP 0065 00)
Rag, Wiping (Item 16, WP 0065 00)
Cleaner, Industrial (Item 3, WP 0065 00)

Equipment Condition

Laid out on packing table or other suitable surface.

Personnel Required

92R (10) Parachute Rigger

References

WP 0005 00, WP 0011 00, WP 0053 00

WARNING

Due to flammable properties and nylon-damaging substances, cleaning solvents other than EVERBLUM GOLD™ (industrial cleaner) will not be used in the spot-cleaning or airdrop equipment. EVERBLUM GOLD™ will only be used in areas where substantial ventilation is available. Repeated or prolonged inhalation of the solvent vapors can be detrimental to human health. In addition, avoid prolonged or repeated contact of the solvent fluid with areas of the skin. EVERBLUM GOLD™ must not be taken internally.

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 must be evacuated to an 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 must be condemned.

NOTE

Cleaning of parachutes should be held to a minimum and should be performed only when necessary to prevent malfunction or deterioration. When a parachute 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 parachute has been contaminated by water. The methods of cleaning must be determined by the nature of the substance to be removed. If items are soiled by airsickness, use a solution of hand dishwashing compound to clean this type of soiling.

CLEANING FABRIC ITEMS WITH INDUSTRIAL CLEANING

Use EVERBLUM GOLD™ (industrial cleaner) to clean fabric items as follows:

1. Gently brush with a soft bristle brush.
2. Spot clean with EVERBLUM GOLD™ industrial cleaner as follows:
 - a. Rub the soiled area with a clean dampened cloth with EVERBLUM GOLD™ industrial cleaner.
 - b. Rinse the cleaned area by repeating the rubbing process with the clean portion of the cloth dampened with the industrial cleaner.
 - c. Rub with a dry cloth to remove excess solvent and air dry.

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 as follows:
 - a. Dissolve one-half cup of the dishwashing compound in 1 gallon of warm water.
 - b. Rub the soiled area with a clean cloth dampened with the solution of dishwashing compound.
 - c. Rinse the cleaned area by repeating the rubbing process with a clean portion of a cloth dampened with fresh, clean water.

NOTE

Do not dry fabric items 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°F (71°C). The preferred temperature is 140°F (60°C).

CAUTION

Use care not to damage the adjacent fabric materials.

CLEANING METAL ITEMS

Clean metal items by removing burrs, rough spots, rust, or corrosion by filing with a metal file or by buffing and polishing with an abrasive cloth.

RINSING EQUIPMENT IMMERSSED IN SALT WATER

If the parachute or any of its components, has been immersed in salt water in excess of 24 hours, it will be condemned. Additionally, if the parachute, 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 are performed. Upon removal from the salt water, the parachute is placed in a single heavy duty plastic trash bag, the top of the bag secured 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 ensure the bag did not get torn and the assembly was allowed to dry. Parachutes recovered using this method must be rinsed NLT 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 parachute assembly in a shaded area, and allow it to drain for at least 5 minutes. Do not attempt to wring out the fabric or the suspension lines. Within 48 hours after recovery, under the supervision of a qualified parachute rigger (MOS 92R), rinse the recovered parachute. Items found or known to be contaminated are to be cleaned in the following manner:

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

CAUTION

Equipment made of cotton fabric immersed in salt water is to be condemned. Refer to WP 0011 00, INSPECTION, for equipment disposition.

NOTE

If the salt-water-soaked parachute assembly 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 item(s) from the container and suspend or elevate the equipment in a shaded area, allowing a 5-minute drainage period. Do not attempt to wring the equipment fabric or, if applicable, the suspension lines.
4. Repeat procedures 1 through 3 two more times using fresh, clean water for each rinse.
5. After the third rinse, allow the equipment to drain thoroughly. Upon completion of draining, dry the equipment in accordance with the DRYING FABRIC ITEMS procedures detailed above.
6. When dried, perform a technical/rigger-type inspection of the item(s). Corroded metal components or corrosion-stained fabrics or suspension lines will be either repaired or replaced as prescribed by the MAC (WP 0053 00).
7. Record immersion, rinsing, and any repairs in the individual parachute log record as detailed in WP 0005 00 (SERVICE UPON RECEIPT).

RINSING EQUIPMENT IMMERSSED IN FRESH WATER

Any airdrop equipment 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 parachute are as follows:

1. Contaminated fresh water. If the parachute, or its components, has been immersed in contaminated fresh water, rinse and dry (see RINSING EQUIPMENT IMMERSSED IN SALT WATER above), and, if applicable, repair.
2. Uncontaminated fresh-water. If the parachute, 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°F (71°C). The preferred temperature is 140°F (60°C).

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
INSPECTION**

INITIAL SETUP:**Equipment Condition**

Laid out on packing table or other suitable surface.

Personnel Required

92R (10) Parachute Rigger

92R (20) Parachute Rigger

References

AR 750-1; AR 750-32;

DA PAM 738-750; DA PAM 738-751;

ROUTINE INSPECTION

A routine inspection is a visual check performed to ascertain the serviceability of all visible components of a parachute that is packed or rigged for use. The inspection will be made on all components that can be inspected without opening the parachute pack.

Prior to use, a parachute rigger will administer this inspection. Parachutes issued for an air delivery operation, and not deployed, will receive a routine inspection prior to being placed into a ready-for-issue storage.

PACK-IN-PROCESS INSPECTION

A pack-in-process inspection is performed at specified intervals during the packing of a parachute to ensure that only authorized procedures and methods are being used.

A parachute rigger, other than the packer or rigger preparing the applicable equipment for use, will accomplish the inspection. The intervals at which the inspection is performed are as follows:

NOTE

For Army personnel, the In-Process Inspector (IP) qualifications will be IAW AR 750-32.

1. After the parachute is placed in proper layout.
2. After the gores are folded and the flatfold is completed.
3. After the canopy is longfolded.
4. After the canopy is stowed.
5. After the suspension lines are stowed.
6. After closing the deployment bag.
7. After the parachute is completely packed.

TECHNICAL/RIGGER-TYPE INSPECTION PROCEDURES

Perform the inspection as follows:

1. Overall Inspection. An overall inspection will be made on the 15-Foot Diameter Cargo Extraction Parachute to ascertain the following:
 - a. Log record/parachute inspection data pocket and form. As applicable, inspect the assembly log record parachute inspection data pocket to ensure the Army Parachute Log Record (DA Form 3912), NAVWPNCEN or NAVWPNS CL 13512/11(Parachute History Record) is enclosed and properly attached. Furthermore, 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 parachute canopy and pack tray assemblies through the period of service of the individual assembly. The log record provides a means of recording maintenance actions performed on a parachute canopy assembly. Normally, a log record is initiated and attached to a right rear riser upon receipt 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 affixed parachute log record/ inspection data pocket, until such time as the parachute canopy assembly 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 the parachute assembly will accompany the item in the transfer action. A prepared log record will not be removed or separated from a parachute, especially a packed parachute, 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 repack or inspection, as applicable, with a serviceable item from stock.

- b. Assembly completeness. Ensure that the applicable assembly is complete and no components or parts are missing.
- c. Operational adequacy. Check item components and parts to ensure proper assembly, which includes attachment and alignment, and that the assembled product functions in the prescribed manner. Also ensure that no stitch formation or sewn seam has been omitted.
- d. Markings and stenciling. Inspect each assembly and related components for faded, illegible, obliterated, or missing informational data and identification numbers.
- e. Foreign materials and stains. Inspect each assembly and related components for 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 step 1. above, a detailed inspection will be performed on materials that constitute 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, and deterioration. Also inspect for damaged, loose, and missing safety pins.
 - b. Cloth. Inspect for breaks, burns, cuts, frays, holes, rips, snags, and tears; loose, missing, and broken stitching or tacking; and weak spots, wear, and 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; and 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.

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 equipment is ready for issue, that the item is properly identified and segregated from other types of equipment, that no damage or deterioration of equipment has been incurred, and that all modifications or similar action requirements have been completed.

The inspection should also focus on 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 supervisor 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 the 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 on the item will be performed at the maintenance level specified in WP 0054 00, MAC.
2. Parachutes with exhausted age or service life. Any parachute 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 for use will be reported in an Equipment Improvement Recommendation (EIR) in accordance with DA PAM 738-751, 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. Tank-automotive & Armament Command, ATTN: AMSTA-LC-R, 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 738-751. In addition, the equipment will be reported in an EIR in accordance with DA Pam 738-750 and AR 750-1. The items 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 items nor make any attempt to ascertain cause factors. Unnecessary handling of EIR exhibit material may disturb or alter peculiar aspects of the affected items 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 parachute packs that have 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 are performed. Upon removal from the salt water, the parachute is placed in a single heavy-duty plastic trash bag, the top of the bag secured 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 ensure the bags did not get torn and the assembly was allowed to dry. Parachutes recovered using this method must be rinsed NLT 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 items to drain for at least 5 minutes. Do not attempt to wring the equipment fabric or the suspension lines. Within 48-hours after recovery, under the supervision of a qualified parachute rigger (92R), rinse the recovered equipment as indicated in WP 0010 00, Cleaning and Drying.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SALT-/FRESH-WATER CONTAMINATION TEST

INITIAL SETUP:**Equipment Condition**

Laid out on packing table or other suitable surface.

Personnel Required

92R (10) Parachute Rigger

INSPECTION

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

Equipment Immersed in Salt Water. If the parachute, or any of its components, has been immersed in salt water in excess of 24 hours it will be condemned. Additionally, if the parachute, or any of its components, has been immersed in salt-water for a period less than 24 hours, but which cannot be rinsed within 48 hours after recovery, it will also be condemned, unless the following actions are performed. Upon removal from the salt-water, the parachute is placed in a single heavy-duty plastic trash bag, the top of the bag secured 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 ensure the bag did not get torn and the assembly was allowed to dry. Parachutes recovered using this method must be rinsed NLT 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 parachute assembly in a shaded area and allow it to drain for at least 5 minutes. Do not attempt to wring the fabric or the suspension lines. Within 48 hours after recover, under the supervision of a qualified parachute rigger (92R), rinse the recovered parachute assembly as follows:

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

CAUTION

Equipment made of cotton fabric immersed in salt water is to be condemned. Refer to WP 0011 00, INSPECTION for equipment disposition.

NOTE

If the salt-water-soaked parachute assembly 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 items from the container and suspend or elevate the equipment in a shaded area, allowing a 5-minute drainage period. Do not attempt to wring out the equipment fabric or, if applicable, suspension lines.
4. Repeat procedures 1 through 3 two more times using fresh, clean water for each rinse.
5. After the third rinse, allow the equipment to drain thoroughly. Upon completion of draining, dry the equipment in accordance with the DRYING FABRIC ITEMS procedures detailed above.
6. When dried, perform a technical/rigger-type inspection of the items. Corroded metal components or corrosion-stained fabrics or suspension lines will be either repaired or replaced as prescribed by the WP 0054 00, MAC.
7. Record immersion, rinsing, and any repairs in the individual parachute log record as detailed in WP 0005 00, SERVICE UPON RECEIPT.

Equipment Immersed in Fresh Water. Any air delivery equipment 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 parachute are as follows:

1. Contaminated fresh water. If the parachute or its components have been immersed in contaminated fresh water, rinse and dry (see *RINSING EQUIPMENT IMMERSED IN SALT WATER* above), and, if applicable, repair.
2. Uncontaminated fresh-water. If the parachute, 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
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
PACKING PROCEDURES

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Line Separator (Item 20, WP 0054 00)
Packing Paddle, (Item 12, WP 0054 00)
Packing Weights (Item 28, WP 0054 00)

Materials/Parts

Retainer Band, Rubber (Item 1, WP 0065 00)
Thread, Cotton, Size 8/7 (Item 24, WP 0065 00)
Webbing, Cotton, Type I, ¼-IN. (Item 32, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger
92R (20) Parachute Rigger

Equipment Condition

Parachute cleaned (WP 0010 00) and
given a shakeout (WP 0009 00)

References

WP 0005 00, WP 0006 00, WP 0011 00

WARNING

Failure to detect areas of damage may result in malfunction of the
parachute or loss of equipment.

NOTE

Normal repack cycle is 365 days.

INSPECTION

If defects or damages are discovered during inspection of a parachute, the parachute must be rigger-rolled and processed for maintenance in accordance with WP 0052 00 and DA PAM 738-751. A technical/rigger type inspection and a pack-in-process inspection must be performed each time a parachute is packed. (Refer to WP 0011 00, INSPECTION).

1. Technical/Rigger Type Inspection. Before each parachute is packed for air delivery, it must be given a technical/rigger-type inspection by the packer in accordance with WP 0011 00, INSPECTION.
2. Pack-In-Process Inspection. A designated supervisory rigger, other than the packer, must perform a pack-in process inspection at seven intervals during the packing procedure. The inspection is performed to ensure the parachute is packed according to authorized packing procedures (refer to WP 0011 00, INSPECTION).

ORIENTATION

Throughout this manual, all directions (right, left, upper, lower, top, bottom, clockwise, and counterclockwise) are given from the rigger's point of view, as the rigger stands at the tension-plate end of the packing table facing the apex-hook end of the table.

1. Top: That portion of the equipment that is farthest from the packing surface.
2. Bottom: That portion of the equipment that is nearest to the packing surface.

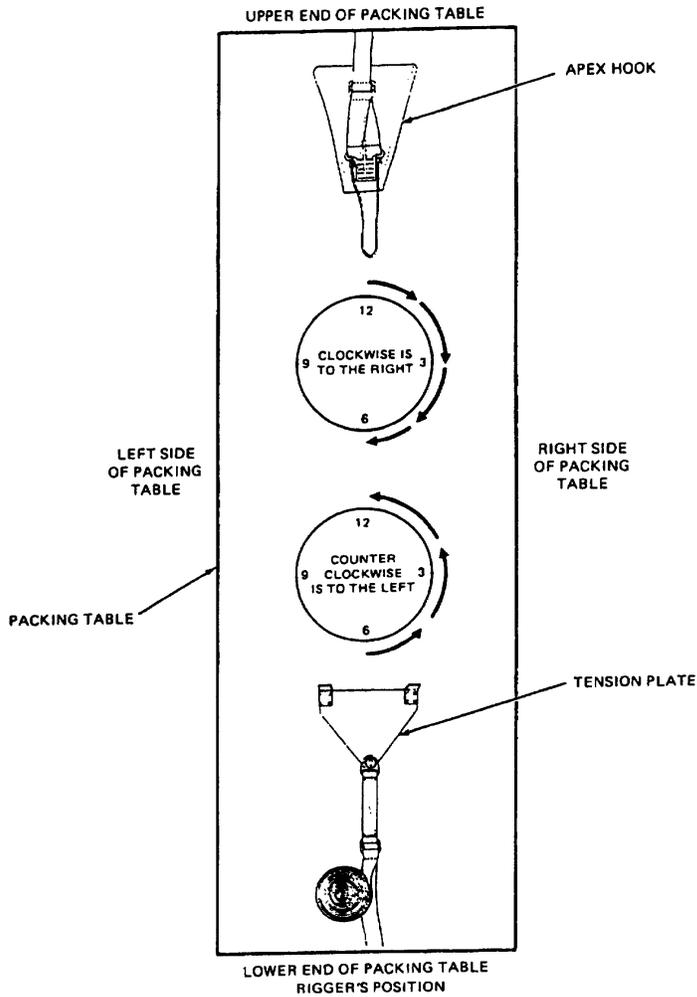


Figure 1. Rigger's Orientation.

PREPARING THE PARACHUTE FOR PROPER LAYOUT

If components of the parachute assembly are detached, assemble the parachute during layout in accordance with this WP.

1. Place the packing tools in convenient locations on the packing table.
2. Lay the canopy assembly lengthwise on the packing table, and attach the canopy to the packing table apex hook.
3. Attach the connector links to the tension plate, and apply enough tension to keep the canopy on the table.
4. Check the vent lines to determine if the canopy is inverted. If the vent lines do not appear attached to the outside of the upper lateral band, the canopy is inverted.

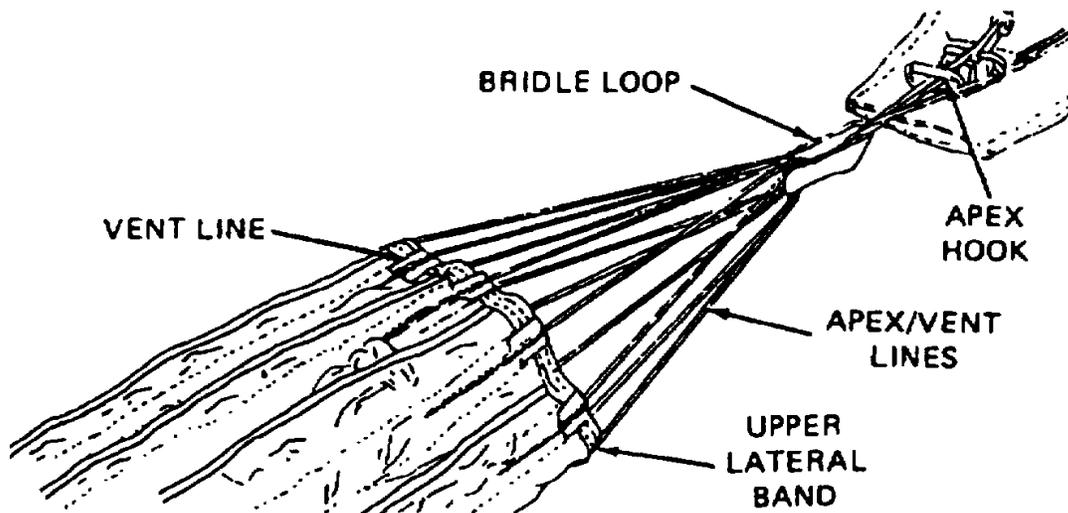


Figure 2. Canopy Attached to Packing Table Apex Hook.

NOTE

When inversions, turns, tangles, and twists are present in the canopy assembly, the proper sequence for removal to achieve proper layout is to remove an inversion first, remove turns second, then remove tangles and, finally, remove twists.

REMOVING INVERSION

The canopy vent lines should be checked to determine if the canopy has been inverted. Should the vent lines be on the inside of the upper lateral band, the canopy is inverted.

1. To remove an inversion, proceed as follows:
 - a. Remove the canopy from the apex hook, and pass the canopy vent down through the canopy.
 - b. Bring the vent out at the skirt between two adjacent suspension lines.

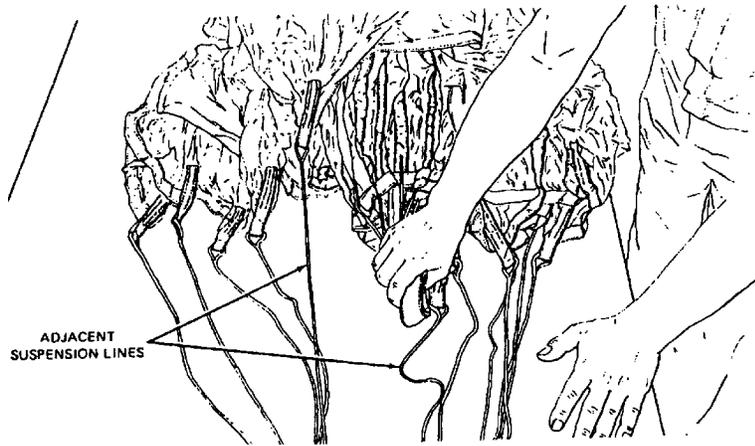


Figure 3. Removing Inversion.

- c. Reattach the canopy to the apex hook after the inversion is removed.

REMOVING PARTIAL INVERSION

A partial inversion may occur in an extraction parachute with a ring slot-type canopy. If the vent is on the outside of canopy and the pocket bands are on the inside, or vice versa, a partial inversion exists.

1. Remove a partial inversion as follows:
 - a. Disconnect the bridle loop from the apex hook.
 - b. Trace the radial and vertical tapes to the annular ring or ring slot, where the tapes turn under to the canopy and out through the annular-ring-applicable ring slot.

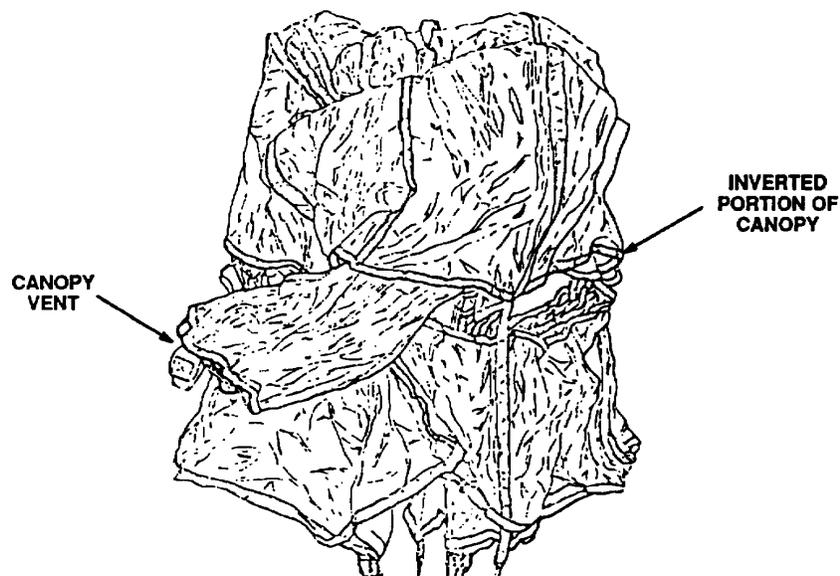


Figure 4. Removing Partial Inversion.

- c. Reattach bridle loop to the apex hook.

LOCATING SUSPENSION LINES

To properly locate suspension lines, proceed as follows:

NOTE

Suspension lines 1 through 16 are divided into two groups: 1 through 8 are in the left group, and 9 through 16 are in the right group.

1. Divide the suspension lines into left and right groups.
2. Place a packing weight around the right group of lines, and move the weight toward the risers checking for turns, tangles, and twists.
3. When inversion, turns, tangles and twists are present in a canopy assembly, the proper sequence for removal to achieve proper layout is to remove the inversion first, remove turns second, then remove tangles and finally remove twists as follows:
 - a. Turns. A turn occurs when one group of suspension lines rotates around the other group.

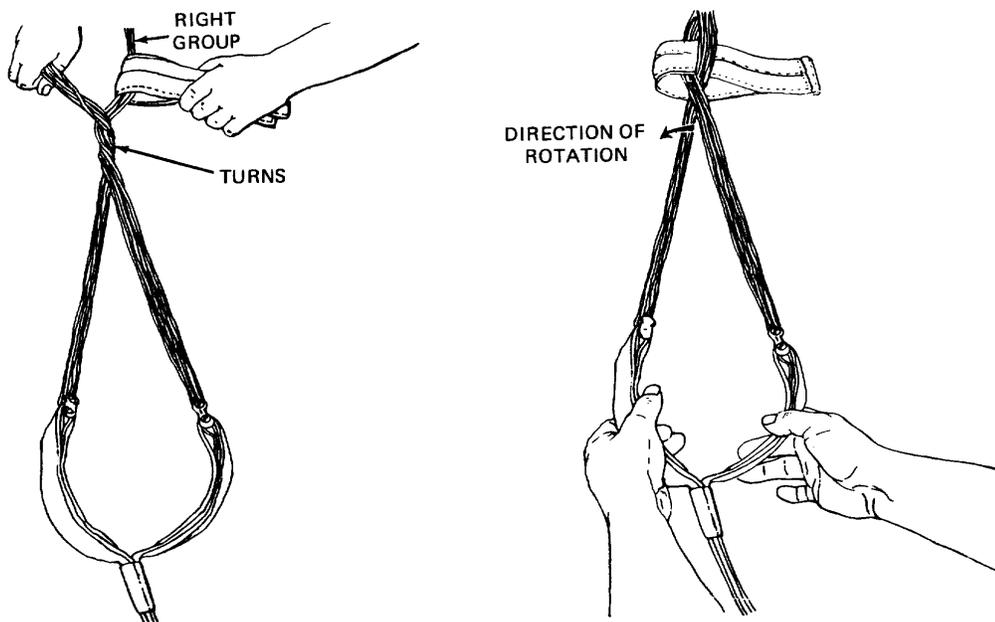


Figure 5. Removing Turns from Suspension Lines.

- (1) Remove connector links from the tension plate, and remove a turn by rotating the risers in the direction opposite to the direction of the turn.
- (2) Reposition the connector links on the tension plate.

- b. Tangles. To remove tangle(s), keep the two groups of lines separated and work the tangle(s), as close to the connector link as possible. Detach connector links from the tension plate (refer to the following illustration).
- (1) Select the top line(s) that form the tangle and, with the left hand, lift the line(s) away from the other lines.
 - (2) With the right hand, reach through the opening created by the lifted suspension lines and pull the adapter web through the opening. Do not permit the risers to turn.

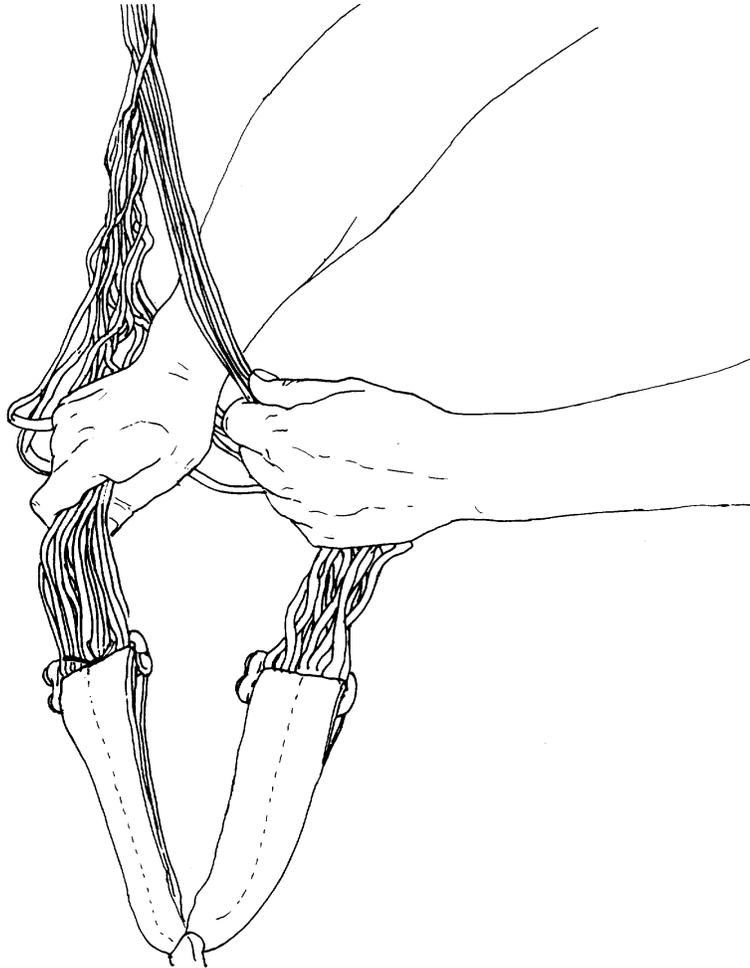


Figure 6. Removing Tangles from Suspension Lines.

- (3) Replace the connector links on the tension plate.

- c. Twists. A twist occurs when the suspension lines within one group become improperly crossed.
- (1) To remove twists, grasp the inside lines at the skirt of the canopy and trace them to the connector lines.
 - (2) Remove twists by rotating the adapter web or extension lines until the lines are in the proper location on the connector links.

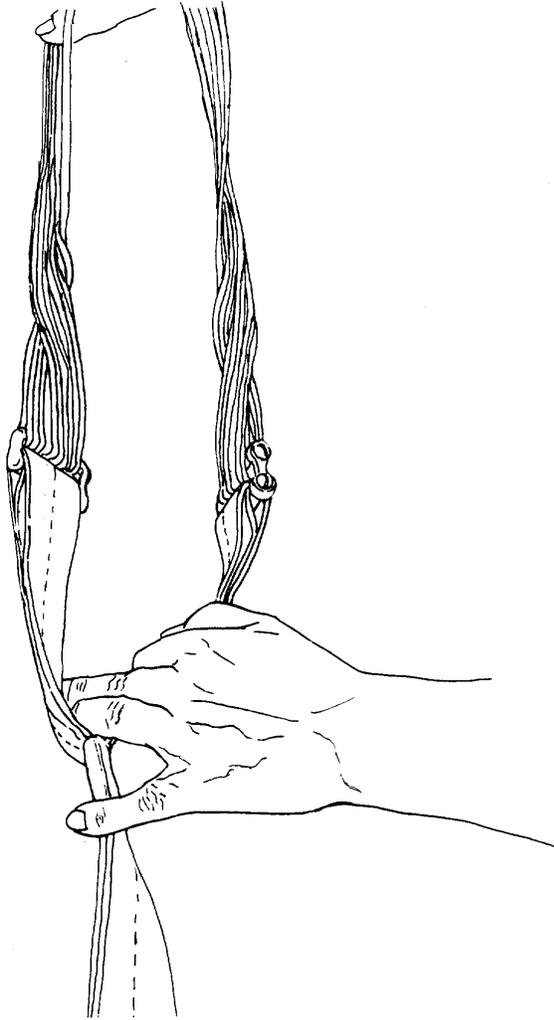


Figure 7. Removing Twists from Suspension Lines.

4. Check suspension lines for proper layout. The left group should have line 1 on top of the connector link. The right group will have line 16 on top of the connector link.

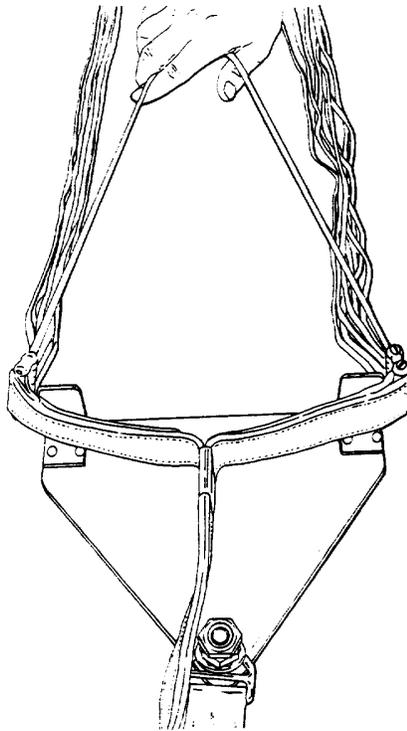


Figure 8. Lines 1 and 16 Checked at Connector Link.

5. The parachute is now in the proper layout.
6. Rigger check number 1.

PACKING THE 15-FOOT CARGO EXTRACTION PARACHUTE

After preparing the parachute for proper layout, continue packing the 15-foot cargo extraction parachute as follows:

1. Folding the gores. Fold canopy gores as follows:
 - a. Dress the apex, and apply tension to the canopy.

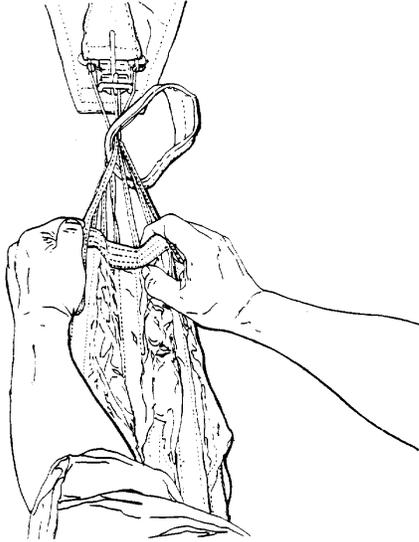


Figure 9. Dressing the Apex.

- b. Pick up the right group of suspension lines with the left hand. Using the right hand to hold the top center gore in position, flip the right group of gores over the left group of gores.

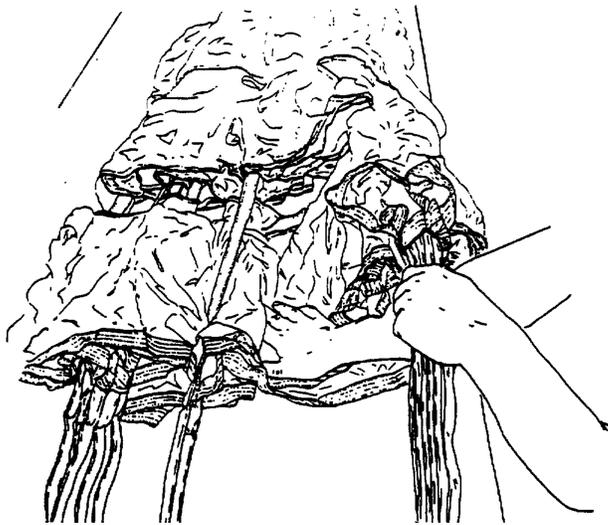


Figure 10. Flipping Right Group of Gores.

- c. Using the left hand, pick up line 9 at the canopy skirt and place the line between the thumb and forefinger of the right hand. Move the line to the right edge of the table, and fold the right group of gores.

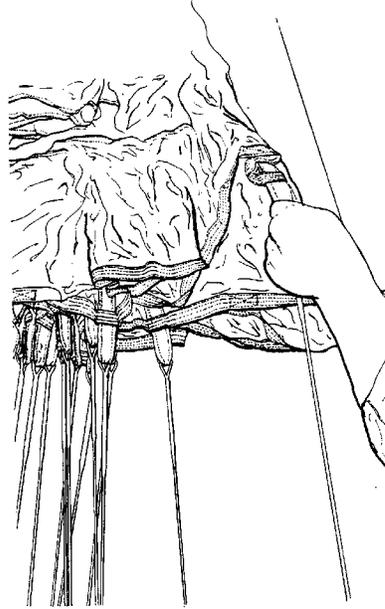


Figure 11. Folding Right Group of Gores.

- d. Using the right hand, scissor the right group of suspension lines between the middle finger and forefinger. Rotate the right hand one-quarter turn clockwise.



Figure 12. Right Gore Group Fold Complete.

- e. Beginning with line 1, fold the left group of gores. Do not fold the last two gores in this group.
- f. Raise the last suspension line of the left gore group and drape the last gore on the left. The next to last gore should be draped on the right. After draping the last two gores, place the last suspension line on top of the other lines in the last group.

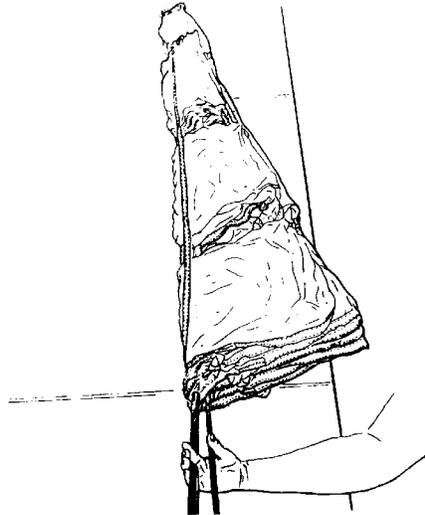


Figure 13. Left Gore Group Fold Complete.

- g. Place the two suspension line groups into a line separator at a point just below the canopy skirt.
- h. Using the left hand, hold the line separator and the separated lines. Grasp the canopy with the right hand, and pull the canopy off the right side of the pack table, allowing all the folded gores to drape downward to the side of the table.

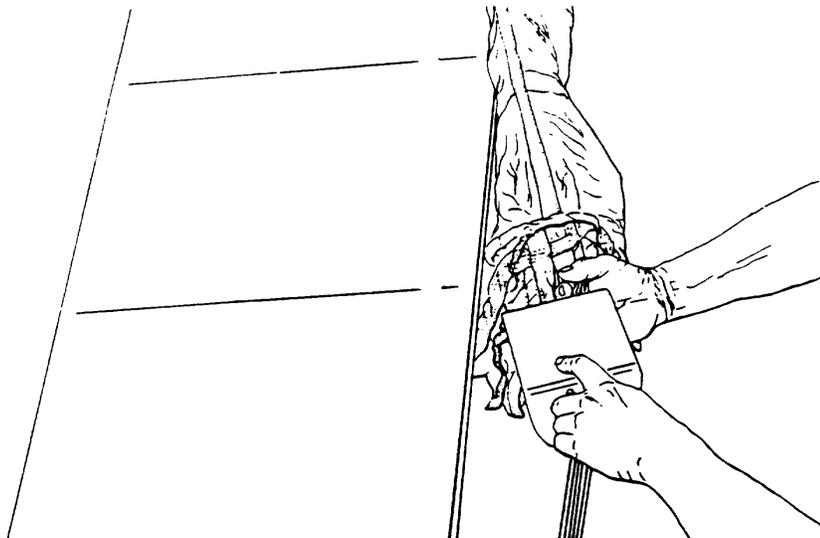


Figure 14. Draping Folded Gores.

- i. Slide the canopy back onto the table, and rotate the suspension lines and line separator one-half turn counterclockwise, which will allow the separator base to rest on the table.
- j. Flip the left group of gores to the left side of the tabletop, and apply additional tension.
- k. To complete the canopy flat-fold, dress the gores and the skirt reinforcement (lower lateral band). Ensure that eight gores are in each gore group and that a clear air channel exists between the two gore groups. Lay a packing weight across the suspension lines just below the line separator.

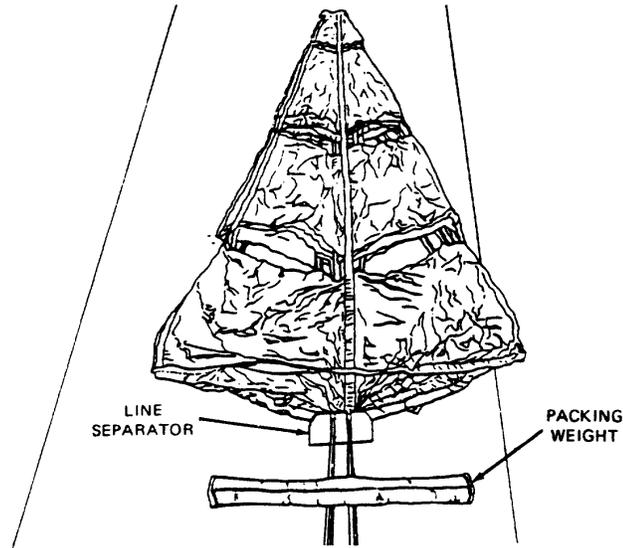


Figure 15. Flat Fold Completed.

- l. Rigger check number 2.
2. Long-fold.
 - a. Beginning with panel/section number 1, fold the first three sections of the right group of gores from the center of each section. Repeat the same procedure for the left group of gores.
 - b. Place packing weights on the folded panel/sections to hold the folds in position. Ensure the long-fold does not exceed the width of the deployment bag.

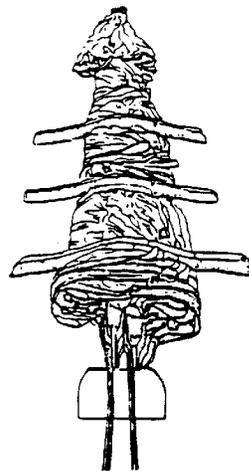


Figure 16. Long Fold Complete.

3. Attaching the universal deployment bag. If the deployment bag is not attached to the bridle loop, attach the bag retaining line as follows:
 - a. Cut a 72-inch length of ½-inch tubular nylon for use as a bag retaining line.
 - b. Pass one end of the bag retaining line through the canopy bridle loop, and center the line length in the loop.
 - c. Align the webbing ends, and pass the aligned ends into the bag and out of the bag end slot.
 - d. Position the end of the canopy bridle loop at the open end of the deployment bag.

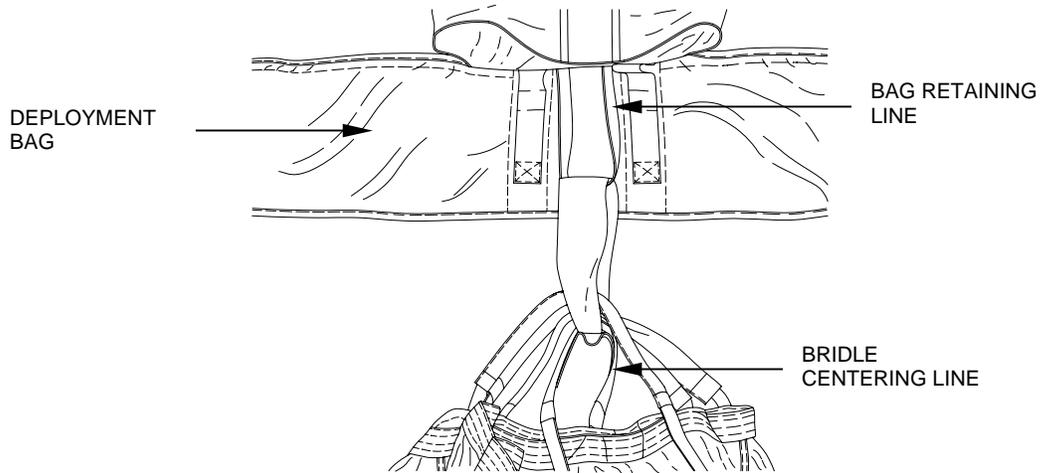


Figure 17. Bag Retaining Line Routed.

- e. At the bag top, pass one running end of the retaining line over the top of the deployment bag bridle straps, and pass the opposite running end under the bridle straps.
- f. Secure the webbing ends together above the bag bridle straps with a surgeons knot and a locking knot. Make an overhand knot in each running end, and trim the ends to 2 inches.

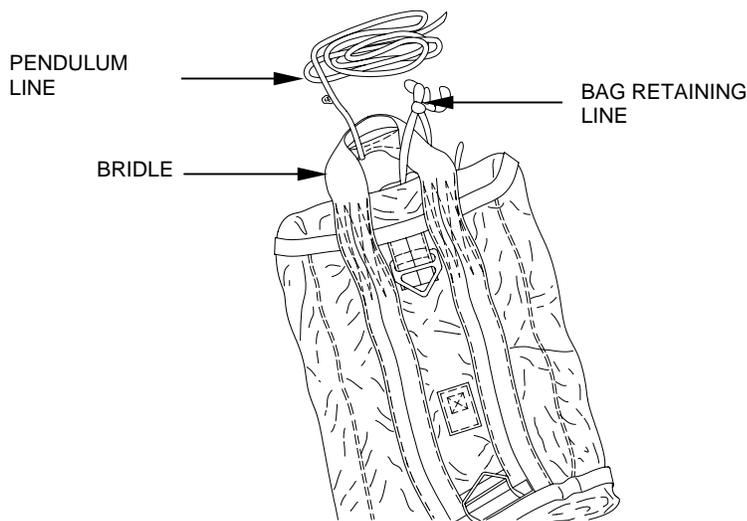


Figure 18. Bag Retaining Line Secured.

4. Attaching the standard deployment bag.
 - a. Pull the deployment-bag retaining-line loop from the inside of the bag, and insert the canopy-bridle loop into the retaining-line loop.

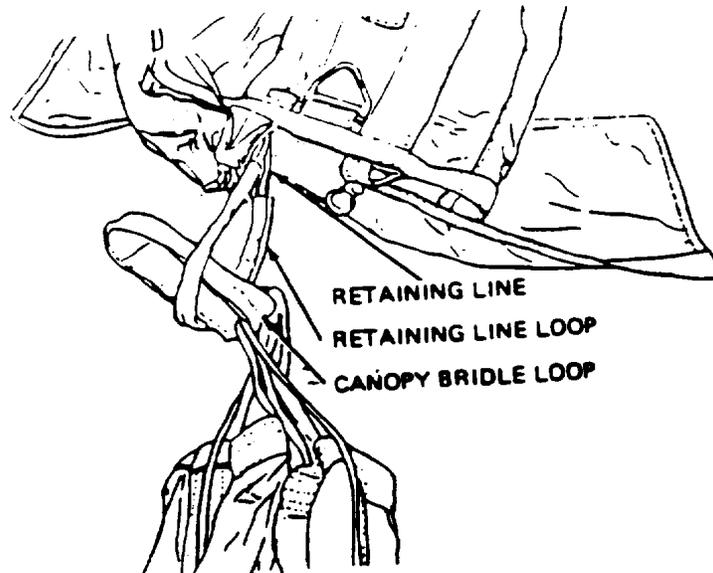


Figure 19. Canopy Bridle Loop Partially Routed.

- b. Holding bag retaining line loop and canopy bridle loop in place, pull the deployment bag through the bridle loop, and draw the retaining line taut to secure bag retaining line to the bridle loop.

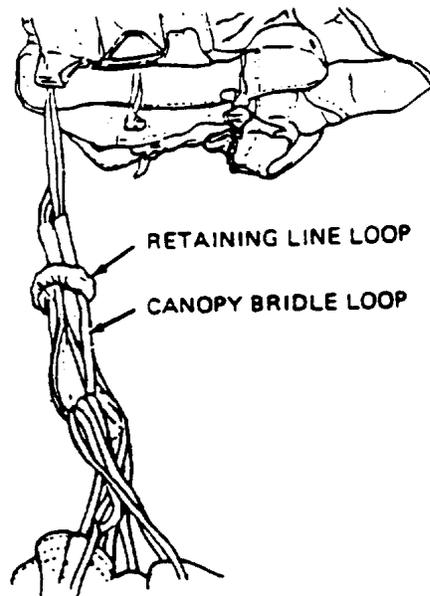


Figure 20. Deployment Bag Attached.

- c. S-fold excess bag retaining line length to form a 4-inch fold. Secure the fold with a rubber retaining band.

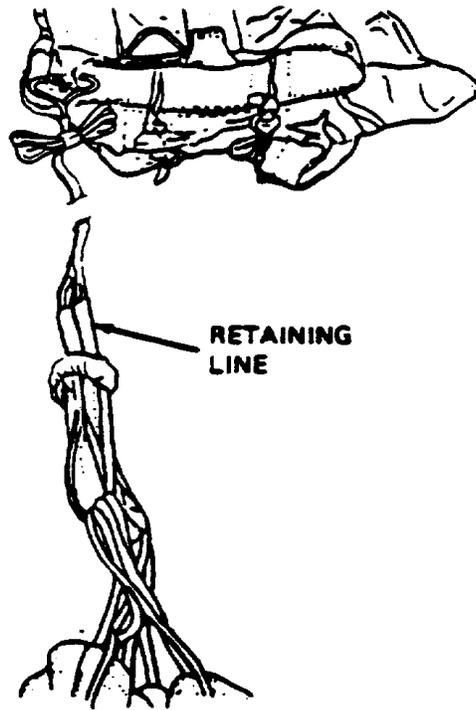


Figure 21. Bag Retaining Line S-Folded.

- d. Rigger check number 3.
5. Stowing the canopy.

NOTE

If parachutes are **PACKED FOR CONTINGENCY**, in lieu of the rubber retainer bands, one-turn single, thread, cotton, ticket no. 8/4 will be used to secure the suspension lines to the stowage-flap stow loops.

- a. For parachutes "packed for contingency", before stowing the canopy, cut a suitable amount of ticket no. 8/4 cotton-thread ties 14 inches in length and install at equal intervals along the suspension-line stowage-flap loops. Secure ties over the suspension lines with a surgeon's knot and a locking knot.
- b. For operational parachutes, before stowing the canopy, install a suitable amount of rubber, retainer bands at equal intervals along the suspension-line stowage-flap loops. Release the canopy from the apex hook.
- c. Beginning at the upper right inside corner of the deployment bag, stow the canopy in the bag with S-folds.



Figure 22. S-Folding the Canopy.

- d. Upon completion of canopy stowage, the suspension lines should extend from the left side of the bag open end.
- e. Stand the deployment bag upright with suspension lines routed from bag left side.
- f. Using one-turn single, thread, cotton, ticket no. 8/7, route thread through top and bottom center bag loops and tie the loops by passing thread ends through tie loop from right to left.
- g. Fold suspension lines from left to right over the skirt of the canopy and the routed thread. Secure the tie over the folded suspension lines with a surgeon's knot and a locking knot. Trim the tie ends to 2 inches.

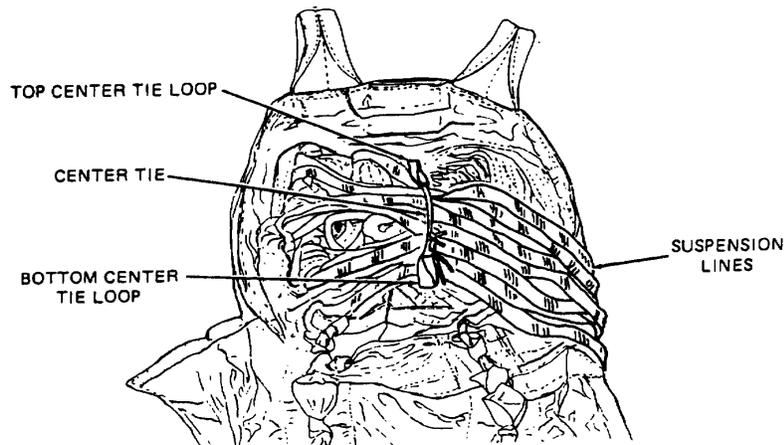


Figure 23. Canopy Stow Complete.

- h. Rigger check number 4.
- 6. Stowing the suspension lines.

NOTE

When making suspension line stows, ensure stows do not exceed the width of the deployment bag.

- a. To the right of secured center bag tie loops, form a loop in the suspension lines, and make the first suspension-line stow at the upper right corner of the deployment bag suspension-line stowage flap. Secure the stow with the previously installed retainer band.

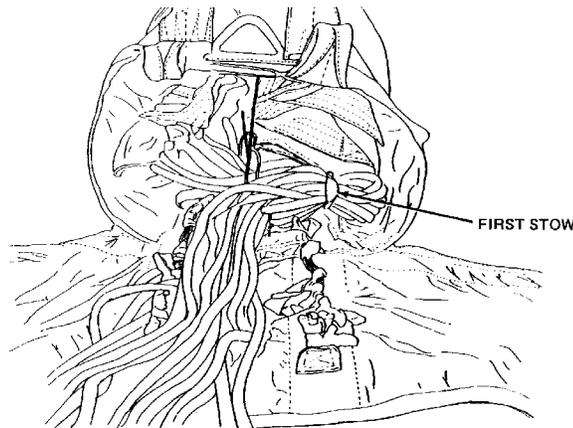


Figure 24. First Stow.

- b. Extend the suspension lines to the upper left corner of the stowage flap, form a loop in the suspension line, and secure the stow with the previously installed retainer band.
- c. Using procedures in (a) and (b) above, continue stowing the suspension lines on the stowage flap to a point within 6 inches of the suspension-line connector-link assemblies. Make the last stow at the lower right side of the stowage flap.

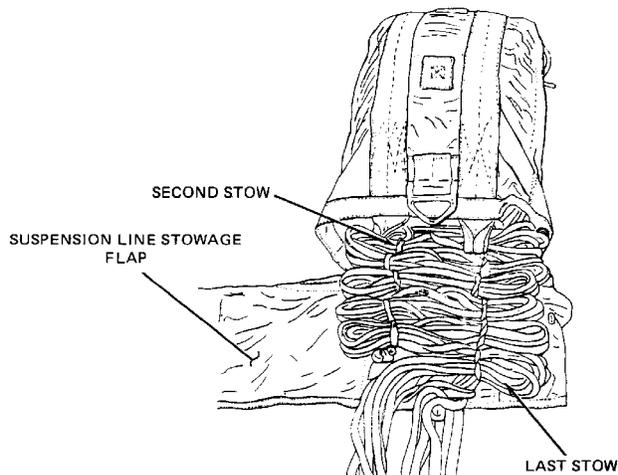


Figure 25. Suspension Line Stow Complete.

d. Rigger check number 5.

7. Closing the deployment bag.

- a. Position the suspension-line connector-link assemblies back on top of the stowed suspension lines and extend the adapter web, as applicable, across the stowed suspension lines to the upper left corner of the deployment bag.

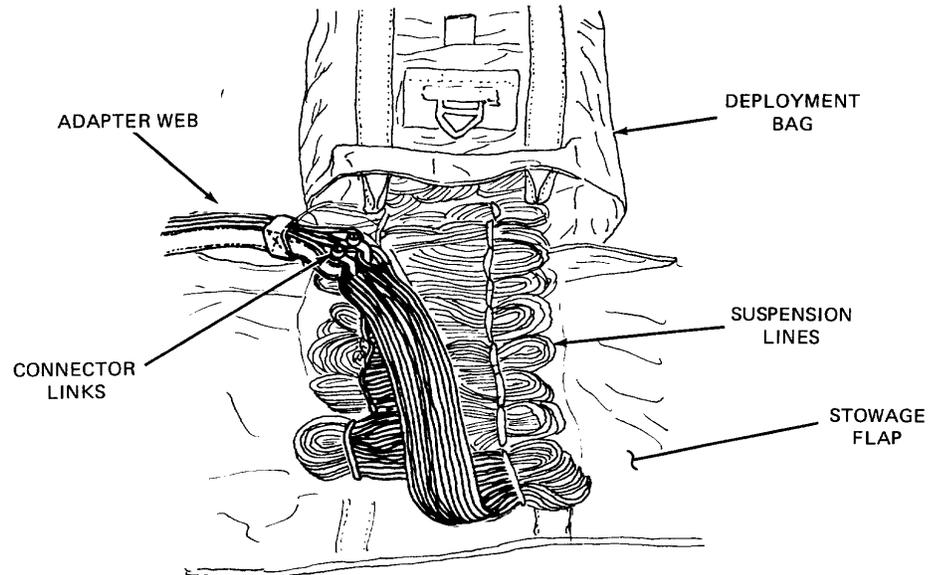


Figure 26. Connector Link Assemblies and Extraction Line /Adapter Web Positioned.

- b. Fold the right side of the suspension-line stowage flap over the stowed suspension lines, and fold the left flap over the right flap.

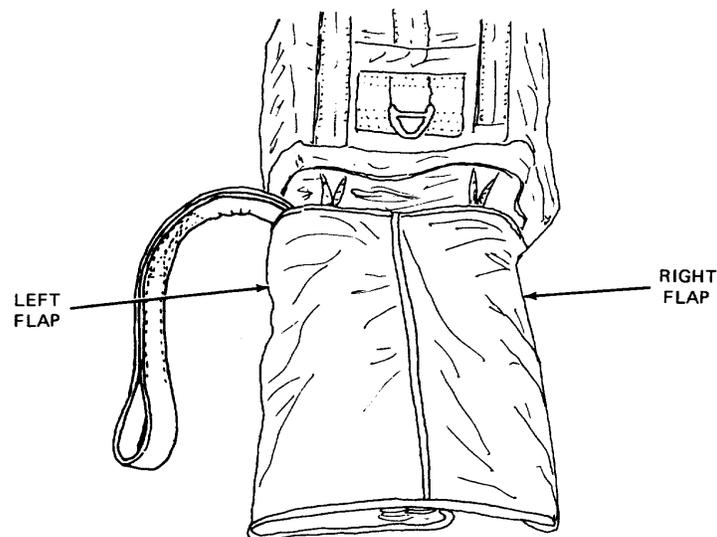


Figure 27. Suspension Line Stowage Flap Closed.

- c. Beginning at the lower end of the suspension-line stowage flap, tightly roll the flap into the open end of the deployment bag. Ensure the adapter web extends from the left side of the deployment bag.

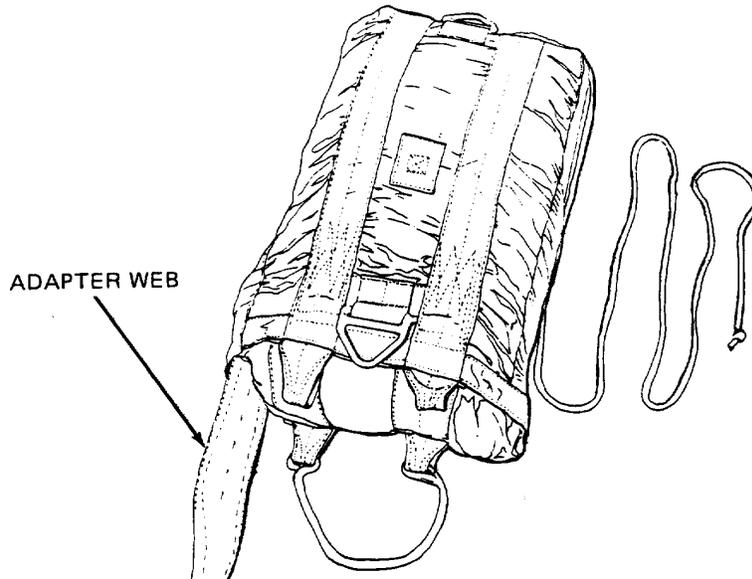


Figure 28. Suspension Line Stowage Flap, Rolled Into Open End of Deployment Bag.

- d. Fold the adapter web from left to right across the rolled suspension-line stowage flap.
- e. Using a doubled length of thread, cotton, ticket no 8/7, make the left bag closing tie by passing one end of the thread through the left bottom bag closing loop from right to left, under the adapter web, as applicable, and through the top bag closing loop from left to right. Secure the ends of the thread together over the adapter web, as applicable, with a surgeon's knot and a locking knot. Trim the tie ends to 2 inches.

NOTE

Deployments bags manufactured as of 1 August 2003 no longer contain the grommet.

- f. Using a doubled length of thread, cotton, ticket no 8/7, make the right bag closing tie by passing one end of the thread through the right bottom bag closing loop from left to right, under the adapter web, as applicable, through the right-side bag grommet (as applicable), inside to outside, and through the right bag closing loop from right to left. Secure the ends of the thread together over the adapter web, as applicable, with a surgeon's knot and a locking knot. Trim the tie ends to 2 inches.

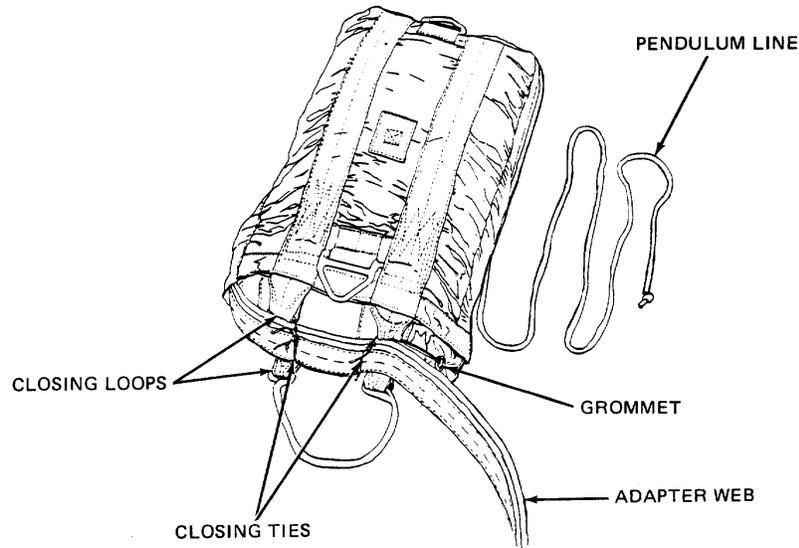


Figure 29. Left and Right Deployment Bag Closing Ties.

- g. Pull the bag opening safety loop up over the bent V-ring. Secure the safety loop by passing the pendulum-line running end through the V of the bent V-ring. Draw the pendulum line tight, making additional loops between the V-rings as required, and secure the pendulum line with a half hitch.

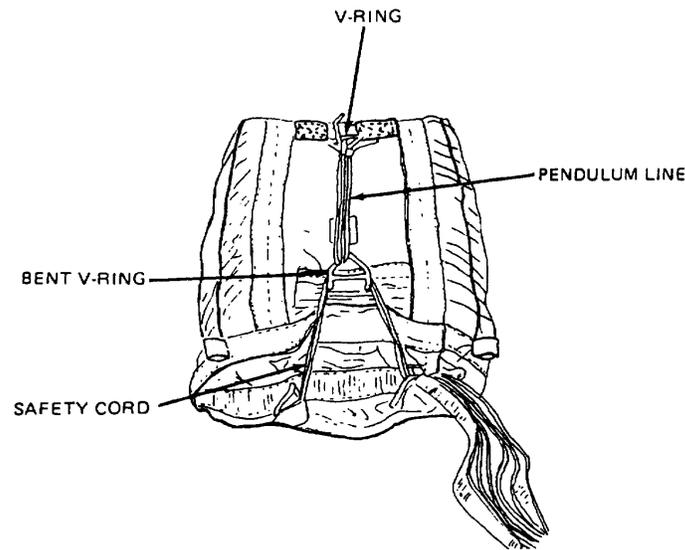


Figure 30. Bag Opening Safety Loop and Pendulum Line Secure.

- h. Rigger check number 6.
8. Attaching the extraction line.
- a. Prior to attaching an extraction line to the adapter web of a 15-foot diameter extraction parachute, it must be determined what extraction line is required for operational commitments.
 - b. Use the procedures outlined in FM 4-20.102 (FM 10-500-2) to attach the extraction line.

9. Signing DA Form 3912.
 - a. Remove the parachute log record book from the parachute inspection data pocket (log record pocket) on the upper end of the deployment bag, and log the record pack data as prescribed in WP 0005 00, SERVICE UPON RECEIPT.
 - b. After completion of the entries, return the log record book to the inspection data pocket.
 - c. Rigger check number 7.

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SEWING PROCEDURES**

INITIAL SETUP:**Tools**

Specified in paragraph applicable to the item being repaired.

Equipment Condition

Unpacked.

Materials/Parts

Specified in paragraph applicable to the item being repaired.

Cleaned canopy with defects recorded.

Personnel Required

92R (10) Parachute Rigger

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 completion 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 parachute components is performed in accordance with the repair instruction in this section and in specific paragraphs applicable to the item being repaired.

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. On small cargo parachute canopies, basting will be done 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 done with two stitches per inch.
4. Temporary tacking will usually be done using a length of size E nylon thread. However, an alternate type thread may be specified within the paragraph applicable to the item.
5. Immediately upon completion of the repair, remove the basting or temporary tacking.

STITCHING AND RESTITCHING

Perform stitching and restitching as follows, referring to Table 1 and Table 2:

1. Parachute canopy assemblies. The stitching and restitching made on parachute canopies should be accomplished with thread that is contrasting in color to the fabric being restitched. If contrasting color thread is not available, thread of matching color may be used, providing all other specifications are met. Straight stitching and restitching on parachute canopy assemblies should be locked by at least 2 inches at each end of a stitch row, when possible. Zigzag stitching does not require locking; however, zigzag restitching should extend at least ¼ inch into undamaged stitching at each end, when possible. When restitching parachute canopy assemblies, 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: Zigzag; 308 stitch; medium-duty; NSN 3530-01-181-1421.
LD ZZ	SEWING MACHINE, INDUSTRIAL: Zigzag; 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
Canopy gore panel	LD DN	7 to 11 Darn	E E
Panel edge reinforcement	LD	7 to 11	E
Bridle centering line	ZZ	7 to 10 5 to 8	E 3
Suspension line	ZZ	7 to 10 4 to 7	E 3
Vent line	ZZ	7 to 10	E
Bridle loop	HD	5 to 8	3
Suspension line attaching loop	MD	7 to 11	E
Lateral band (upper and lower)	LD	7 to 11	E
Radial webbing	LD ZZ	7 to 11 7 to 10	E E
Deployment Bag	MD	6 to 9	FF
Bag bridle strap	LD	5 to 8	3
Retainer band keeper	HD	5 to 8	3
V-ring keeper	HD	5 to 8	3
Bent V-ring keeper	ZZ	6 to 9	FF
Bag retaining line	LD	6 to 9	FF
Retaining line buffer	LD	6 to 9	FF
Bridle loop strap	MD HD	6 to 9 5 to 8	FF 3
Bag closing loop	HD	6 to 9 5 to 8	FF 3
Log record book pocket	MD	7 to 11	E
Tie cord loop	ZZ	7 to 10	E
Tie cord	ZZ	7 to 10	E
End slot reinforcement	MD	6 to 9	FF
Retainer band keeper reinforcement	MD	6 to 9	FF
Tie loop reinforcement	MD	6 to 9	FF
Safety cord	ZZ	7 to 10	E
Tie loop	MD	6 to 9	FF
Edge binding	MD	6 to 9	FF
Suspension line stowage flap	DN MD	Darn 6 to 9	E FF
Stowage flap edge reinforcement	MD	6 to 9	FF
Main strap	MD	6 to 9	FF
Bag panel	DN	Darn	E
Connector-link-attaching loop buffer	MD	7 to 11	E
Load-attaching loop buffer	MD	7 to 11	E

Table 2. Stitching and Restitching Specifications - continued

COMPONENT	RECOMMENDED SEWING MACHINE (CODE SYMBOL)	STITCHES PER INCH	THREAD SIZE
Adapter web (36-inch)			
Long buffer	LD	7 to 11	E
Short buffer	LD	7 to 11	E
Webbing length	HD	4 to 6	5

2. Other parachute items. Stitching and re-stitching on other parachute items constructed from cloth, canvas, and webbing should be accomplished with thread that matches the color of the original stitching, when possible. All straight stitching should be locked by backstitching at least ½-inch. Re-stitching should be locked by overstitching each end of the stitch formation by ½-inch. Zigzag stitching does not require locking; however, zigzag re-stitching should extend at least ¼-inch into undamaged stitching at each end, when possible. Re-stitching should be made directly over the original stitching; follow the original stitch pattern as closely as possible.

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

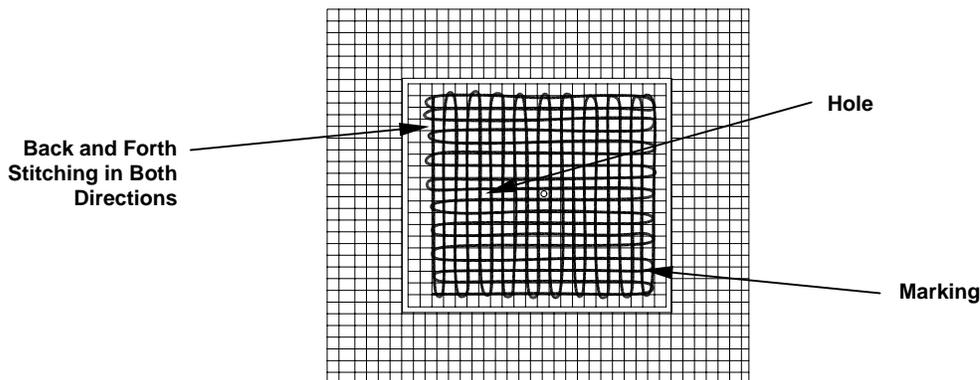


Figure 1. Darning Completed.

- d. If applicable, restencil informational data or identification marks using the criteria in WP 0016 00, MARKING AND RESTENCILING.
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 is performed as follows:
- a. Using an authorized marking aid of contrasting color, mark a square around the damaged area and ensure that the marking is at least ¼-inch back from each edge of the damaged area.
 - b. Using darning needle and a length of size A or E nylon thread, begin darning at one corner of marked area. Working parallel with the marking, pass needle and thread back and forth through material until opposite diagonal corner of marked area is reached as shown in A below.

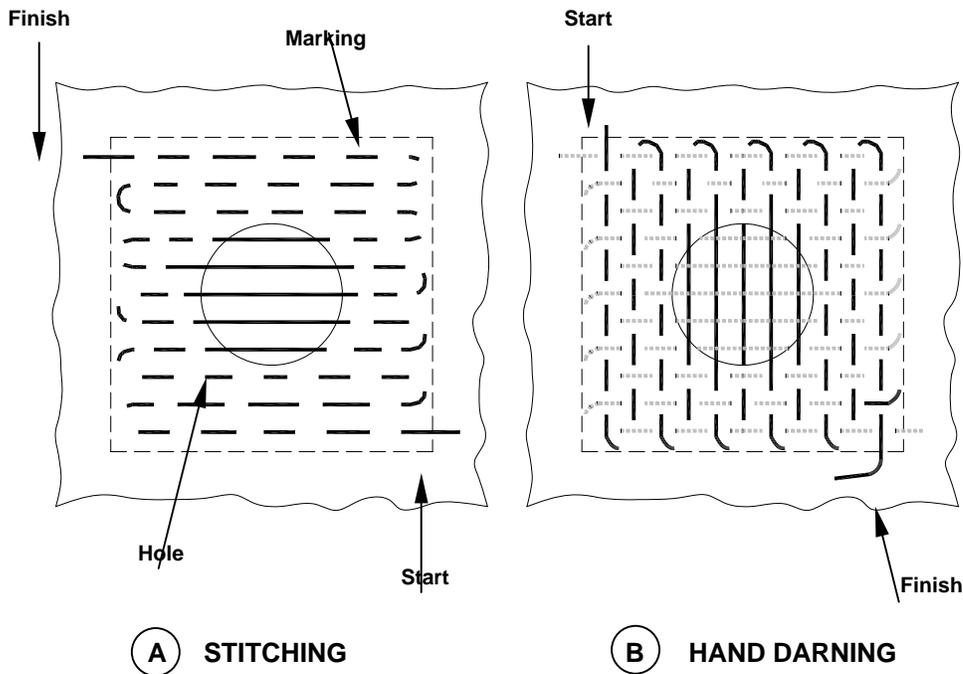


Figure 2. Hand Darning Method.

- c. Turn material and weave needle and thread back and forth across stitching made in step b., above, until hole is completely darned as shown in step b., above.
 - d. If applicable, restencil informational data or identification marks as outlined in WP 0016 00, MARKING AND RESTENCILING.
3. Zigzag Sewing. (Refer to tables 1 and 2) Components of the 15-foot extraction parachute, except the parachute canopy, that have sustained cut or tear damage may be repaired by zigzag 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 zigzag sewing repair is accomplished using a zigzag sewing machine as follows:

- a. Set sewing machine to maximum stitch width.
- b. Beginning at a point $\frac{1}{4}$ -inch beyond one end of cut or tear, stitch lengthwise along damaged area to a point $\frac{1}{4}$ -inch beyond opposite end of cut or tear.

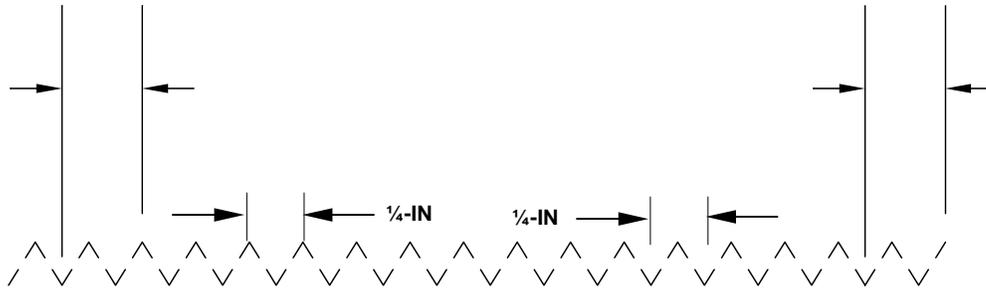


Figure 3. Straight Cut or Tear Stitching.

- c. The cited stitching procedure also applies to an L-shaped cut or tear.

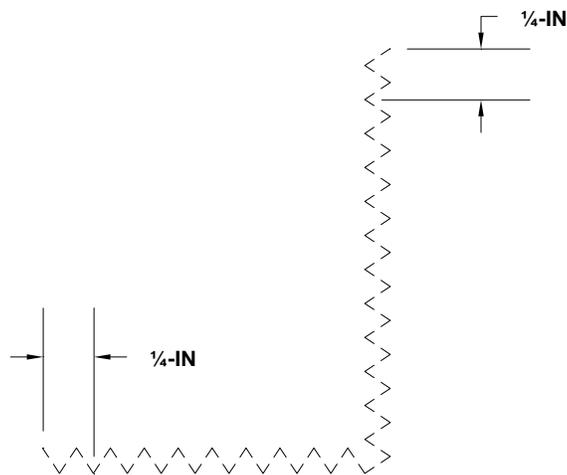


Figure 4. L-Shaped Cut or Tear Stitching.

- d. If applicable, restencil information data or identification marks as prescribed in WP 0016 00, MARKING AND RESTENCILING.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SEARING AND WAXING

INITIAL SETUP:**Tools**

Knife, Hot, Metal (Item 7, WP 0054 00)
Pot, Melting, Electric (Item 15, WP 0054 00)

Materials/Parts

Beeswax, Technical (Item 2, WP 0065 00)
Wax, Paraffin, Technical (Item 31, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Unpacked.

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 parachutes will normally be heat-seared or dipped in a 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 the nylon tape, webbing, and cord lengths may be prepared by heat-searing; this 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.

CAUTION

Avoid forming a sharp edge or lumped effect on the melted end. Sharp edges may cut other components

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
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
MARKING AND RESTENCILING

INITIAL SETUP:**Tools**

Brush, Stenciling (Item 3, WP 0054 00)
Knife (Item 6, WP 0054 00)
Machine, Stencil Cutting (Item 9, WP 0054 00,)

Materials/Parts

Ink, Marking, Parachute, Strata-Blue (Item 11, WP 0065 00)
Marker, Felt Tip, Permanent, Black (Item 12, WP 0065 00)
Pen, Ballpoint (Item 13, WP 0065 00)
Stencil board, Oiled (Item 17, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

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 where 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 ballpoint pen or permanent felt tip marker, mark on, or as near as possible to, original location, and conform to original lettering type and size.

RESTENCILING

Proceed as follows:

1. Cut the oiled stencil board to the original lettering type and size of the data to be restenciled.
2. Place the 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 or restencil the original stenciled data or markings that become faded, illegible, obliterated, or have been removed as a result of performing a repair procedure. Ensure all marking or restenciling is on, or as near as possible to the original location and conforms to the original lettering type and size.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
PARACHUTE CANOPY
REPAIR, REPLACE

INITIAL SETUP:**Personnel Required**

92R (10) Parachute Rigger

Reference

WP 005400

Equipment Condition

Cleaned.

Inspected.

Unpacked, canopy laid flat.

REPAIR

Refer to individual component/assembly repairs: replacement procedures; and WP 0054 00, MAC.

REPLACE

Replace an unrepairable parachute canopy with a serviceable parachute canopy from stock.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
BRIDLE LOOP
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
 Pot, Melting, Electric (Item 15, WP 0054 00)
 Sewing Machine, Heavy-Duty (Item 23, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Unpacked, canopy laid flat.

Materials/Parts

Marker, Felt-Tip, Black (Item 12, WP 0065 00)
 Thread, Nylon, Size 3, OD (Item 30, WP 0065 00)
 Webbing, Nylon, Type VIII, OD (Item 38, WP 0065 00)

REPAIR

Repair a bridle loop requiring restitching as follows:

1. Use a heavy-duty sewing machine to restitch any loose or broken stitches.
2. Restitch over the original stitch pattern using size 3, nylon thread, 5- to-8 stitches per inch. Overstitch $\frac{1}{2}$ inch to lock the stitches.

REPLACE

Replace a damaged or missing bridle loop as follows:

1. Cut a 20-inch length of $1\frac{3}{4}$ -inch-wide, type VIII nylon webbing. Sear the ends.
2. Using a marking aid, mark the webbing length at a point 5-inches from each end and $6\frac{1}{2}$ -inches from each end on the opposite sides.
3. Between the two, 5-inch marks (made in 2. above), roll $\frac{1}{2}$ -inch of each webbing into the center of the webbing width and allow the webbing edges to overlap. Using a heavy-duty sewing machine with size 3 nylon thread, secure the overlapped webbing edges to the webbing length by stitching a single row of stitching along the center of the webbing overlap and $1\frac{1}{2}$ inches along each rolled edge beyond the point of the edge overlap. Stitching should be 5 to 8 stitches per inch.

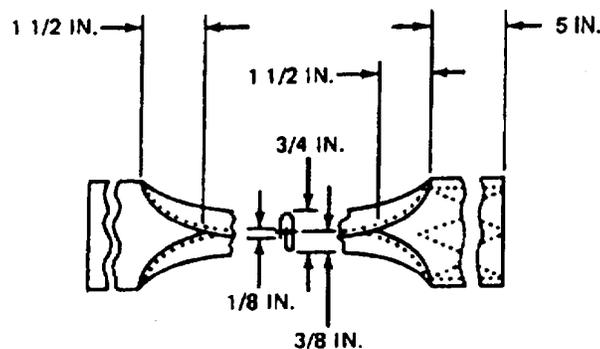


Figure 1. Bridle Loop Rolled and Sewn.

4. Pass one webbing end through the vent lines, and join the webbing ends together above the vent lines with a 5-inch-long overlap. Ensure the webbing length encircles all vent lines.
5. Using a heavy duty sewing machine with size 3 nylon thread, secure overlapped webbing ends together by stitching a 5-inch-long, three-point WW-stitch formation, with a $\frac{1}{8}$ -inch overstretch on each webbing end. Stitching should be 5 to 8 stitches per inch.

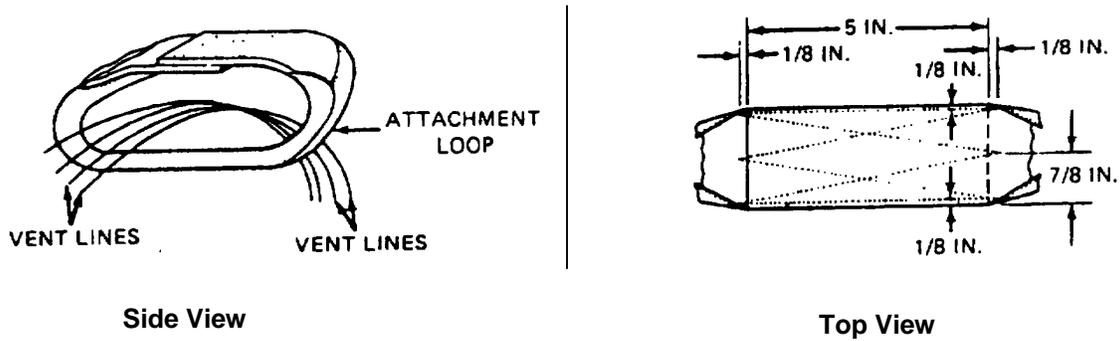


Figure 2. Bridle Loop Attached.

6. Remove the original bridle loop by cutting the loop webbing as required.

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
VENT LINES
REPAIR**

INITIAL SETUP:**Tools**

Sewing Machine, Zigzag (Item 26, WP 0054 00)
Shears (Item 27, WP 0054 00)

Materials/Parts

Thread, Nylon, Size 3 (Item 29/30, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, canopy laid flat.

REPAIR

Repair standard vent lines requiring restitching as follows:

1. Use a zigzag sewing machine and size E nylon thread, 7 to 10 stitches per inch, restitch any loose or broken stitches.
2. Restitch over the original stitch pattern, overstitching $\frac{1}{8}$ inch to lock stitches.

Repair enhanced vent lines requiring restitching as follows:

1. Use a zigzag sewing machine and size 3 nylon thread, 4 to 7 stitches per inch, restitch any loose or broken stitches.
2. Restitch over the original stitch pattern, overstitching $\frac{1}{8}$ inch to lock stitches.

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
BRIDLE CENTERING LINE
REPAIR**

INITIAL SETUP:**Tools**

Sewing Machine, Zigzag (Item 26, WP 0054 00)
Shears (Item 27, WP 0054 00)

Materials/Parts

Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Webbing, Nylon, TY 1, $\frac{9}{16}$ -IN (Item 36, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, canopy laid flat.

REPAIR

Repair standard bridle centering lines requiring restitching as follows:

1. Restitch broken or loose thread using a zigzag sewing machine and size E nylon thread, 7 to 10 stitches per inch. Stitch over the original stitch pattern.
2. Restitch over the original stitch pattern, overstitching $\frac{1}{8}$ inch to lock stitches.

Repair enhanced bridle centering lines requiring restitching as follows:

1. Restitch broken or loose thread using a zigzag sewing machine and size 3 nylon thread, 5 to 8 stitches per inch. Stitch over the original stitch pattern.
2. Restitch over the original stitch pattern, overstitching $\frac{1}{8}$ inch to lock stitches.

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
UPPER LATERAL BAND
REPAIR**

INITIAL SETUP:**Personnel Required**

92R (10) Parachute Rigger

Tools

Knife (Item 6, WP 0054 00)
 Knife, Hot Metal (Item 7, WP 0054 00)
 Pot, Melting, Electric (Item 15, WP 0054 00)
 Sewing Machine, Heavy-Duty (Item 23, WP 0054 00)
 Sewing Machine, Light Duty (Item 24, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Equipment Condition

Cleaned.
 Inspected.
 Unpacked, canopy laid flat.

Materials/Parts

Beeswax, Technical (Item 2, WP 0065 00)
 Marker, Felt-Tip, Black (Item 12, WP 0065 00)
 Thread, Nylon, Size 3 (Item 29/30, WP 0065 00)
 Thread, Nylon, Size E (Item 25/26, WP 0065 00)
 Wax, Paraffin, Technical (Item 31, WP 0065 00)
 Webbing, Nylon, Type II, 1-IN., OD (Item 37, WP 0065 00)

REPAIR

1. Restitch broken or loose thread using a light duty sewing machine and size E nylon thread, 7 to 11 stitches per inch. Stitch over the original stitch pattern. Lock each row of stitches 2 inches at each end.
2. Splicing. Repair as follows:

NOTE

Vent reinforcement bands may be spliced only once and will not be replaced.

The vent reinforcement on the 15-foot diameter cargo extraction parachute is constructed using two plies of webbing. The splice may be placed on the inside or outside of the canopy, depending on the location of the damage. If both the inside and the outside plies are damaged, apply a splice to both sides of the canopy.

- a. Damage between radial seams. Repair as follows:

- (1) Mark the vent line position and cut the stitching of two vent lines on each side of the damaged area; move the lines to one side.
- (2) Smooth the canopy around the damaged area.
- (3) Cut a piece of 1-inch nylon webbing long enough to extend 1-inch beyond the outside edge of the second radial seam on each side of the damaged area. Wax the ends of the webbing (WP 0015 00, SEARING AND WAXING).

- (4) Center the webbing over the damaged area. Use a light-duty sewing machine and size E nylon thread to stitch. Sew the webbing in place with four continuous rows of stitching $\frac{1}{8}$ inch from the edge of the webbing, 7 to 11 stitches per inch. Overstitch ends of webbing 2 inches.

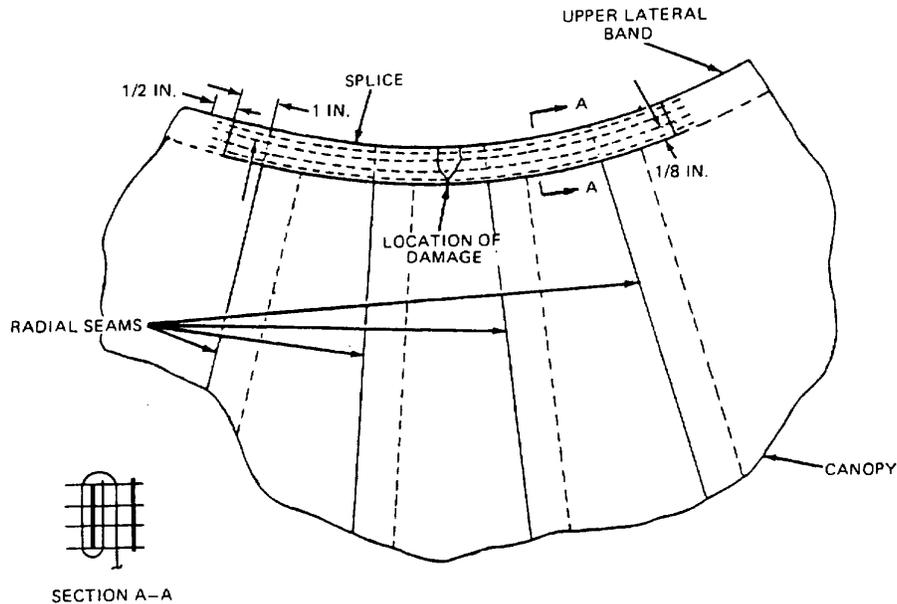


Figure 1. Damage Between Radial Seams.

- (5) Reposition vent lines, and sew them in place according to the original construction.
- b. Damage extending into radial seam. Repair as follows:
- (1) Mark the vent line position and cut the stitching of the vent line attached to the damaged radial seam and the stitching of two vent lines on each side of the damaged seam. Move the lines to one side.
 - (2) Smooth the canopy around the damaged area.
 - (3) Cut a piece of 1-inch nylon webbing long enough to extend 1-inch beyond the outside edge of the second radial seam on each side of the damaged area. Wax ends of webbing (WP 0015 00, SEARING AND WAXING).

- (4) Center the webbing over the damaged area. Use a light-duty sewing machine and size E nylon thread to stitch. Sew the webbing in place with four continuous rows of stitching, $\frac{1}{8}$ inch from the edge of the webbing, 7 to 11 stitches per inch. Overstitch ends of webbing 2 inches.

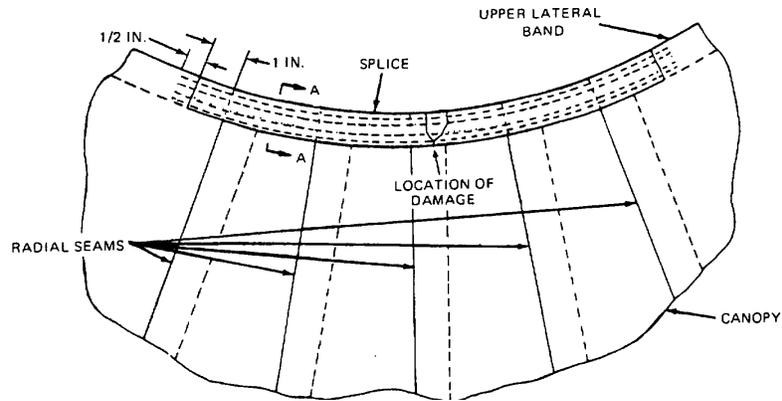


Figure 2. Damage Extending Into Radial Seam.

- (5) Reposition the vent lines, and sew them in place according to the original construction.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
GORE SECTION
REPAIR

INITIAL SETUP:**Tools**

Brush, Stenciling (Item 3, WP 0054 00)
Knife (Item 6, WP 0054 00)
Needle, Tacking (Item 11, WP 0054 00)
Pushpins (Item 13, WP 0054 00)
Sewing Machine, Darning (Item 22, WP 0054 00)
Sewing Machine, Light-Duty (Item 24, WP 0056 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked and laid out on table.

References

WP 0014 00 and WP 0016 00

Materials/Parts

Cloth, Nylon, Parachute, Type 1, 2.25 Oz., OD (Item 6, WP 0065 00)
Marker, White (Item 14, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)

REPAIR

1. Restitching. Stitching and restitching made on parachute canopies should be accomplished with size E nylon thread that is contrasting in color to the fabric being stitched or the original thread being restitched. If contrasting color thread is not available, thread of matching color may be used, providing all other specifications are met. Straight stitching and restitching should be locked by at least 2 inches at each end of a stitch row, when possible. Restitch directly over the original stitching and follow the original stitch pattern as closely as possible.
2. Darning. Darn a hole or tear in a gore section that does not exceed $\frac{3}{4}$ inch in length or diameter as prescribed in WP 0014 00, SEWING PROCEDURES, using size E nylon thread. Each gore section may be darned three times.
3. Patching. Use a patch to repair holes that exceed $\frac{3}{4}$ inch in length or diameter using the sewn patch.

WARNING

The limitations prescribed for parachute canopy patching will be stringently adhered to under all circumstances and without deviation.

- a. Limitations. The following limitations apply to the 15-foot cargo extraction parachute:
 - (1) A patch will not be applied to a damaged area that has been previously patched.
 - (2) Each gore section is limited to two patches; however, determination should be made as to the most economical to be used, such as two patches instead of one large patch or one patch instead of an entire section replacement.
 - (3) A patch applied to a parachute canopy can extend from radial seam to radial seam.

- b. Sewn patches. There are two types of sewn patches authorized: the basic and the miscellaneous. A basic patch is used to repair damaged cloth when the affected area is no closer than 1 inch from a radial-webbing, upper-lateral band or lower-lateral band. Should a damaged area be closer than 1 inch to the cited areas, a miscellaneous patch will be made.

NOTE

Sewn patches on the canopy will be applied to the inside and may be square, rectangular, or triangular in shape.

When a miscellaneous canopy patch is used, cut stitching and remove or lay aside items that may interfere with patch application. Refer to the applicable item-repair paragraph for the proper procedures.

- (1) Using a marking aid of contrasting color, mark a square rectangle around the area to be patched, and ensure that one side of the marking is parallel to the warp or filling of the fabric.
- (2) Cut the damaged-area fabric along the lines made in step (1). Then cut the fabric diagonally at each corner to allow a ½-inch foldback of the raw edges. Cut the stitching and lay aside or remove any item that will interfere with the miscellaneous patch application.
- (3) Make a ½-inch foldback on each raw edge. Pin and baste each foldback to complete the prepared hole. Basting should be performed using procedures in WP 0014 00, SEWING PROCEDURES.

NOTE

Repair cloth for the 15-foot diameter cargo extraction parachute is a 2.25-ounce, nylon cloth.

- (4) Using the 2.25-ounce nylon cloth, mark and cut a patch 2½ inches wider and longer than inside the measurements of the prepared hole. Ensure the patch material is marked, and cut, along the warp or the filling fabric.
- (5) Center the patch material over the prepared hole, and ensure the warp or filling of the patch material matches the warp or filling of the fabric being patched. Pin the patch material in position.
- (6) Make a ½-inch foldunder on each edge of the patch material, and baste the patch to the prepared area. Basting should be performed using procedures in WP 0014 00, SEWING PROCEDURES.
- (7) Remove the pushpins securing the item to the repair table. Secure the patch by using a light duty sewing machine, size E nylon thread, and the applicable details in the illustrations on the following page. Make the first row of stitching completely around the patch. Invert the canopy, and make a second row of stitching around the prepared hole. The stitching will be 7 to 11 stitches per inch.

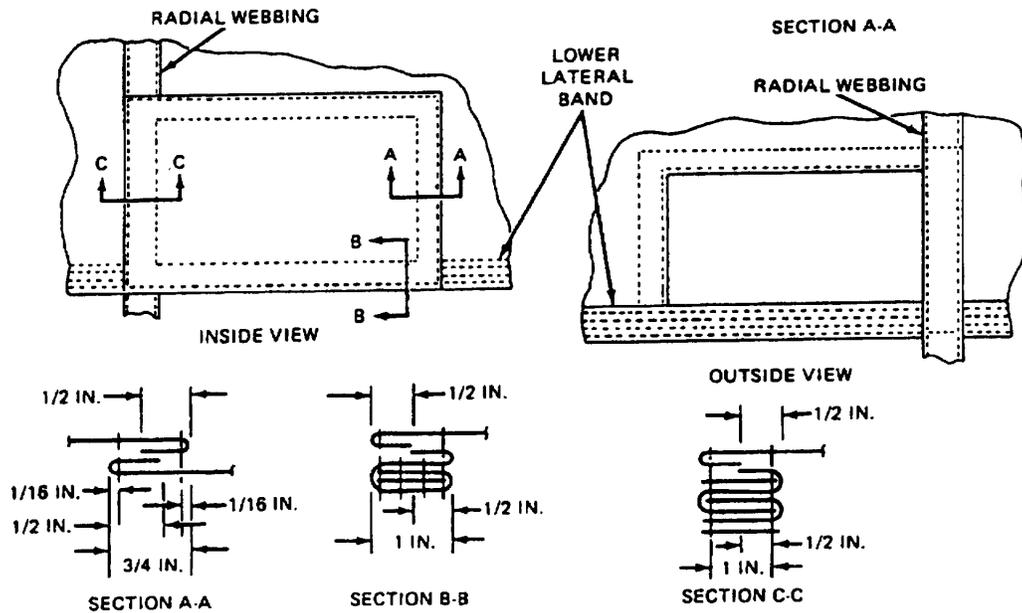
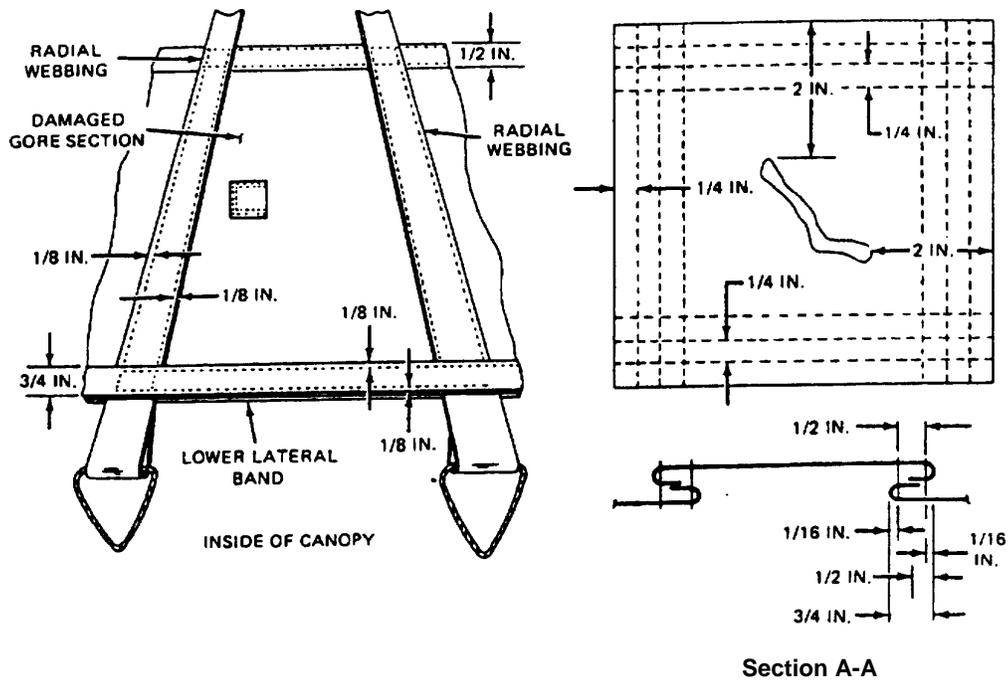


Figure 1. Basic and Miscellaneous Patch Application.

(8) Replace the items removed for the miscellaneous patch, as required, in accordance with applicable-item procedures.

4. Restenciling. As required, restencil identification markings using the procedures in WP 0016 00, MARKING AND RESTENCILING.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
RADIAL WEBBING
REPAIR

INITIAL SETUP:**Tools**

Aid, Splicing (Item 1, WP 0054 00)
 Knife (Item 6, WP 0054 00)
 Knife, Hot Metal (Item 7, WP 0054 00)
 Push Pins (Item 13, WP 0054 00)
 Sewing Machine, Light-Duty (Item 24, WP 0054 00)
 Sewing Machine, Zigzag (Item 26, WP 0054 00)
 Shears (Item 27, WP 005400)
 Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Unpacked, laid flat.

Reference

WP 0015 00

Materials/Parts

Thread, Nylon, Size E (Item 25/26, WP 0065 00)
 Webbing, Nylon, Type II, 1-IN., OD (Item 37, WP 0065 00)

REPAIR

1. Restitching.
 - a. Restitch the radial webbing using a light-duty sewing machine and a size E nylon thread of a contrasting color. Stitch over the original pattern, 7 to 11 stitches per inch. Lock each row of stitches 2 inches at each end. When radial webbing stitching has failed, and section separation from the radial webbing has occurred at the leading or trailing edge of the ring slots, the repair will be accomplished as described in step b.
 - b. Restitch the failure in accordance with the original construction using size E nylon thread, 7 to 10 stitches per inch. Sew a double-throw, zigzag stitching across the width of the radial webbing at the leading/trailing edge of the ring slot. Zigzag stitching will be $\frac{1}{4}$ to $\frac{3}{16}$ -inch wide and centered on the width of the reinforced hem of the leading/trailing edge and will extend $\frac{1}{2}$ -inch beyond the radial webbing.

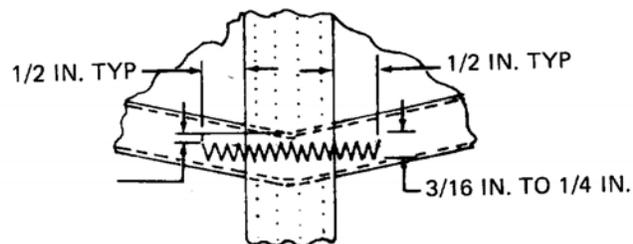


Figure 1. Radial Webbing Restitch Details.

2. Splicing. Splice damaged radial webbing as follows:
 - a. Place canopy on a repair table with damaged side of radial webbing facing up and smooth out canopy material in the affected area.

NOTE

If any portion of the radial webbing is damaged on the inside and the outside of the canopy, the splicing effort will be accomplished on both the inside and outside radial webbing. Radial webbing may be spliced one time provided the damaged area does not exceed 12-inches in length. Webbing splices may be applied to either or both sides of radial seam.

- b. Cut a length of 1-inch wide type II nylon webbing long enough to extend 12-inches beyond each side of the damaged area and sear the ends as specified in WP 0015 00, SEARING AND WAXING.
- c. Center the webbing length over the damaged area. Using a light-duty sewing machine and size E nylon thread, secure splice by stitching 7 to 11 stitches per inch for the full length of the splice.

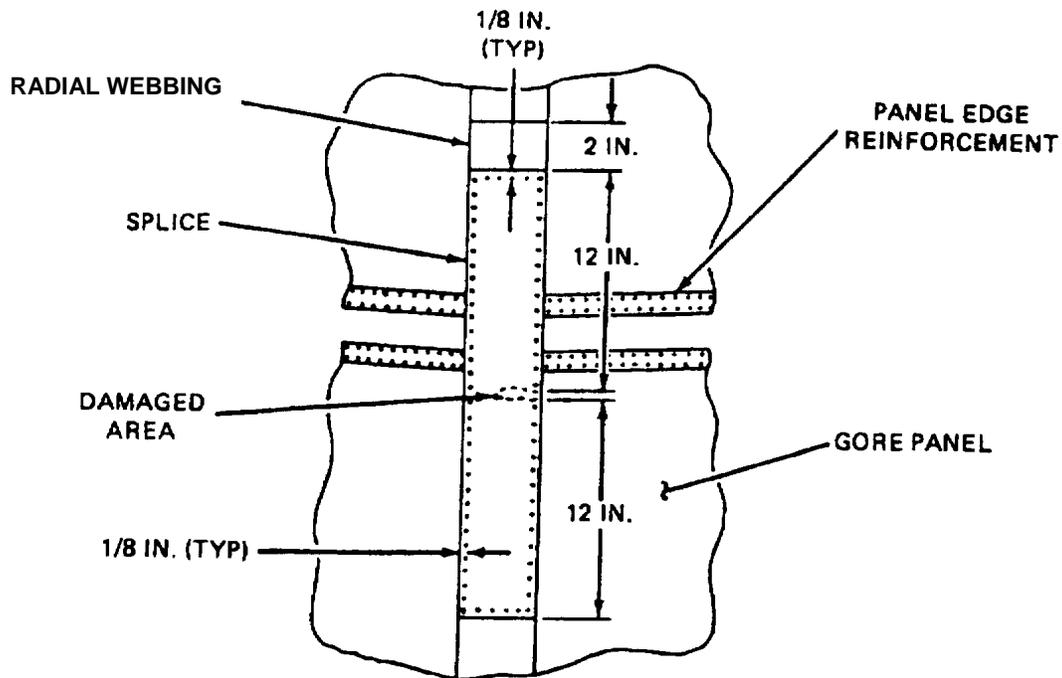


Figure 2. Radial Webbing Splice Details.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
PANEL EDGE REINFORCEMENT
REPAIR

INITIAL SETUP:**Tools**

Knife, Hot Metal (Item 7, WP 0054 00)
 Sewing Machine, Light-Duty (Item 24, WP 005400)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Materials/Parts

Thread, Nylon, Size E (Item 25/26, WP 0065 00)
 Webbing, Nylon, Type I, $\frac{9}{16}$ -IN, OD (Item 36,
 WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Canopy laid flat on repair table.

References

WP 0015 00

REPAIR

1. Restitching. Restitching of the panel edge reinforcement is authorized. Use a light-duty sewing machine and size E nylon thread of contrasting color. Stitch over the original stitch pattern, using 7 to 11 stitches per inch. Lock each row of stitches 2 inches at each end.

NOTE

The panel edges may be spliced only once and will not be replaced.

2. Splicing. A panel edge reinforcement may be spliced one time as follows:
 - a. Cut a length of $\frac{9}{16}$ -inch wide, type I nylon webbing long enough to extend 6 inches beyond each side of the damaged area and sear ends (WP 0015 00, SEARING AND WAXING).
 - b. Center the webbing length over the damaged area and secure the splice by stitching a box stitch formation, $\frac{1}{16}$ inch in from each edge, for the full length of the splice material. Use a light-duty sewing machine, with size E nylon thread; use 7 to 11 stitches per inch.

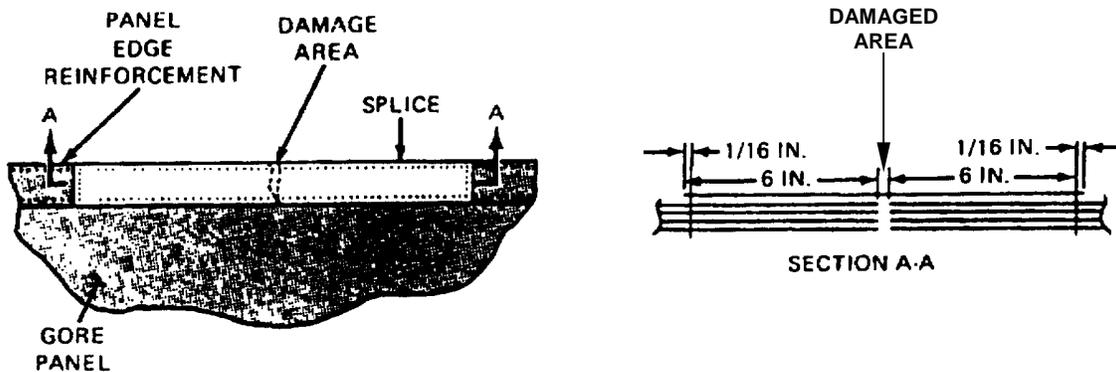


Figure 1. Panel Edge Reinforcement Splice Details.

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
LOWER LATERAL BAND
REPAIR**

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Pot, Melting (Item 15, WP 0054 00)
Sewing Machine, Light-Duty (Item 24, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Materials/Parts

Beeswax, Technical, 1 LB (Item 2, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Wax, Paraffin (Item 31, WP 0065 00)
Webbing, Nylon, 1-Inch-Wide, Type II (Item 37, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, laid flat on repair table

References

WP 0014 00, WP 0015 00

REPAIR**NOTE**

The skirt reinforcement tape may have one splice between any two suspension lines and cannot be replaced. If the damage is located in a previously spliced area between two suspension lines, the earlier made splice material will be removed before attempting a second splice repair.

1. Stitching and restitching. Stitch and restitch (WP 0014 00, SEWING PROCEDURES) using a light-duty sewing machine and size E nylon thread that contrasts with the color of the original stitching and material when possible. Lock all straight stitching by back stitching at least 2 inches. Restitch directly over the original stitching. Follow the original stitch pattern as closely as possible.
2. Splicing. Slice lower lateral bands as follows:
 - a. With the damaged side of the lower lateral band facing up and the affected area of the canopy smoothed out, remove previous splice if required.
 - b. As required, cut and remove the original stitching that secures the pocket band end to the lower lateral band. Fold the pocket-band loose end away from the repair area.
 - c. Cut a length of 1-inch-wide nylon webbing long enough to extend 12 inches beyond each end of the damaged area. Wax each end of the webbing (WP 0015 00, SEARING AND WAXING).
 - d. Center the webbing length over the damaged area and secure the splice by making four rows of continuous stitching using a light-duty sewing machine and size E nylon thread. Overstitch each webbing end by ½ inch. Stitching should be 7 to 11 stitches per inch.

- e. Reattach the pocket band, if required. Using a light-duty sewing machine and size E nylon thread, reinstall the pocket-band loose end in its original location using original construction.

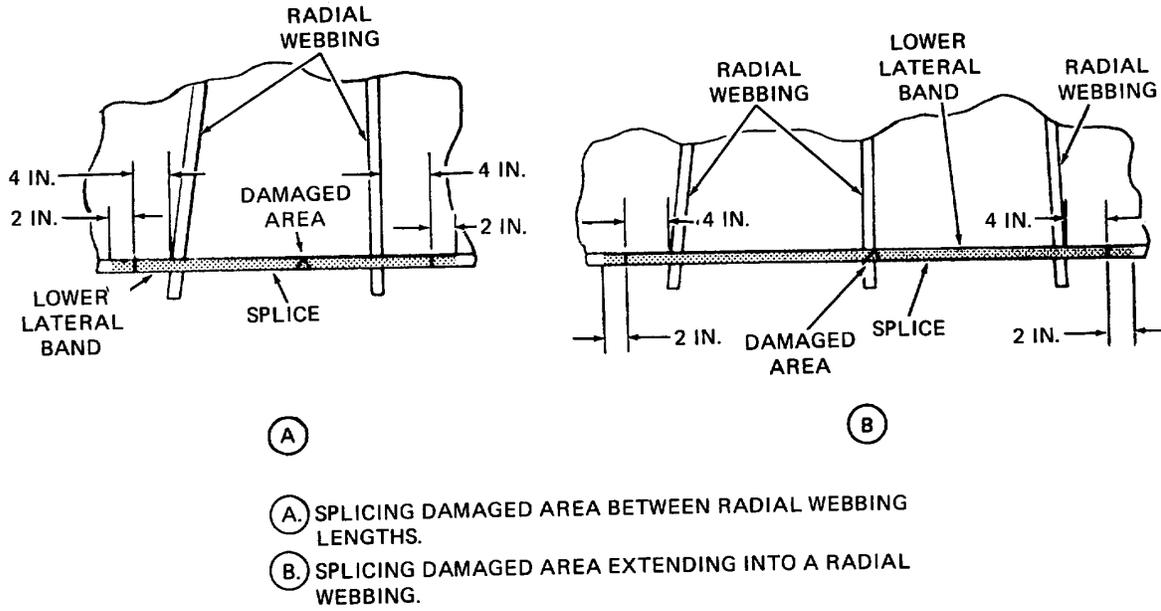


Figure 1. Lower Lateral Band Splice Details.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
POCKET BAND
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Knife, Hot Metal (Item 7, WP 0054 00)
Sewing Machine, Light-Duty (Item 24, WP 0056 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Materials/Parts

Marker, Black Ink (Item 12, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Webbing Nylon, Type II, 1 inch (Item 37, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, laid flat on repair table.

References

WP 0014 00, WP 0015 00

REPAIR

Stitch and restitch (WP 0014 00, SEWING PROCEDURES) with size E nylon thread that matches the color of the original stitching, when possible. Restitch directly over the original stitch pattern; follow the original stitch pattern as closely as possible.

REPLACE

Replace an unserviceable pocket band by fabricating as follows:

1. Using a marking aid, mark canopy at each end of original pocket band.
2. Cut stitching on both ends of original pocket band and remove pocket band from canopy skirt.
3. Cut an 8 ½-inch length of type II, 1-inch wide nylon tape. Sear the ends (WP 0015 00, SEARING AND WAXING).
4. Position the tape length in the original pocket band location.
5. Using a light-duty sewing machine and size E nylon thread, secure each end of the replacement pocket band by stitching a 2-inch long, single-x box stitch formation with two double ends, $\frac{1}{8}$ inch in from each edge. Stitching should be 7 to 11 stitches per inch.

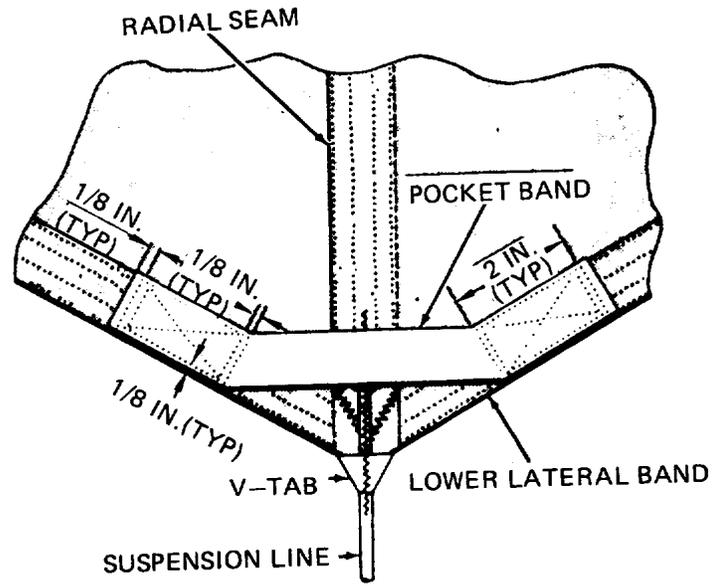


Figure 1. Pocket Band Replacement Details.

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SUSPENSION LINE
REPAIR**

INITIAL SETUP:**Tools**

Aid, Splicing (Item 1, WP 0054 00)
Knife (Item 6, WP 0054 00)
Sewing Machine, Light-Duty (Item 24, WP 0054 00)
Sewing Machine, Zigzag (Item 26, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, laid flat on repair table

Materials/Parts

Cord, Nylon, Type IV, OD, Coreless (Item 8, WP 0065 00)
Marker, Felt-Tip, Black (Item 12, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)

REPAIR

Stitch and restitch with size E nylon thread that contrasts with the color of the fabric being stitched or the original thread being restitched. If contrasting color thread is not available, thread of a matching color may be used, providing all other specifications are met. Straight stitching and restitching should be locked by at least 2 inches at each end of a stitch row when possible. Zigzag restitching should extend at least ¼ inch into undamaged stitching at each end, when possible. Restitch directly over the original stitching, and follow the original stitch pattern as closely as possible.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
CONNECTOR LINK
REPAIR, REPLACE

INITIAL SETUP:

Tools

File, Flat (Item 5, WP 0054 00)
 Mallet, Rawhide (Item 10, WP 0054 00)
 Screwdriver, Flat-Tip (Item 19, WP 0054 00)
 Separator, Connector Link (Item 21, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Connector link laid out on table

Materials/Parts

Cloth, Abrasive (Item 4, WP 0065 00)

REPAIR

Repair the connector link assembly as follows:

1. Cleaning. Remove burrs, rough spots, rust, or corrosion from a parachute connector link assembly by either filing with a metal file or buffing with an abrasive cloth.
2. Replacing a locking screw. Replace a damaged or missing locking screw on a parachute connector link with a serviceable item from stock.

REPLACE

A parachute connector link assembly that is damaged beyond repair will be replaced with a serviceable parachute connector link assembly from stock. Use the following procedures.

1. Using a flat-tip (slotted-head) screwdriver, remove the two locking screws from the ends of a replacement parachute connector link assembly and disassemble the link.

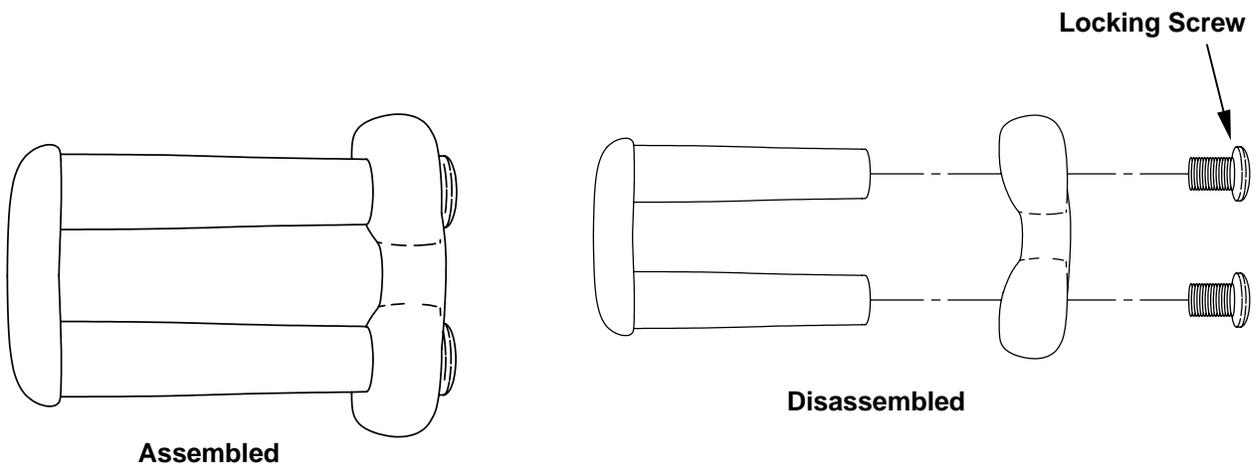


Figure 1. Connector Link Assembly.

2. Using a flat-tip (slotted-head) screwdriver, remove the two locking screws from the damaged original parachute connector link assembly. Disassemble the link assembly, using a link separator, as required. If the connector link contains suspension lines, ensure the lines are not allowed to slide off the damaged link during the disassembly process.
3. As applicable, position the replacement link assembly adjacent to the disassembled original link assembly, and slide the suspension lines from the damaged link onto the replacement link.
4. If required, pass the remaining replacement link through the attaching loop of the adjoining component.
5. Fit the replacement links together and ensure the legs are engaged by tapping the end of each bar with a rawhide mallet.
6. As applicable, trace the suspension lines from the connector link assembly to the canopy to ensure the lines are properly installed and are in correct sequence.
7. Replace the locking screws and tighten them with a flat-tip (slotted-head) screwdriver.

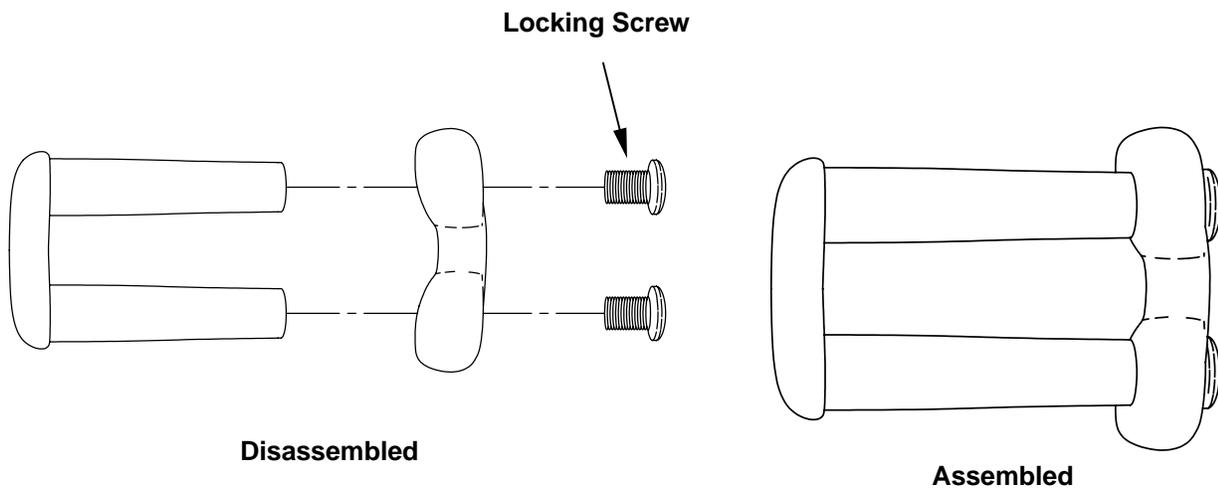


Figure 2. Connector Link Reassembled.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG
INSPECT, SERVICE, REPAIR, REPLACE

INITIAL SETUP:**Personnel Required**

92R (10) Parachute Rigger

Reference

WP 0008 00, WP 0010 00, WP 0011 00

Equipment Condition

Cleaned.

Inspected.

Detached from canopy.

INSPECT

Refer to WP 0008 00, PMCS, and WP 0011 00, INSPECTION, for inspection procedures.

SERVICE

Refer to WP 0010 00 for cleaning procedures.

REPAIR

Refer to individual repair procedures.

CAUTION

When performing a repair on a 15-foot diameter cargo extraction parachute deployment bag that requires the cutting of stitching or an original part, ensure that adjacent bag material is not damaged during the cutting process.

REPLACE

An unrepairable deployment bag will be replaced with a serviceable bag from stock.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
GROMMET
REPAIR, REPLACE

INITIAL SETUP:

Tools

- Cutter, Single Bow, (Item 4, WP 005400)
- File, Flat (Item 5, WP 0056 00)
- Mallet, Rawhide (Item 10, WP 0054 00)
- Pliers, Diagonal Cutter (Item 14, WP 0054 00)
- Punch and Die Set, 1/4 Inch (Item 17, WP 0054 00)
- Sewing Machine, Darning (Item 22, WP 0054 00)
- Sewing Machine, Medium-Duty (Item 25, WP 0054 00)
- Wrench Set, Allen (Item 29, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.

Reference

WP 0014 00

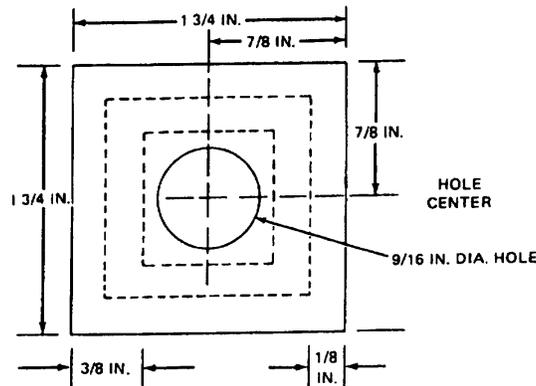
Materials/Parts

- Cloth, Abrasive (Item 4, WP 0065 00)
- Cloth, Nylon, Duck, 7.25 Oz. (Item 5, WP 0065 00)
- Grommet, Size 0 (Item 10, WP 0065 00)
- Thread, Nylon, Size E (Item 25/26, WP 0065 00)

REPAIR

Repair the grommet as follows:

1. Remove burrs, rough spots, rust, or corrosion from an insulated grommet by filing with a file or by buffing with an abrasive cloth.
2. Reset a loose grommet using the procedures listed in the REPLACE section on the next page.
3. If the fabric area around the original grommet has been damaged, repair the area by darning using procedures in WP 0014 00, SEWING PROCEDURES. If darning does not provide an adequate repair, construct a 2³/₄- by 2³/₄-inch reinforcement cloth and fold under 1/2-inch on all sides. After removing the original grommet (REPLACE procedure, step 1), sew the cloth to the inside using a medium duty sewing machine and size E nylon thread, 7-to-11 stitches per inch. Sew one row of stitches 1/8 inch from the outside edge and the second row 3/8 inch from the outside edge. Cut a new hole for grommet installation.



NOTE: Outside dimensions given after 1/2-inch fold under on all sides.

Figure 1. Fabricating Grommet Reinforcement.

REPLACE

1. Remove the original grommet as follows:
 - a. Using the diagonal cutters, lift the edge of the original washer at one point.
 - b. Grip the lifted washer edge with the diagonal cutters, and roll the washer edge back to lift the washer from the original grommet. Remove the original grommet from the material.
2. Grommet installation by the hand-held method.

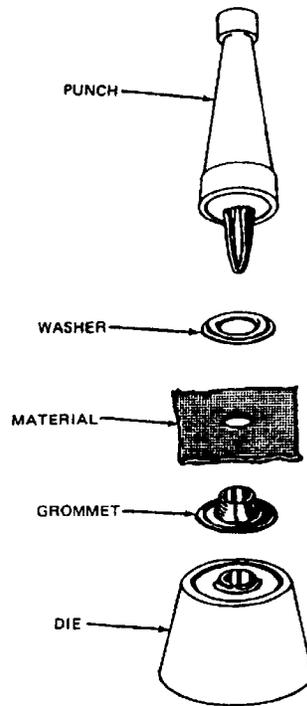


Figure 2. Grommet Installation by Handheld Method.

- a. Insert the barrel of the replacement grommet through the accommodating hole in the material and ensure the grommet flange is located on the same side of the material as the original grommet.
- b. Position the grommet on the die with the barrel facing up and place the 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.

- c. Using a punch and a rawhide mallet or other non-steel impact device, spread the grommet barrel by hammering until the barrel collar is rolled down smoothly on the washer. If the grommet barrel splits during the hammering process, remove and replace the installed grommet with a serviceable item from stock, repeating the procedures in paragraph 2., steps a. and b., above.

- d. Check the seating of grommet. If the grommet can be turned by hand, repeat paragraph 2., step c. until the grommet is firmly seated.
3. Grommet installation by hand-operated press.
 - a. Install a ¼-inch chuck and die in the hand-operated press. Secure the locking screws with a hex wrench.

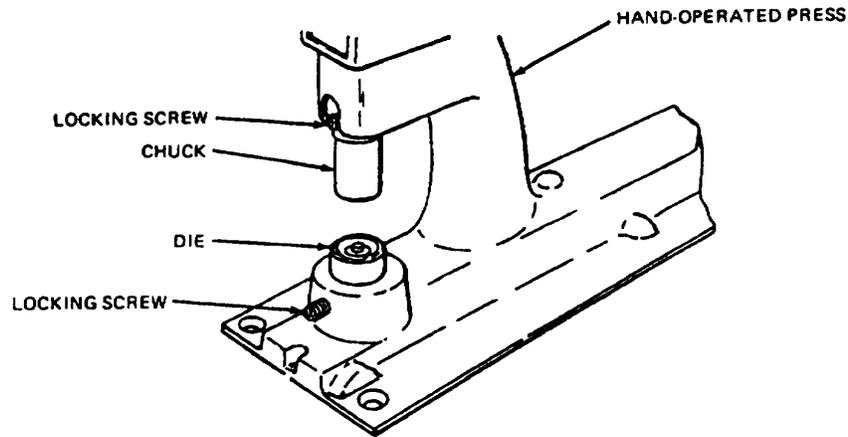


Figure 3. Grommet Installation by Hand-Operated Press.

- b. Insert the barrel of the replacement grommet through the hole in the material. Ensure the grommet flange is on the same side of the material as the original grommet.

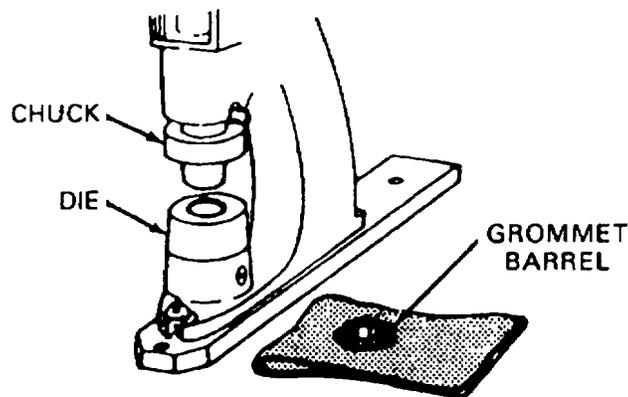


Figure 4. Grommet Barrel Inserted In Material Hole.

- c. Position grommet on the die in the press, with the barrel facing up. Place the replacement washer over the barrel.

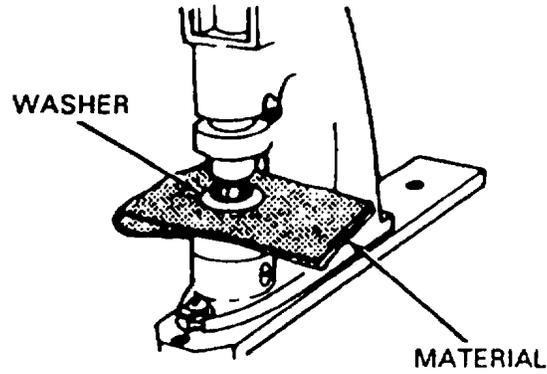


Figure 5. Washer Placed Over Grommet Barrel.

- d. Depress the handle or foot pedal, spreading the grommet barrel until the collar is rolled down smoothly on the washer.

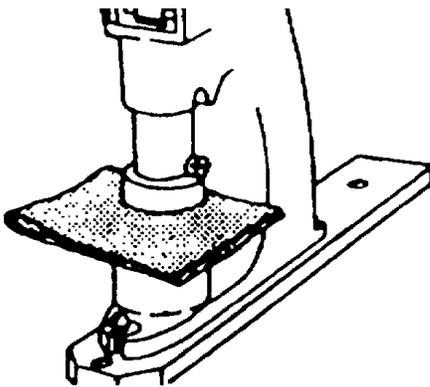


Figure 6. Press Activated To Seat Grommet.

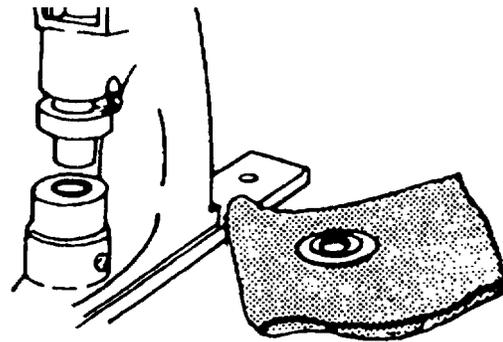


Figure 7. Grommet Installation Completed.

- e. Check the grommet for firm seating. If the grommet can be turned by hand, repeat step d. above, until a firm seat is achieved.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG RETAINER BAND KEEPER
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 005400)
Knife, Hot Metal (Item 7, WP 0054 00)
Sewing Machine, Heavy-Duty (Item 23, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Materials/Parts

Marking Aid (Item 14, WP 0065 00)
Tape, Nylon, Type IV, 1-IN., OD (Item 21, WP 0065 00)
Thread, Nylon, Size 3 (Item 29/30, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Laid out on work table.

References

WP 001400, WP 0015 00

REPAIR

Stitch and restitch with size 3 nylon thread that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least ½ inch. Restitch by overstitching each end of the stitch formation by ½ inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitching will be in accordance with WP 0014 00 and Table 2, WP 0014 00, SEWING PROCEDURES.

REPLACE

Replace a damaged retainer band keeper by fabricating as follows:

1. Remove the original retainer band keeper by cutting the stitching that secures the keeper tape to the suspension line stowage flap and the inside of the bag bottom panel.
2. Cut a 16-inch length of 1-inch wide, type IV nylon tape, and sear the ends in accordance with WP 0015 00.
3. Make a 1-inch long turnunder on each end of the tape length and position the tape in the original keeper location with the turnunders facing down.
4. Using the criteria in the illustration below, secure each end of the tape length to the deployment bag by stitching a single-X box-stitch formation with one double end.
5. Stitch four lateral rows of stitching across the tape width at two points to form three equal-sided loops in the tape length.

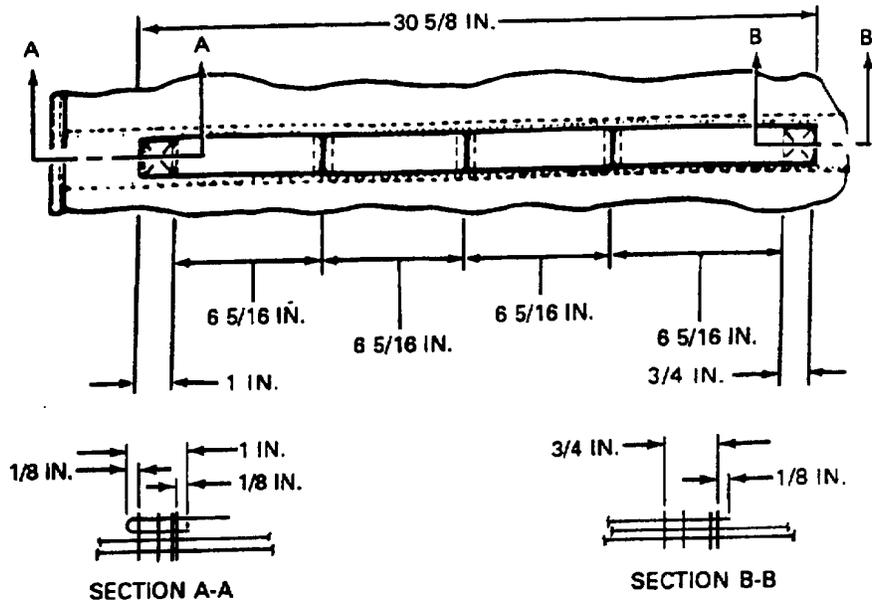


Figure 1. Retainer Band Keeper Replacement.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG RETAINER LINE
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Aid, Splicing (Item 1, WP 0054 00)
Sewing Machine, Light-Duty (Item 24, WP 005400)
Sewing Machine, Zigzag (Item 26, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Materials/Parts

Cord, Nylon, Type IV, OD (Item 8, WP 0065 00)
Marking Aid (Item 14, WP 0065 00)
Tape, Cotton, Type I (Item 18, WP 0065 00)
Thread, Nylon, Size FF (Item 27/28, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Laid out on work table.

References

WP 0014 00, WP 0015 00

REPAIR

Stitch and restitch with size FF nylon thread that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least $\frac{1}{2}$ inch. Restitch by overstitching each end of the stitch formation by $\frac{1}{2}$ inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitch according to WP 0014 00 and Table 2, WP 0014 00.

REPLACE

Replace a damaged retainer line by fabricating as follows :

1. Remove the original bag retaining line by cutting the line at the retaining line attaching loop on the inside of the deployment bag.

CAUTION

Do not cut or break the threads in the type IV coreless nylon cord casing while fabricating a bag retaining line.

NOTE

If the cotton buffer is serviceable from the damaged bag retaining line, it may be reused in lieu of constructing a new one. Cut the lower portion of the bag retaining line loop (type IV coreless nylon cord) and remove the cotton buffer.

2. Cut a 37-inch length of type IV coreless nylon cord and taper-cut each end by $\frac{1}{2}$ inch.
3. Using a marking aid, mark one end of the cord length at points 4-, 9-, and 13 $\frac{1}{2}$ -inches from one end and 4-, 17-, and 21 $\frac{1}{2}$ -inches from the other end.

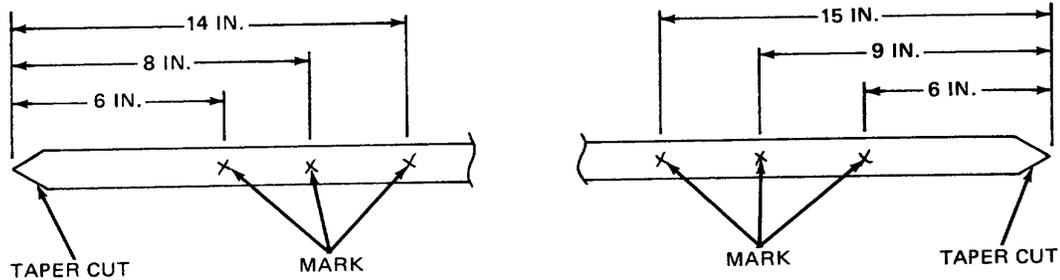


Figure 1. Replacement Retaining Line Fabrication Details.

4. Pass the cord end marked at 4-, 9-, and 13 $\frac{1}{2}$ -inches through the retaining line attaching loop on the inside of the deployment bag and center the loop between the 4- and 9-inch marks.
5. Insert a splicing aid into the cord casing at the 13 $\frac{1}{2}$ -inch mark and work the splicing aid through the cord casing to the outside at the 9-inch mark.
6. Attach the tapered cord end nearest the 4-inch mark to the splicing aid and work the aid back through the cord casing until the 4- and 9-inch marks are aligned.
7. Hold the aligned marks together and work the splicing aid and tapered cord end to the outside of the 13 $\frac{1}{2}$ -inch mark.
8. Remove the tapered cord from the end of the splicing aid. While holding the aligned 4- and 9-inch marks together, stretch the length allowing the tapered cord end to recede inside the cord casing.
9. Secure the formed line loop by stitching a $\frac{3}{16}$ -inch wide by 2-inch-long row of double throw zigzag stitching with size FF thread, 6 to 9 stitches per inch.
10. Cut a 12-inch length of 1 $\frac{1}{2}$ -inch-wide, type I cotton tape and wax the ends as described in WP 0015 00.
11. Fold the tape in half lengthwise and align the edges. Using a light duty sewing machine and size FF nylon thread, secure the aligned edges by stitching a 12-inch long row of stitching, $\frac{1}{8}$ inch in from the aligned edges. Stitching will be 7 to 10 stitches per inch.
12. Pass the free end of the cord through the buffer made in step 11 above and locate the buffer between the 4- and 17-inch mark.
13. Insert a splicing aid into the cord casing at 21 $\frac{1}{2}$ -inch mark and work the splicing aid through the cord casing to the outside at the 17-inch mark.
14. Attach the cord tapered-free end to the splicing aid and work the aid back through the cord casing until the 4- and 17-inch marks are aligned.

15. Hold the aligned marks together, and work the splicing aid with the attached cord end to the outside at the 21 1/2-inch mark.
16. Remove the tapered-cord end from the splicing aid. While holding the aligned 4- and 17-inch marks together, stretch the cord length to allow the tapered cord end to recede into the cord casing.
17. Secure the second line loop using the procedure in step 9 above.

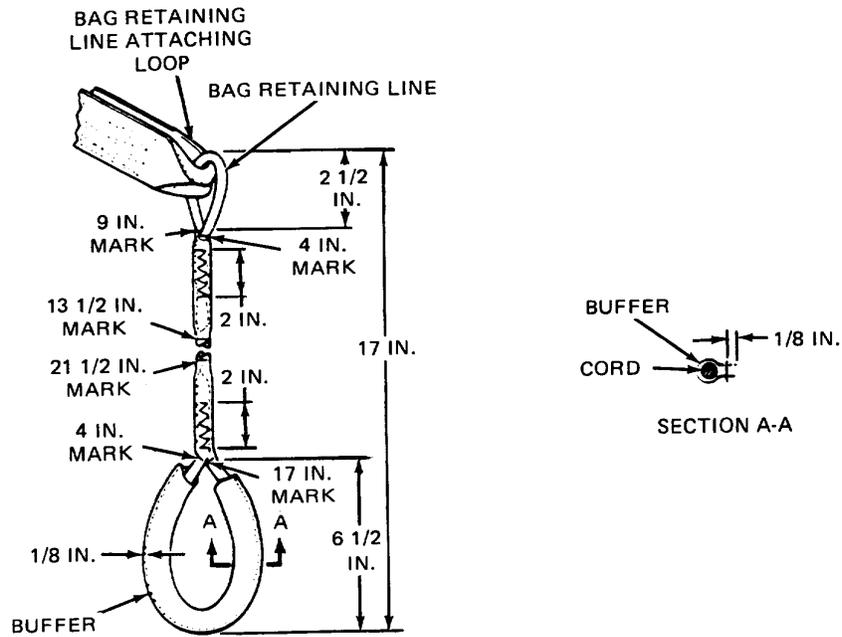


Figure 2. Deployment Bag Retaining Line Replacement Details.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG PENDULUM LINE
REPLACE

INITIAL SETUP:

Tools

Aid, Splicing (Item 1, WP 0054 00)
 Knife (Item 6, WP 0054 00)
 Knife, Hot Metal (Item 7, WP 005400)
 Shears (Item 27, WP 0054 00)

Materials/Parts

Cord, Nylon, Coreless, Type IV, OD (Item 8, WP 0065 00)
 Marking Aid (Item 14, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on work table.

Reference

WP 0015 00

REPLACE

A pendulum that is damaged or does not conform to the length criteria prescribed in this paragraph will be replaced by fabricating as follows:

1. Remove the original pendulum line by cutting the loop formed in the line at the deployment bag pendulum line attaching loop.

CAUTION

Do not cut or break the threads in the type IV coreless nylon cord casing while fabricating a pendulum line.

2. Cut an 85-inch length of type IV coreless nylon cord. Taper-cut ½-inch of one cord end, sear the opposite cord end in accordance with WP 0015 00, SEARING AND WAXING.
3. Using a marking aid, mark the cord length at points 6½ and 8 inches from the cord tapered end.

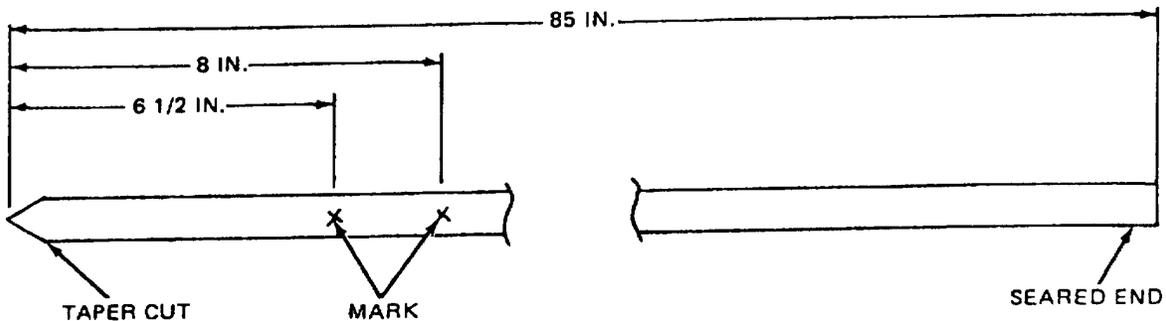


Figure 1. Replacement Pendulum Line Replacement Details.

4. Insert the splicing aid into the cord casing at the 8-inch mark and work the aid through the cord to the outside at the $6\frac{1}{2}$ -inch mark.
5. Pass the tapered-cord end through the deployment bag pendulum line attaching loop or both deployment bag bridle straps, and attach the tapered end to the splicing aid.
6. Pull the splicing aid back into the cord casing at the $6\frac{1}{2}$ -inch mark, and work the aid back through the cord casing to the outside at the 8-inch mark.
7. Remove the tapered cord end from the splicing aid. Sear the tapered end, and make an overhand knot in the cord running end at a point 1 inch back from the seared tapered end. Stretch the cord loop to draw the knot against the cord casing.

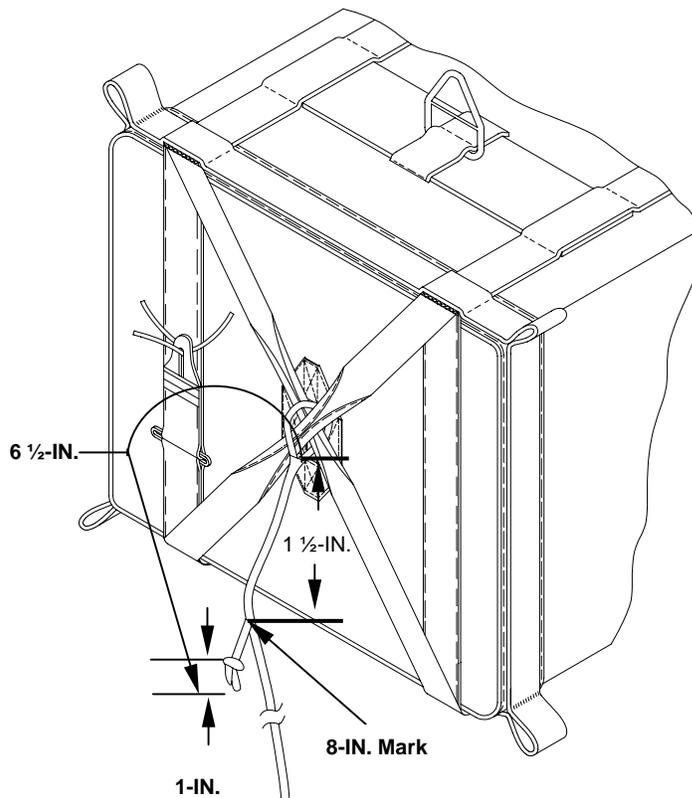


Figure 2. Pendulum Line Replacement Details.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG CLOSING LOOP (BOTTOM)
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 005400)
 Knife, Hot Metal (Item 7, WP 0054 00)
 Sewing Machine, Heavy-Duty (Item 23, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Materials/Parts

Marking Aid (Item 14, WP 0065 00)
 Thread, Nylon, Size FF (Item 27/28, WP 0065 00)
 Webbing, Nylon, Type VIII, OD (Item 38, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on work table.

References

WP 0014 00, WP 0015 00

REPAIR

Stitch and restitch with size FF nylon thread that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least ½-inch. Restitch by overstitching each end of the stitch formation by ½-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitch according to WP 0014 00 and Table 2, WP 0014 00, SEWING PROCEDURES.

REPLACE

Replace a damaged bag-closing loop by fabricating as follows:

1. Remove the original closing loop by cutting the loop webbing flush along the edge of the bag end reinforcement.
2. Cut a 13-inch length of type VIII nylon webbing, and sear the ends according to WP 0015 00, SEARING AND WAXING.
3. Mark the webbing length at a point 4 ¼ inches from each end.
4. Between the two marks made in step 3, roll the webbing edges into the center of the webbing width, and secure each rolled edge by stitching a 4-inch-long row of stitching according to the details in the following illustration. Stitching will be 6 to 9 stitches per inch using a heavy-duty sewing machine with size FF nylon thread.

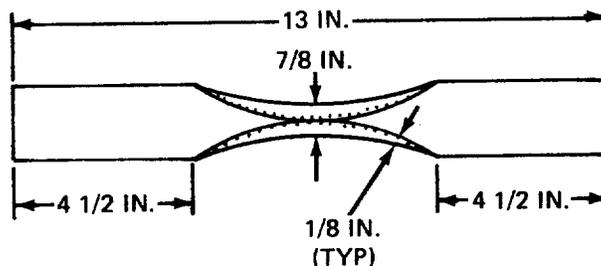


Figure 1. Construction Details of Closing Loop.

5. Double the webbing length with the rolled edges facing out, and align the webbing ends.
6. Position the formed loop in the original closing loop location with the aligned webbing end placed over the applicable main strap and bag end reinforcement. Secure the webbing ends, bag end reinforcement, and main strap by stitching a 4¼-inch-long single-X-box-stitch formation with two double ends, according to the details in the following illustration. Stitching will be 6 to 9 stitches per inch using a heavy-duty sewing machine, and size FF nylon thread.

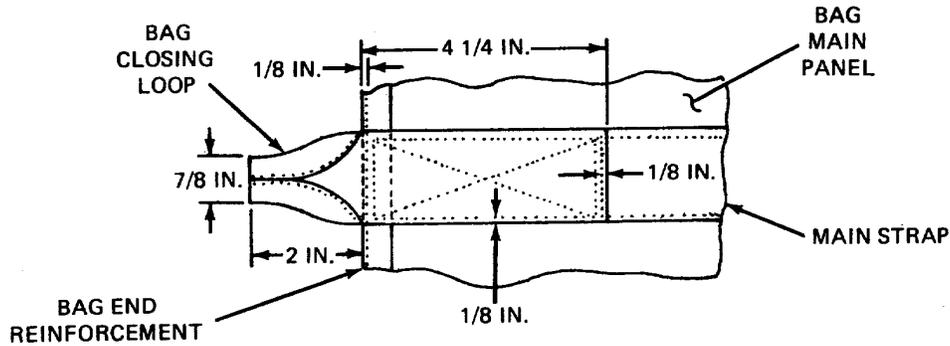


Figure 2. Installation Details of Closing Loop.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG LOG RECORD BOOK POCKET
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Needle, Tacking (Item 11, WP 0054 00)
Sewing Machine, Medium-Duty (Item 25, WP 0054 00)
Shears (Item 27, WP 0054 00)

Materials/Parts

Tape, Lacing & Tying (Item 19, WP 0065 00)
Thread, Cotton, Ticket 8/7, Natural (Item 24, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Laid out on work table.

REPAIR

Repair a log record book pocket as follows:

1. **Stitching.** Using a medium-duty sewing machine, stitch and restitch with size E nylon thread that matches the color of original stitching, when possible. Lock all straight stitching by backstitching at least ½-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible.
2. **Retacking.** Replace damaged or missing tacking as follows:
 - a. Remove damaged tacking.
 - b. Using a tacking needle and tape, lacing and tying, retack log record pocket to deployment bag using one turn single tape, lacing and tying. Secure tacking ends with a surgeon's knot and a locking knot.

REPLACE

Replace a missing or unserviceable parachute log record book pocket as follows:

1. Position the parachute log record book pocket on the bottom of the deployment bag with the pocket bottom edge squared with the end slot reinforcement.
2. Secure the pocket along the two sides and the bottom with a medium-duty sewing machine. Stitching will be 7 to 11 stitches per inch using size E nylon thread.

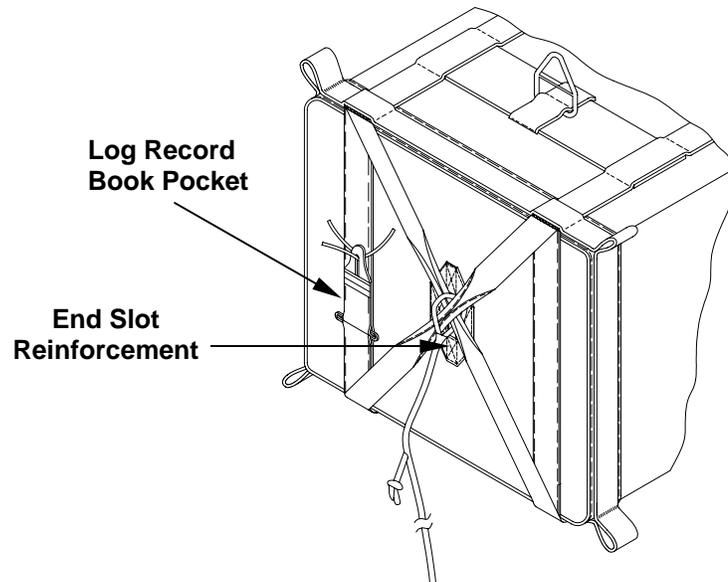


Figure 1. Attaching Parachute Log Record Book.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG RETAINER BAND KEEPER REINFORCEMENT
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
 Knife, Hot Metal (Item 7, WP 0054 00)
 Sewing Machine, Medium-Duty (Item 25, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Materials/Parts

Marking Aid, (Item 14, WP 0065 00)
 Tape, Nylon, Type IV, 1½-IN, OD (Item 22, WP 0065 00)
 Thread, Nylon, Size FF (Item 27/28, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on worktable.

References

WP 0014 00, WP 0015 00

REPAIR

Stitch and restitch with size FF nylon thread that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least ½-inch. Restitch by over stitching each end of the stitch formation by ½-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitch according to WP 0014 00 and Table 2, WP 0014 00, SEWING PROCEDURES.

REPLACE

Replace damaged retainer band keeper reinforcement by fabricating as follows:

1. Remove a portion of the retainer band keeper that is secured to the inside of the suspension line stowage flap by cutting the applicable stitching.
2. Turn flap over to locate the outside of the flap and cut the stitching that secures the edge of the binding tape over the end of the damaged reinforcement. Cut the stitching to a point 2 inches beyond each edge of the reinforcement.
3. Cut an 8-inch length of type IV nylon webbing and sear ends in accordance with WP 0015 00, SEARING AND WAXING.
4. Position the webbing length over the damaged reinforcement outside of the suspension line stowage flap, ensuring that one webbing end is aligned with the original reinforcement end at the outer edge of the suspension line stowage panel.
5. Fold the loose edge binding back, and secure the webbing length over the original reinforcement by stitching a box-stitch formation, $\frac{1}{8}$ -inch in from each edge, for the full length of the webbing using a medium-duty sewing machine. Stitching will be 6 to 9 stitches per inch with size FF thread.
6. Reposition the flap edge binding in the original location. Restitch the binding according to WP 0014 00, SEWING PROCEDURES, using the specifics in Table 2. Lock the stitching ends by $\frac{3}{4}$ -inch.

7. Turn flap so that the inside of the flap is facing up and reposition the retainer band keeper in the original location. Secure the keeper by restitching according to WP 0014 00, SEWING PROCEDURES.

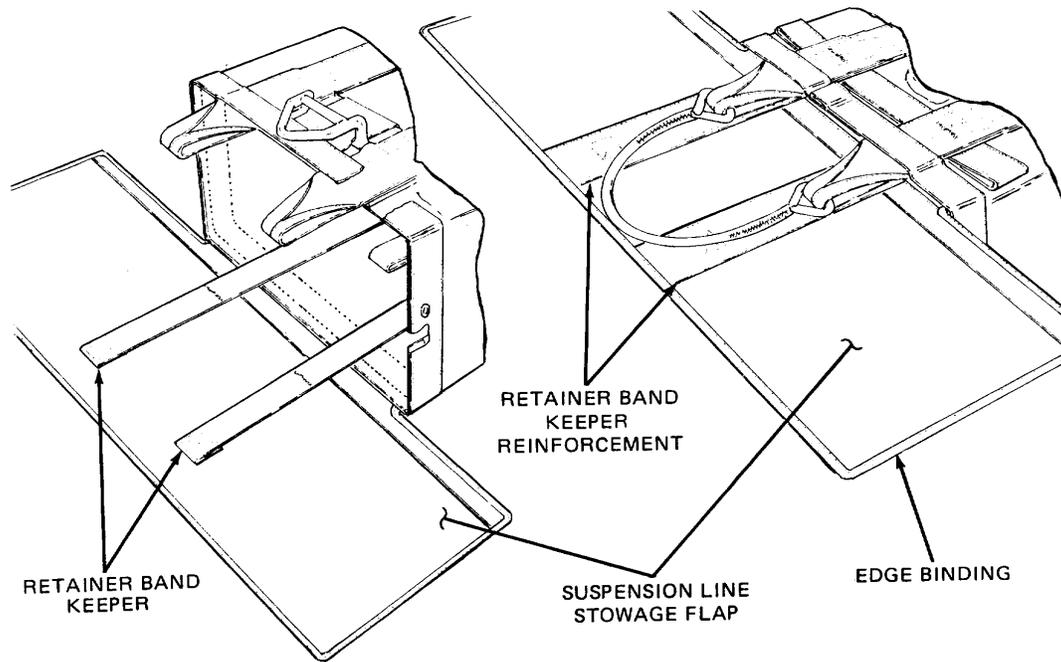


Figure 1. Retainer Band Keeper Reinforcement Replacement Details.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG TIE LOOP AND TIE LOOP REINFORCEMENT
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
 Pot, Melting (Item 15, WP 0054 00)
 Sewing Machine, Medium-Duty (Item 25, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Materials/Parts

Aid, Marking (Item 14, WP 0065 00)
 Thread, Nylon, Size FF (Item 27/28, WP 0065 00)
 Tape, Nylon, Type IV, 1-inch., OD (Item 21, WP 0065 00)
 Tape, Nylon, Type IV, 1½-inch., OD (Item 22, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on work table.

References

WP 0014 00, WP 0015 00

REPAIR

Stitch and restitch with size FF nylon thread that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least ½-inch. Restitch by overstitching each end of the stitch formation by ½-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitch according to WP 0014 00, Table 2.

REPLACE

When either a tie loop on the deployment bag inside or a tie loop reinforcement on the deployment bag outside is damaged, the replacement action will include both items. Replace a tie loop and tie loop reinforcement by fabricating as follows:

1. Remove the damaged original tie loop and tie loop reinforcement by cutting the stitching that secures both items to the deployment bag.
2. Cut an 8-inch length of 1-inch wide, type IV nylon tape and a 3-inch length of 1 ½-inch wide, type IV nylon tape. Sear ends of both tape lengths as detailed in WP 0015 00.
3. Make a ½-inch long turn-under on each end of the 3-inch tape length, and position the folded tape in the original tie loop reinforcement location on the deployment bag outside with the turn-under ends facing down. Secure the replacement reinforcement to the deployment bag outside by making a single row of stitching, 1/8-inch along each outside edge using a medium-duty sewing machine. Stitching will be 6 to 9 stitches per inch, using FF nylon thread.

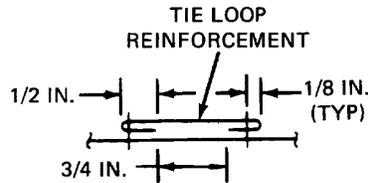
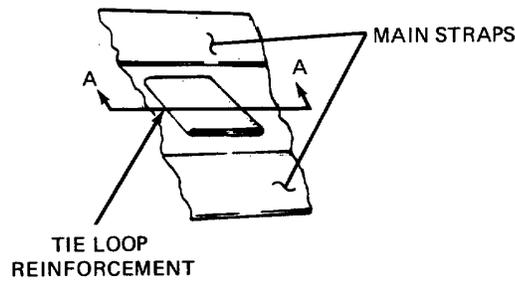


Figure 1. Tie Loop Reinforcement Sewn Down.

4. Double the 8-inch tape length, align the ends, and position the folded tape in the original tie loop location on the inside of the deployment bag. Secure the replacement tie loop to the deployment bag and tie loop reinforcement by stitching a 3/4-inch wide by 1-inch long single-X box-stitch formation with one double end. Stitching will be made with a medium-duty sewing machine, 6-to-9 stitches per inch with size FF nylon thread.

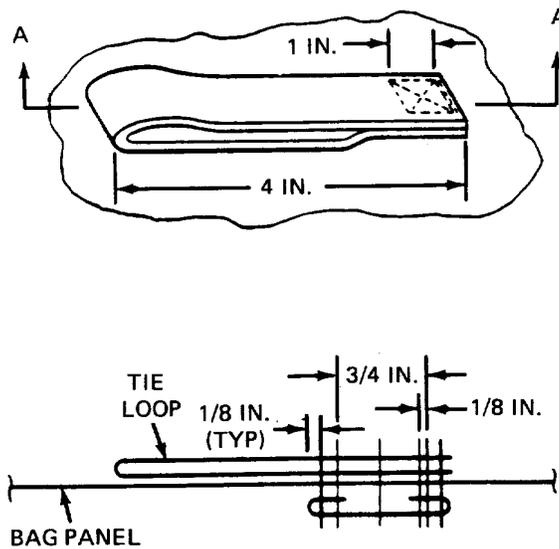


FIGURE 2. Replacement Loop Sewn Down.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG SAFETY CORD
REPAIR, REPLACE

INITIAL SETUP:

Tools

Aid, Splicing (Item 1, WP 0054 00)
 Knife (Item 6, WP 0056 00)
 Sewing Machine, Zig-Zag (Item 26, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned (WP 0008 00).
 Inspected (WP 0009 00).
 Laid out on worktable.

Materials/Parts

Cord, Nylon, Type IV (Item 8, WP 0065 00)
 Marking Aid (Item 14, WP 0065 00)
 Thread, Nylon, Size E (Item 25/26, WP 006500)

Reference

WP 0014 00

REPAIR

Stitch and restitch with size E thread, which matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least ½-inch. Restitch by overstitching each end of the stitch formation by ½-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitch according to WP 0014 00 and Table 2, WP 0014 00.

REPLACE

Replace a damaged safety cord by fabricating as follows:

1. Remove the original safety cord from the bottom bag closing loops by cutting the line end loops.
2. Cut a 23 ½-inch length of type IV braided-coreless nylon cord and taper cut each end by ½-inch.
3. Using a marking aid, mark the cord length at points 4 ½, 6 ½, and 10 ½-inches from the tapered ends.

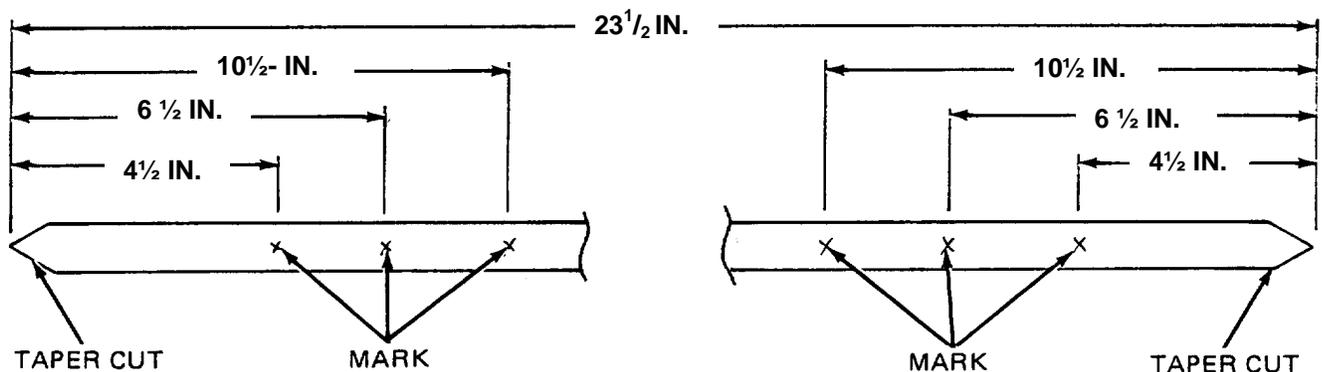


Figure 1. Safety Cord Fabrication Details.

4. Insert a splicing aid into the cord casing at the 10 ½-inch mark and work the splicing aid through the cord to the outside at the 6 ½-inch mark.
5. Pass 4 ½-inches of the marked cord end through one bottom bag-closing loop and attach the tapered end to the splicing aid.
6. Pull the splicing aid with the attached cord end back into the cord casing at the 6 ½-inch mark and work the splicing aid back through the cord casing until the 4 ½ and 6 ½-inch marks are aligned.
7. Hold the aligned marks together, and work the splicing aid with the tapered cord end attached to the outside at the 10 ½-inch mark.
8. Remove the tapered cord end from the splicing aid and while holding the aligned 4 ½ and 6 ½-inch marks together, stretch the cord length to allow the tapered cord end to recede inside of the cord casing.
9. Secure the formed safety cord end loop by stitching a $\frac{3}{16}$ -inch wide by 4 ½-inch long row of double-throw zig-zag stitching 7 to 10 stitches per inch with size E nylon thread.
10. Using a marking aid, mark and attach the running end to the bottom bag-closing loop using the procedures in steps 3 through 9 above.

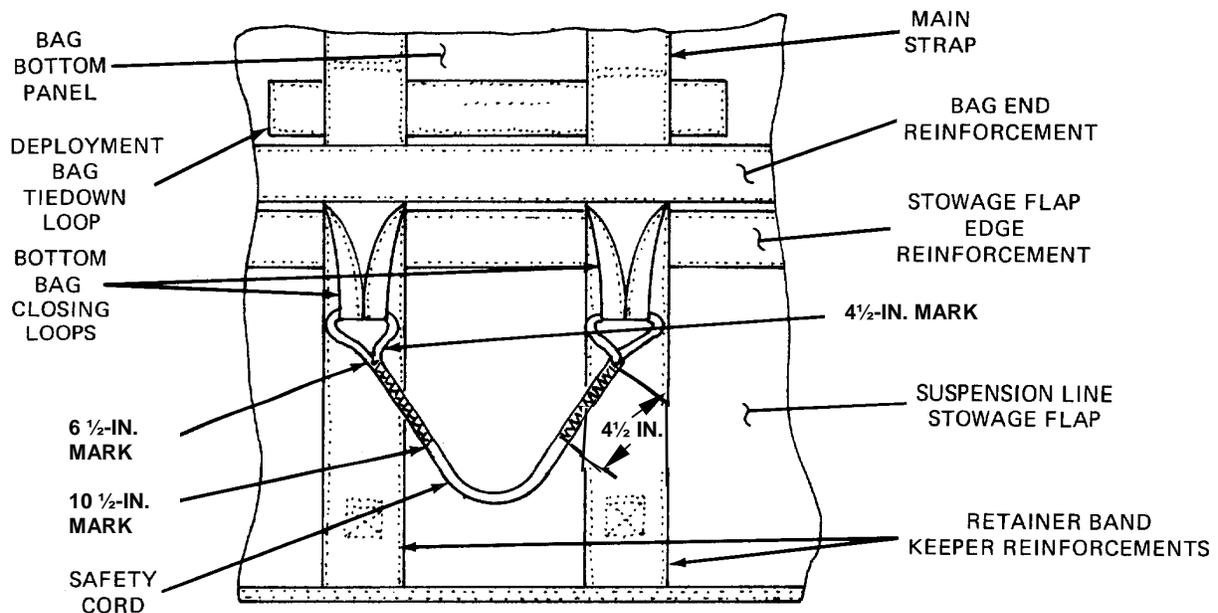


Figure 2. Safety Cord Replacement.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG STOWAGE FLAP EDGE BINDING
REPAIR

INITIAL SETUP:**Tools**

Knife (Item 6, WP 005400)
 Sewing Machine, Medium-Duty (Item 25, WP 0056 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on worktable.

Materials/Parts

Tape, Nylon, Type III, 3/4-IN., OD (Item 20, WP 0065 00)
 Thread, Nylon, Size FF (Item 27/28, WP 0065 00)

REPAIR

1. **Stitching.** Using a medium-duty sewing machine, stitch and restitch the binding tape with size FF thread, 6 to 9 stitches per inch that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least 1/2-inch. Restitch by over stitching each end of the stitch formation by 1/2-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible.
2. **Splicing.** Splice an edge binding (an unlimited number of times) as follows:
 - a. Cut a length of 3/4-inch wide nylon tape 2 inches longer than the damaged area.
 - b. Make a 1/2-inch foldunder on each end of the tape length.
 - c. Center and fold the tape lengthwise over the edge of the damaged area. Secure the splice by stitching a boxstitch formation, 1/16 inch in from each edge, along the full length of the splice material using a medium duty sewing machine. Stitching will be 6 to 9 stitches per inch, using size FF nylon thread.

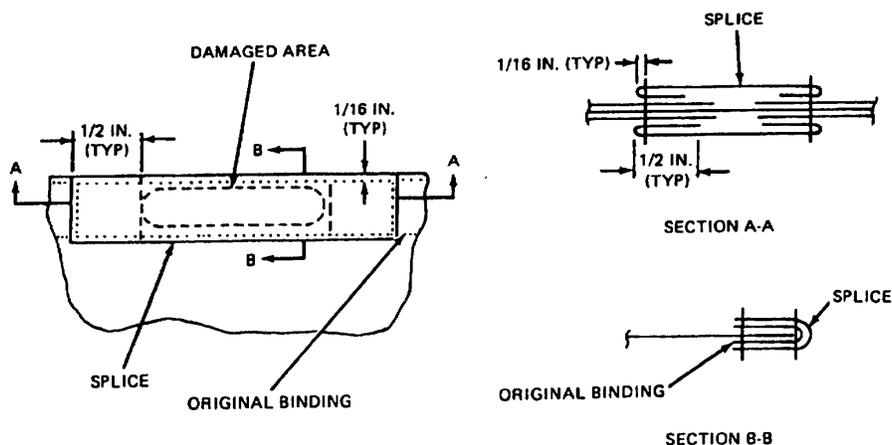


Figure 1. Edge Binding Splice Details.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG PANELS AND FLAPS
REPAIR

INITIAL SETUP:**Tools**

Pushpins (Item 13, WP 0054 00)
 Sewing Machine, Darning (Item 22, WP 0054 00)
 Sewing Machine, Light-Duty (Item 24, WP 005400)
 Shears (Item 27, WP 0054 00)
 Yard Stick (Item 30, WP 0056 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on worktable.

Materials/Parts

Cloth, Nylon Duck, 7.25 Oz. (Item 5, WP 0065 00)
 Marking Aid (Item 14, WP 0065 00)
 Thread, Nylon, Size E (Item 25/26, WP 0065 00)
 Thread, Nylon, Size FF (Item 27/28, WP 0065 00)

References

WP 0014 00, WP 0016 00

REPAIR

1. **Stitching.** Using a light-duty sewing machine with size FF nylon thread, stitch and restitch with thread that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least ½-inch. Restitch by overstitching each end of the stitch formation by ½-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitching will be 6 to 9 stitches per inch.
2. **Darning.** Darn a hole or tear that does not exceed ¾-inch in length or diameter according to procedures in WP 0014 00 using a darning sewing machine with size E nylon thread. There is no limit to the number of darns that may be made on the bag panels and flaps.
3. **Patching.** Patch a hole or tear that exceeds ¾-inch in length or diameter using 7.25-oz nylon duck cloth using procedures in WP 0014 00. There is no limit to the number of patches that may be made on the bag panels and flaps as follows:

NOTE

Patches may be applied to the inside or outside of the deployment bag.

The damaged area must be accessible, and there must be at least 1¼-inches of undamaged material remaining on all sides of the affected area.

- a. Smooth fabric around the damaged area and secure with pushpins. Do not pin the damaged area.
- b. Using a marking aid of contrasting color, mark a square or rectangle around the area to be patched; ensure one side of the marked square or rectangle is parallel to the warp or filling of the fabric.

- c. Cut the damaged area fabric along lines made in step b above. Further cut the fabric diagonally at each corner to allow a 1/2-inch foldback at the raw edges.
- d. Make a 1/2-inch foldback on each raw edge. Pin and baste each foldback to complete the prepared hole. Basting will be performed using procedures in WP 0014 00, SEWING PROCEDURES.
- e. Using nylon duck cloth, mark and cut a patch 2 1/2-inches wider and longer than the inside measurements of the prepared hole. Ensure that the patch material is marked, and cut along the warp or filling of the fabric.
- f. Center the patch material over the prepared hole and ensure the warp or filling of the patch material matches the warp or filling of the fabric being patched. Pin the patch material in position.
- g. Make a 1/2-inch foldunder on each edge of the patch material, and baste the patch to the prepared area. Basting will be performed using the procedures in WP 0014 00, SEWING PROCEDURES.
- h. Remove the pushpins securing the item to the repair table and secure the patch by stitching. Use a medium duty sewing machine and stitch 6-to-9 stitches per inch using size FF nylon thread. Make the first row of stitching completely around the patch. Turn the deployment bag inside out and make a second row of stitching around the prepared hole.

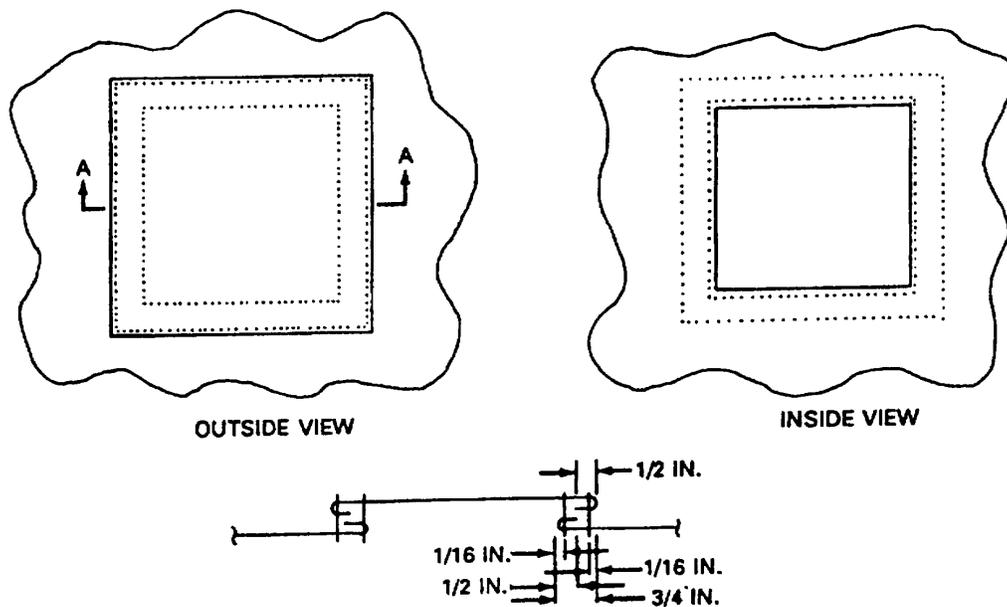


Figure 1. Patching Deployment Bag Panels and Flaps.

4. Restenciling. As required, restencil the identification markings using the procedures in WP 0016 00, MARKING AND RESTENCILLING.

END OF WORK PACKAGE

**UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG STOWAGE FLAP EDGE REINFORCEMENT
REPAIR**

INITIAL SETUP:

Tools

Knife (Item 6, WP 0054 00)
 Knife, Hot Metal (Item 7, WP 0054 00)
 Sewing Machine, Medium-Duty (Item 25, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on worktable.

Materials/Parts

Thread, Nylon, Size FF (Item 27/28, WP 0065 00)
 Tape, Nylon, Type III, 3/4-IN., OD (Item 20, WP 0065 00)

References

WP 0014 00, WP 0015 00

REPAIR

1. **Stitching.** Stitch and restitch with size FF nylon thread that matches the color of the original stitching, when possible. Lock all straight stitching by backstitching at least 1/2-inch. Restitch by overstitching each end of the stitch formation by 1/2-inch. Restitch directly over the original stitching, following the original stitch pattern as closely as possible. Stitch according to WP 0014 00 and Table 2, WP 0014 00, SEWING PROCEDURES.
2. **Splicing.** Splice a stowage flap edge reinforcement (an unlimited number of times) as follows.
 - a. Cut a length of 1-inch wide, type IV nylon tape long enough to extend 2-inches beyond each side of the damaged area; sear the ends according to WP 0015 00, SEARING AND WAXING.
 - b. Center the tape lengthwise over the damaged area including the edge binding, and secure the splice by stitching a box-stitch formation, 1/8-inch in from each edge, along the full length of the tape. Stitching will be made with a medium-duty sewing machine, 6-to-9 stitches per inch with size FF nylon thread.

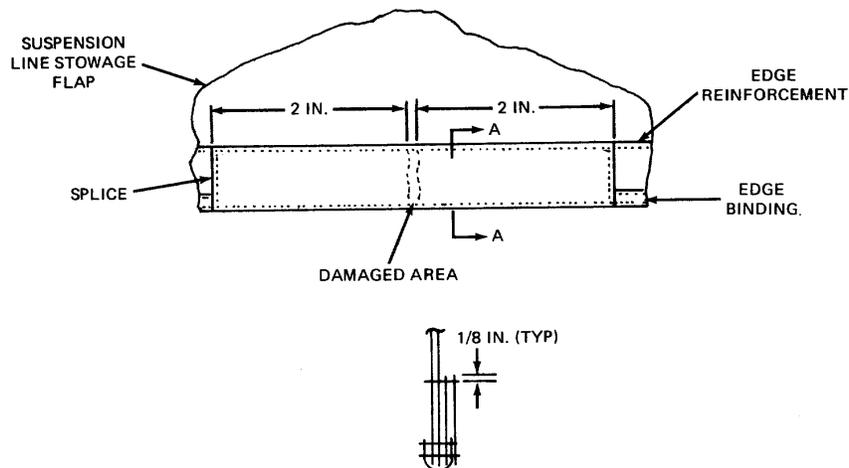


Figure 1. Stowage Flap Edge Reinforcement Splicing Details.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
ADAPTER WEB
INSPECT, SERVICE, REPAIR, REPLACE

INITIAL SETUP:**Personnel Required**

92R (10) Parachute Rigger

Reference

WP 0008 00, WP 0010 00, WP 0011 00

Equipment Condition

Cleaned.

Inspected.

Laid out on worktable.

INSPECT

Inspect the adapter web in accordance with WP 0008 00, PMCS and WP 0011 00, INSPECTION.

SERVICE

Service the adapter web by cleaning it in accordance with WP 0010 00, CLEANING AND DRYING.

CAUTION

When performing a repair on the 3-foot long adapter web that requires the cutting of stitching or tacking, ensure that adjacent webbing material is not damaged during the cutting process.

REPAIR

Refer to the individual component procedures for repair of the adapter web.

REPLACE

Replace an unserviceable/unrepairable adapter web with a serviceable one from stock.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
ADAPTER WEB LONG BUFFER
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 005400)
Needle, Tacking (Item 11, WP 0054 00)
Pot, Melting, Electric (Item 15, WP 0054 00)
Sewing Machine, Light Duty (Item 24, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Laid out on worktable.

Materials/Parts

Beeswax, Technical (Item 2, WP 0065 00)
Marking Aid (Item 14, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Thread, Cotton, Ticket No. 8/7, Natural (Item 24, WP 0065 00)
Wax, Paraffin, Type 1 (Item 31, WP 0065 00)
Webbing, Cotton, Type X, CL 2B, OD (Item 35, WP 0065 00)

REPAIR

Replace broken or loose tacking securing the long buffer in the 5-inch-long single attaching loop by retacking according to the original tacking details; use one turn double, ticket No. 8/7 waxed cotton thread at each tacking point. Secure the tacking with a square knot and locking knot; trim ends to ½-inch.

REPLACE

Replace a damaged or missing long buffer in a 5-inch-long single attaching loop by fabricating as follows:

1. If applicable, remove the original long buffer by cutting the tacking securing the buffer within the loop.
2. Cut a 7 ³/₄-inch length of 1 ³/₄-inch wide, type X cotton webbing and wax the ends.
3. Double the webbing length and align the ends. Using a light-duty sewing machine, secure the aligned ends by stitching two rows of stitching across the webbing width according to the illustration below. Stitching will be 7 to 11 stitches per inch using size E nylon thread.
4. Position the formed buffer in the original long buffer location, and secure the buffer to the attaching loop webbing by hand tacking at three points using one turn double, size 8/7 waxed cotton thread at each point. Secure the ends of each tacking point with a square knot and locking knot and trim tacking ends to ½-inch.

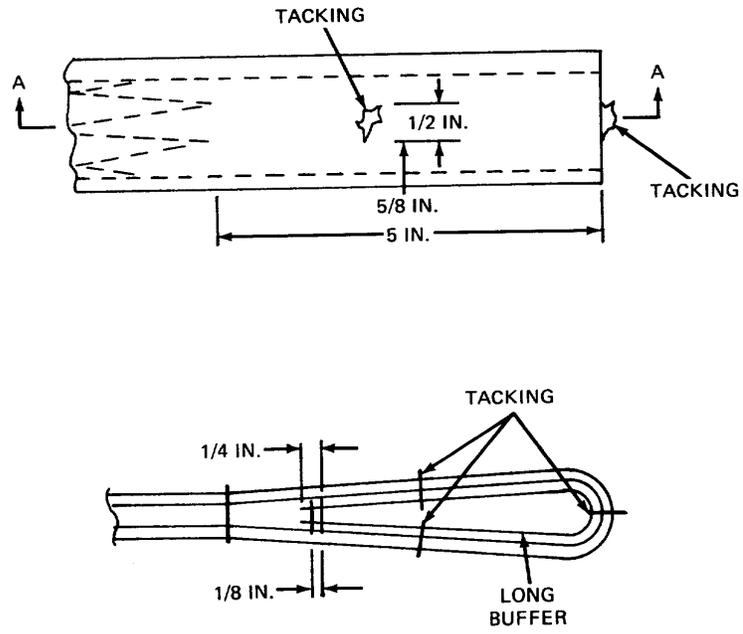


Figure 1. Long Buffer Replacement Detail.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
ADAPTER WEB SHORT BUFFER
REPAIR, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Needle, Tacking, (Item 11, WP 0054 00)
Pot, Melting, Electric (Item 15, WP 0054 00)
Sewing Machine, Light-Duty (Item 24, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Laid out on worktable.

Materials/Parts

Beeswax, Technical (Item 2, WP 0065 00)
Marking Aid (Item 14, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Thread, Cotton, Ticket No. 8/7 (Item 24, WP 0065 00)
Wax, Paraffin, Technical (Item 31, WP 0065 00)
Webbing, Cotton, Type VIII, 1 $\frac{3}{4}$ -IN., OD (Item 34, WP 0065 00)

REPAIR

Replace broken or loose tacking securing the short buffer in the 5-inch-long single attaching loop by retacking according to original tacking details using one turn double, size 8/7 waxed cotton thread at each tacking point. Secure the tacking with a square knot and locking knot. Trim the ends to $\frac{1}{2}$ inch.

REPLACE

Replace a damaged or missing short buffer in a 2-inch-long single attaching loop by fabricating as follows:

1. If applicable, remove the original short buffer by cutting the tacking securing the buffer within the loop.
2. Cut a 3 $\frac{1}{4}$ -inch length of 1 $\frac{3}{4}$ -inch wide, type VIII cotton webbing, and wax the ends.
3. Double the webbing length and align the ends. Secure the aligned ends by stitching two rows of stitching across the webbing width using a light-duty sewing machine. Stitching will be 7 to 11 stitches per inch using size E nylon thread.
4. Position the formed buffer in the original short buffer location and secure the buffer to the attaching loop by hand tacking at one point using one turn double, size 8/7 waxed cotton thread. Secure the tacking ends with a square knot and locking knot. Trim the ends to $\frac{1}{2}$ inch.

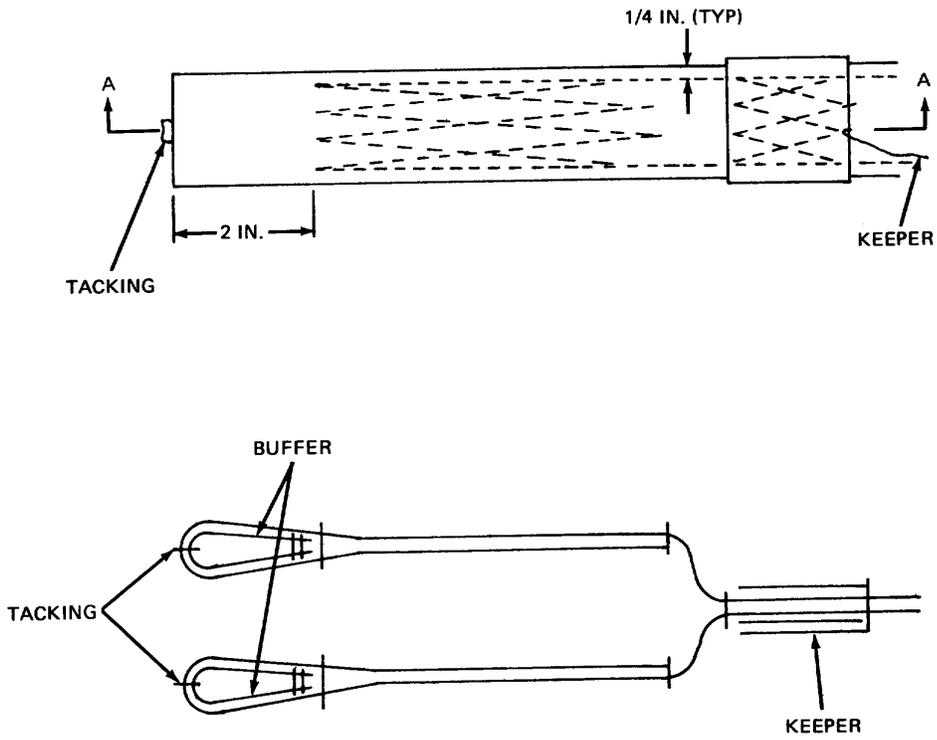


Figure 1. Short Buffer Replacement.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
STRUCTURALLY ENHANCED VENT LINES
REPAIR, MODIFY, REPLACE

INITIAL SETUP:**Tools**

Aid, Splicing (Item 1, WP 0054 00)
 Knife (Item 6, WP 005400)
 Needle, Tacking (Item 11, WP 0054 00)
 Push Pins (Item 13, WP 0054 00)
 Pot, Melting (Item 15, WP 0054 00)
 Sewing Machine, Light-Duty (Item 24, WP 0054 00)
 Sewing Machine, Medium-Duty (Item 25, WP 0054 00)
 Sewing Machine, Zigzag (Item 26, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yardstick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Laid out on work table.

Reference

WP 0014 00

Materials/Parts

Beeswax, Technical (Item 2, WP 0065 00)
 Marking Aid (Item 14, WP 0065 00)
 Tape, Lacing and Tying (Item 19, WP 0065 00)
 Thread, Nylon, Size 3 (Item 29/30, WP 0065 00)
 Thread, Nylon, Size E (Item 25/26, WP 0065 00)
 Wax, Paraffin, Technical (Item 31, WP 0065 00)
 Webbing, Cotton, Type IIa (Item 33, WP 0065 00)
 Webbing, Nylon, Tubular, 9/16-Inch (Item 36, WP 0065 00)
 Webbing, Nylon, Type VIII (Item 38, WP 0065 00)

REPAIR

Restitch broken or loose thread using a zigzag sewing machine and size E nylon thread, 7 to 10 stitches per inch as described in WP 0014 00 and WP 0014 00, Table 2. Stitch over the original stitch pattern. Overstitch 1/8 inch to lock the stitches.

MODIFY

Modify the 15-foot extraction parachute for use as a drogue parachute as follows:

NOTE

This modification is intended for those units who use the 15-foot extraction parachute for drogue operations on a C-17 aircraft. However, once modified the structurally enhanced 15-foot extraction parachute can be used as an extraction parachute on all **Air Force** aircraft.

1. Lower Lateral Band. Modify the lower lateral band as follows:
 - a. Grasp the lower lateral band and locate line 1. On the lower lateral band, measure in $\frac{1}{4}$ -inch on either end of the radial webbing, and mark. Then measure and mark 1 inch above and 1 inch below the lower lateral band.
 - b. Using a zigzag sewing machine and size E nylon thread, stitch two 3-inch vertical zigzag stitches, 7 to 10 stitches per inch and $\frac{3}{8}$ -inch wide.
 - c. Repeat the procedure in step a. and b. for each of the 16 radial webbings.

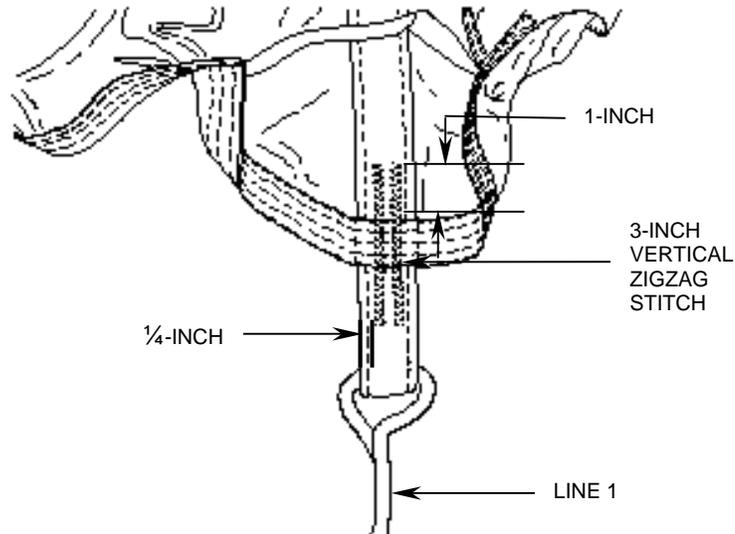


Figure 1. Modification of Lower Lateral Band.

NOTE

Panel edge reinforcement will be added or incorporated into every leading and trailing edge of each gore ring-slot. If a canopy has a box-X stitch formation, reinforce it with a double-throw zigzag stitch formation.

2. Gore Panel Reinforcement. All panel edge reinforcements (108 of them) must be reinforced with an additional 3-inch double-throw zigzag reinforcement stitch. If all are not, place an additional 3-inch double-throw zigzag reinforcement stitch horizontally and centered on each of the 108 panel edge reinforcements where they intersect the radial webbing. Use the stitching specifications detailed in step 1b.

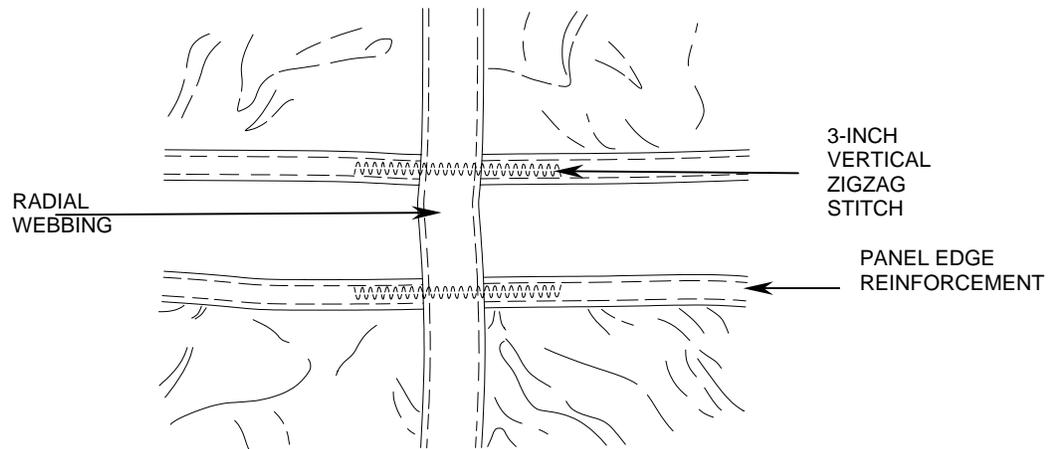


Figure 2. Gore Panel Reinforcement.

REPLACE

Replace the vent lines by fabricating as follows:

1. Using shears, remove the original vent lines by cutting the Type IV braided nylon webbing $\frac{1}{4}$ inch above upper lateral band. Do not sear the Type IV braided nylon webbing.

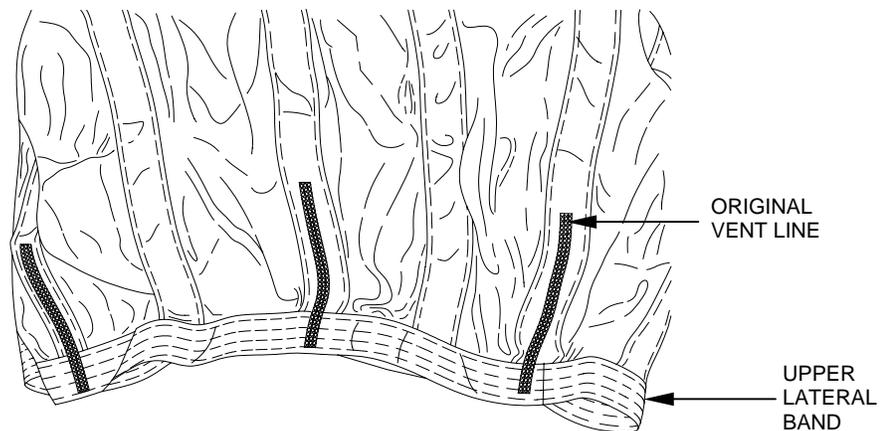


Figure 3. Fabrication Of Replacement Vent Lines.

2. Cut four 11-inch lengths of 2-inch-wide Type II cotton webbing to be used as an apex vent line sleeve.
3. Cut four 20-inch lengths and one 8-inch length of 9/16-inch tubular nylon webbing to be used as vent lines and the bridle centering line. Sear the ends.
4. Using a suitable marking aid, from each end of the 9/16-inch tubular nylon, measure in 4-inches from each webbing end and mark.

5. Fold each 11-inch length of 2-inch cotton webbing in half, lengthwise. Using a light duty sewing machine and size E, nylon thread, 7 to 11 stitches per inch, begin sewing 1/8-inch in from the edge and sew the entire length of the webbing.
6. Wax ends of 11-inch cotton webbing a minimum 1/2-inch on each end.

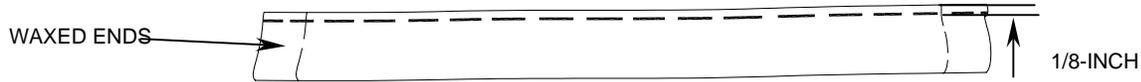


Figure 4. Construction Of Vent Line Sleeve.

7. Using a splicing aid, route each 20-inch length of 9/16-inch tubular nylon through each of the four (4) 11-inch cotton webbing sleeves. Ensure the cotton sleeve is centered on the 9/16-inch tubular nylon approximately 1/2 inch from each 4 inch mark.
8. Using a suitable marking aid, on the 8-inch length of 9/16-inch tubular nylon, make a mark in the center (4 inches) and 2 1/2 inches in from the end.
9. Using a suitable marking aid, mark each vent line (with cotton sleeve) in the center of the cotton sleeve (4-inches).
10. Grasp one vent line with cotton sleeve, place the 8-inch length of 9/16-inch tubular nylon webbing (bridle centering line) on top of the cotton sleeve making sure to align the center mark.
11. Using a zigzag sewing machine and size E, nylon thread, 7 to 10 stitches per inch, secure the bridle centering line to the vent line (with sleeve) by stitching a 1/4-inch-wide by 3-inch-long row of double-throw zigzag stitching from the 2 1/2-inch mark made in step 8. to a point 1/2-inch beyond the tubular nylon end.

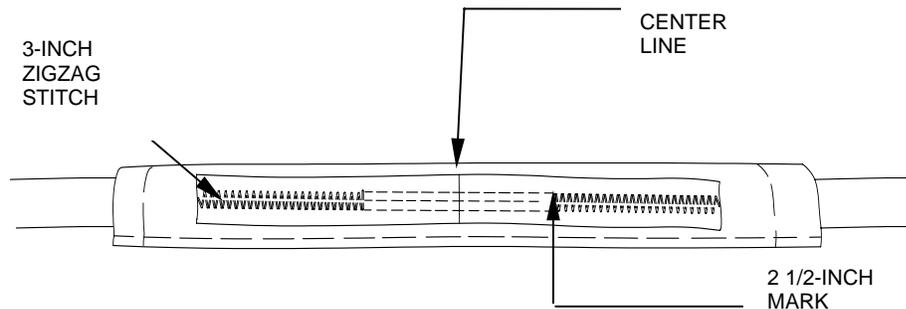


Figure 5. Bridle Centering Line Sewn to Vent Line.

12. Assemble the vent line, prior to installation as follows:
 - a. Place, face down, the vent line with the bridle centering line attached and stack the three remaining vent lines on top making sure to align each centering mark.

NOTE

The use of tape lacing and tying thread is to aid in the attachment of the apex vent lines. If the tape lacing and tying thread is eventually broken, replacement is not necessary.

- b. Using tape lacing and tying thread, thread a tacking needle from top to bottom through each of the four vent lines making sure not to route the needle through the bridle centering line located at the bottom. Route the needle from bottom to top and tie the lacing with a surgeon's knot and locking knot.

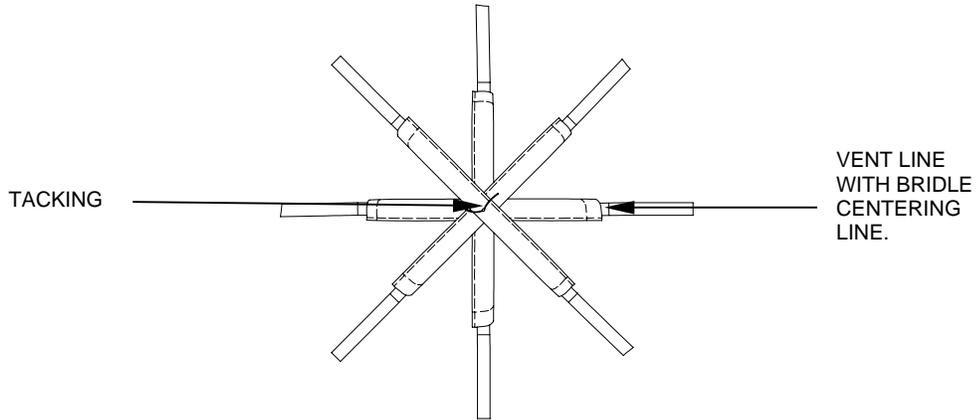


Figure 6. Vent Lines Stacked and Tacked.

- 13. Fabricate a bridle loop in accordance with WP 0018 00. Ensure the bridle loop is routed through the bridle centering line of the vent line prior to sewing.

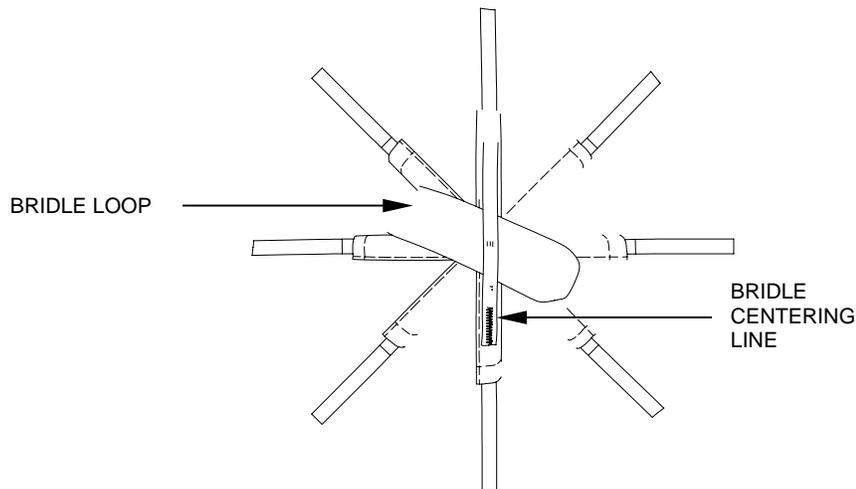


Figure 7. Bridle Loop Attachment.

14. Attach the apex vent lines to the upper lateral band as follows:

- a, Starting with the vent line containing the bridle centering line, temporarily pin the vent line to the vacant radial webbing using t-pins. Make sure to align the previously made 4-inch mark with the top of the upper lateral band.

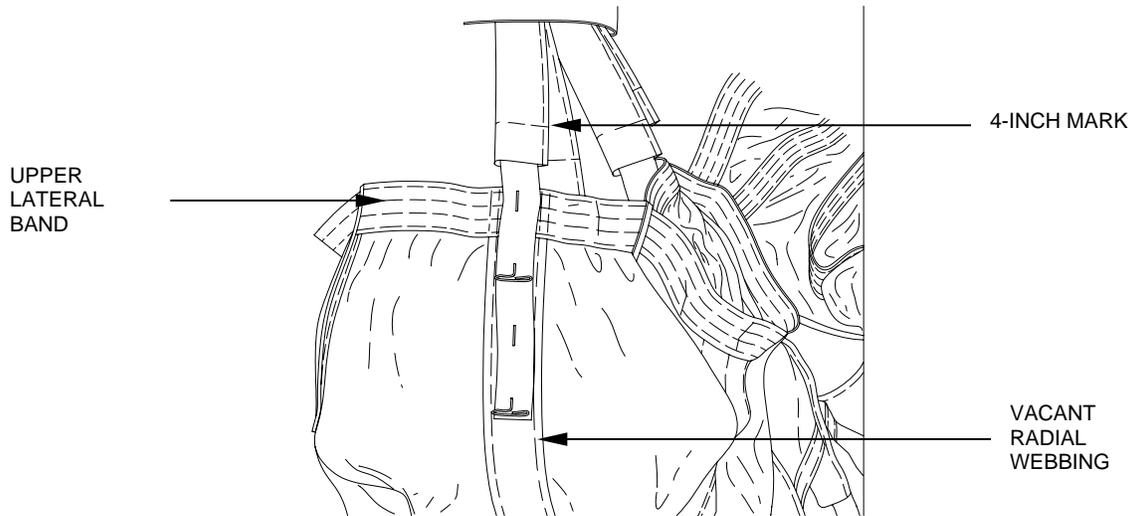


Figure 8. Vent Line Temporarily Attached.

- b. In sequential order, pin the three remaining vent lines to each vacant webbing.

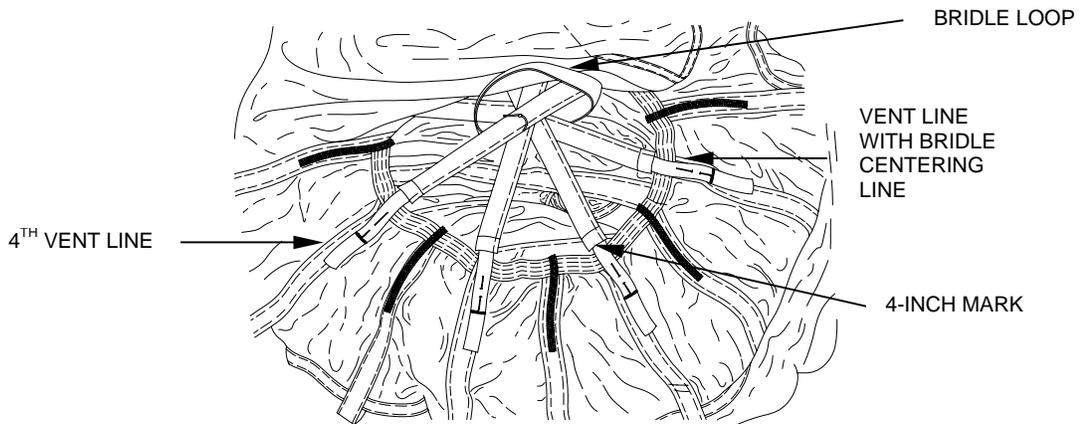


Figure 9. Remaining Vent Lines Temporarily Attached.

- c. Using a medium duty sewing machine and size 3, nylon thread, stitch the new line in place. Begin stitching on the vent line ¼-inch above the lateral band and sew to ¼-inch beyond the end of the line, 5 to 8 stitches per inch and ¼-inch-wide.

- d. Position and sew the remaining end of the lines to the opposite side of the canopy making sure to align the ends on the vacant radial webbing as indicated in step 13 above.

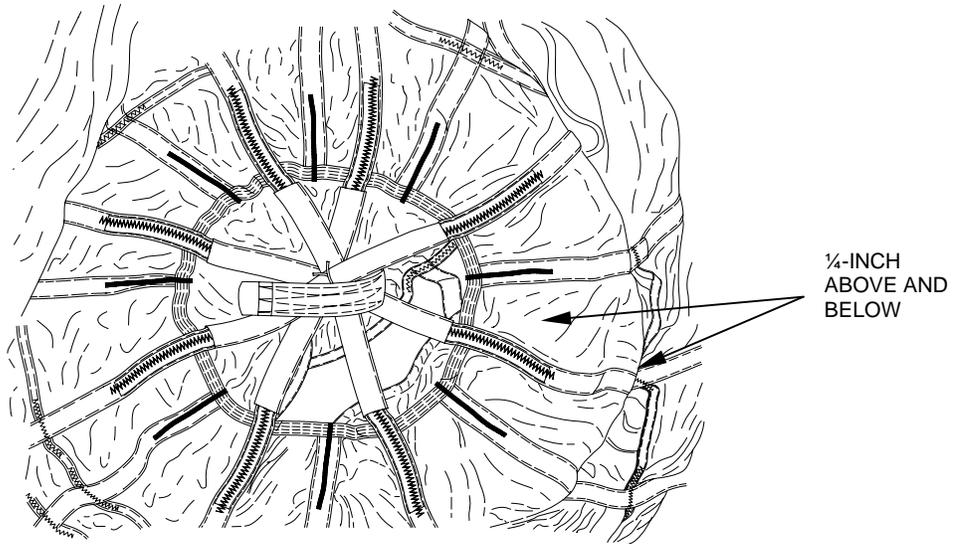


Figure 10. Vent Lines Attached.

END OF WORK PACKAGE

UNIT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
DEPLOYMENT BAG MODIFICATION (UNIVERSAL)
REPAIR, MODIFY, REPLACE

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Knife Hot Metal (Item 7, WP 0054 00)
Sewing Machine, Light-Duty (Item 24, WP 0054 00)
Sewing Machine, Medium-Duty (Item 25, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Materials/Parts

Marking Aid, (Item 14, WP 0065 00)
Thread, Nylon, Size 3 (Item 29/30, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Webbing, Nylon, Type VIII (Item 38, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

All equipment will be serviceable and ready for use.

Reference

WP 0014 00, WP 0033 00

REPAIR

Stitch and restitch broken or loose thread as described in WP 0014 00 and WP 0014 00, Table 2. Stitch over the original stitch pattern.

MODIFY

Modify the 15-Foot Diameter Cargo Extraction Parachute as follows:

NOTE

Cut the deployment bridle loop strap well beyond the apex opening but not beyond the existing stitch pattern. Do not remove the apex opening reinforcement.

1. Remove the deployment bag bridle loop strap from the deployment bag, and sear the ends.

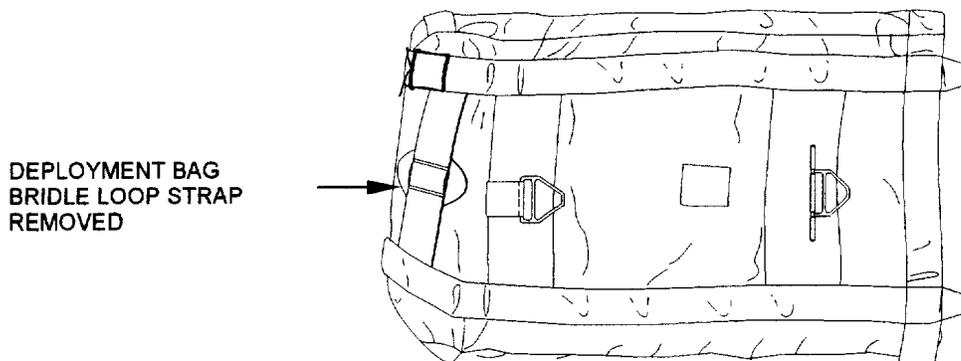


Figure 1. Bridle Loop Strap Removed.

2. Cut two 24-inch lengths of type VIII nylon webbing and sear the cut ends.
3. Form a 4-inch roll in the center of each strap. Using a light duty sewing machine and size E nylon thread, 7 to 11 stitches per inch, stitch around the roll and across the center of the roll.

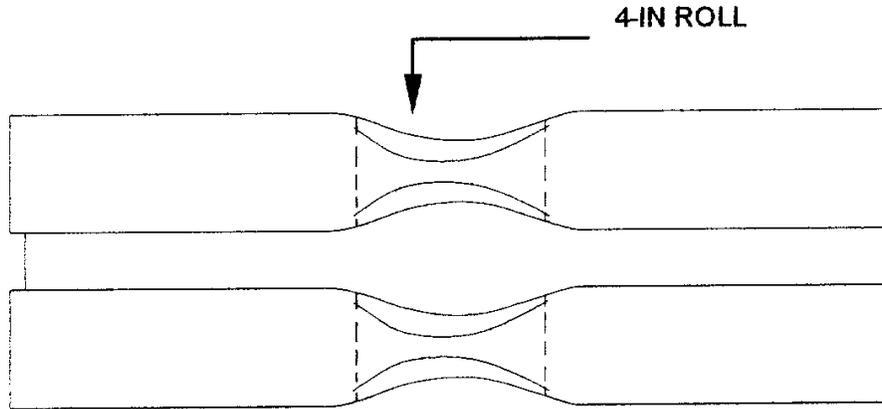


Figure 2. 4-Inch Roll.

4. Where the type VIII reinforcement webbing intersects the 1½-inch reinforcement tape (located at the bottom end of the d-bag), measure up 5 inches and mark each side.

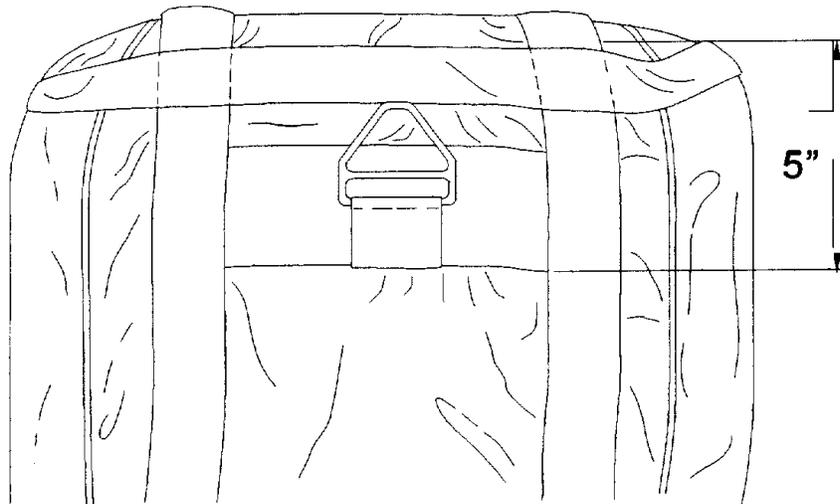


Figure 3. Reinforcement Webbing Marked.

5. Place a bridle strap (sewn portion to the outside), on the pre-marked type VIII reinforcement webbing and using a medium duty sewing machine, 5 to 8 stitches per inch, sew one end of a bridle strap (on each side of the bag) with a 5-inch, four point WW stitch formation with size 3 nylon thread.
6. Cross the bridle straps diagonally over the end of the bag. Using a medium duty sewing machine, 5 to 8 stitches per inch, sew the free ends of each bridle strap to the type VIII reinforcement webbing on the opposite side of the bag with a 5-inch, four-point WW stitch formation with size 3 nylon thread.

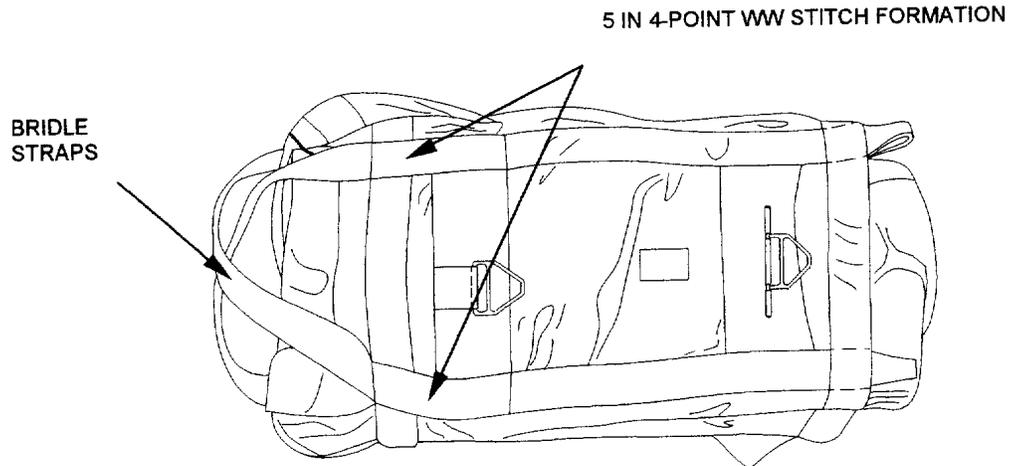


Figure 4. Bridle Straps Attached.

7. Reattach the pendulum line to the deployment bag bridle straps using the in procedures in WP 0033 00.

END OF WORK PACKAGE

TM 10-1670-278-23&P

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS FOR PARACHUTE, CARGO TYPE: 15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE

**DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
VENT LINES
REPLACE**

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Pot, Melting, Electric (Item 15, WP 0054 00)
Sewing Machine, Zig-Zag (Item 26, WP 0054 00)
Shears (Item 27, WP 0054 00)

Materials/Parts

Beeswax, Technical, 1LB (Item 2, WP 0065 00)
Cord, Nylon, Type IV, Coreless ((Item 8, WP 0065 00)
Marker, Black (Item 12, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Wax, Paraffin (Item 31, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, canopy laid flat.

Reference

WP 0045 00

REPLACE

Replace missing or damaged vent lines as follows:

1. Place the canopy in proper layout on table and trace the damaged vent line from end-to-end. Using a marker, mark the canopy at each end of the vent line.
2. Remove the damaged vent line by cutting the stitching that holds the line to the canopy at both sides of the vent.
3. Cut a 20-inch length of type IV, coreless nylon cord. Sear or dip the ends of the cord.
4. Position one end of the new vent line in the exact location formerly occupied by the end of the old line.

NOTE

Measuring from the outside edge of the upper lateral band, the vent line should extend 4-inches into the radial webbing.

5. Using a zig-zag sewing machine and size E, nylon thread, stitch the new line in place. Begin stitching on the line $\frac{1}{4}$ -inch above the upper edge of the vent reinforcement tape and sew to $\frac{1}{4}$ -inch beyond the end of the line, 7 to 10 stitches per inch and $\frac{1}{8}$ -inch wide.

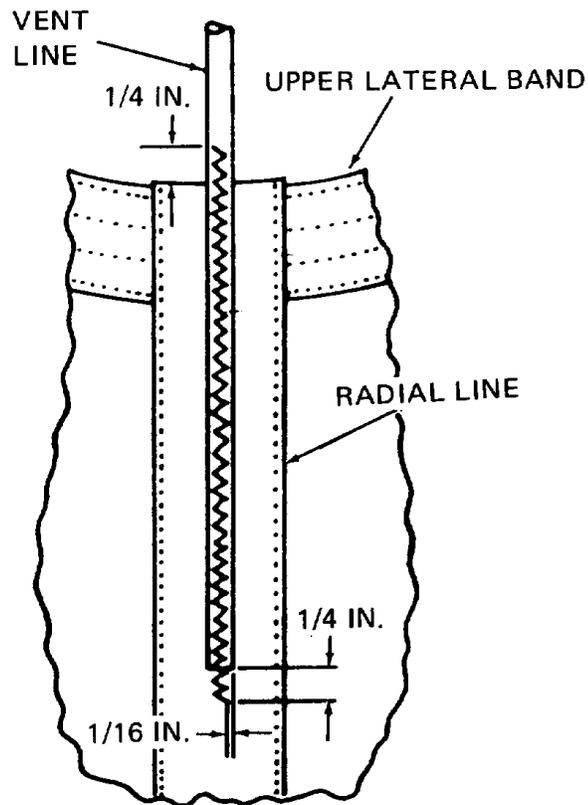


Figure 1. Vent Line Replacement Details.

6. Pass the remaining end of the line under the other vent lines, and through the bridle loop and bridle-centering loop as required.
7. Position and sew the remaining end of the line to the opposite side of the canopy as in steps (4) and (5) above.
8. For the enhanced 15-foot extraction parachute, replace the vent lines IAW WP 0045 00 as applicable.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
BRIDLE CENTERING LINE
REPLACE**

INITIAL SETUP:**Tools**

Knife (Item 6, WP 0054 00)
Knife, Hot Metal (Item 7, WP 0054 00)
Needle, Tacking (Item 11, WP 0054 00)
Sewing Machine, Zig-Zag (Item 26, WP 0054 00)
Shears (Item 27, WP 0054 00)

Materials/Parts

Cord, Nylon, Type IV, Coreless (Item 8, WP 006500)
Marking Aid (Item 14, WP 0065 00)
Tape, Lacing and Tying (Item 19, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, canopy laid flat.

Reference

WP 0014 00, WP 0015 00,
WP 0045 00

REPLACE

Replace a damaged bridle centering line by fabricating as follows:

1. Remove the original bridle centering line by cutting stitching that secures each end of the line to an attaching vent line.
2. Cut a $7\frac{3}{4}$ -inch length of type IV coreless nylon cord, and sear the ends IAW WP0015 00.
3. Using a suitable marking aid, mark the cord length at the center and at a point $1\frac{3}{8}$ inches on each side of the center mark.
4. Position the cord length in the original centering line location and temporarily hand tack the cord ends to the attaching vent line using the temporary tacking procedures outlined in WP 0014 00. Ensure all vent lines pass freely through the loop formed at the center of the tacked line.
5. Using a zig-zag sewing machine and size E nylon thread, secure each end of the bridle centering line to the attaching vent line by stitching a $\frac{3}{16}$ -inch-wide by $2\frac{5}{8}$ -inch-long row of double-throw, zig-zag stitching from the $1\frac{3}{8}$ -inch mark (made in step 3 above) to a point $\frac{1}{8}$ inch beyond the end of the cord. The stitching will be 7-to-10 stitches per inch using the specifics in Table 2, WP 0014 00. Remove the tacking made in step 4 above.

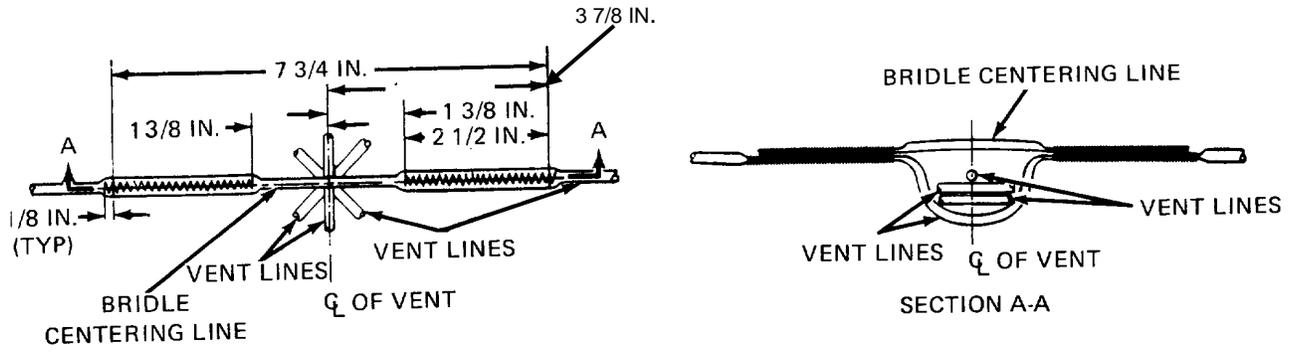


Figure 1. Bridle Centering Line Details.

6. For the enhanced 15-foot extraction parachute, replace the bridle centering line IAW WP 0045 00, as applicable.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
GORE SECTION
REPLACE**

INITIAL SETUP:**Tools**

Brush, Stenciling (Item 3, WP 0054 00)
Knife (Item 6, WP 0054 00)
Needle, Tacking (Item 11, WP 0054 00)
Push Pins (Item 13, WP 0054 00)
Sewing Machine, Darning (Item 22, WP 0054 00)
Sewing Machine, Light Duty (Item 24, WP 0054 00)
Shears (Item 27, WP 0054 00)
Yardstick (Item 30, WP 0054 00)

Materials/Parts

Cloth, Nylon, Parachute, 2.25 Ounce (Item 6, WP 0065 00)
Thread, Nylon, Size E (Item 25/26, WP 0065 00)
Wax, Paraffin (Item 31, WP 0065 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
Inspected.
Unpacked, canopy laid flat.

References

WP 0014 00, WP 0016 00

REPLACE

When replacing gore sections, use 2.25-ounce nylon parachute cloth of the same color as that being replaced. If the same color cloth is not available, another color may be used. When replacing section 1 of gore 1, restencil the gore number and information data block on the replacement section. For other gores, stencil the gore numbers as necessary using procedures in WP 0016 00. A gore section that is damaged beyond repair will be replaced as follows:

1. Gore Panel Replacement.
 - a. Invert the canopy and locate the damaged gore.
 - b. Remove the items that may interfere with the gore panel replacement by cutting the stitching. Lay the items aside.
 - c. Smooth out and secure the surrounding canopy material to the table with pushpins. Ensure that the adjacent lateral and radial webbings are straight and that the damaged gore panel is not distorted.
 - d. Remove the damaged gore panel by cutting the material at a point ½-inch in from the adjacent webbing or edge.

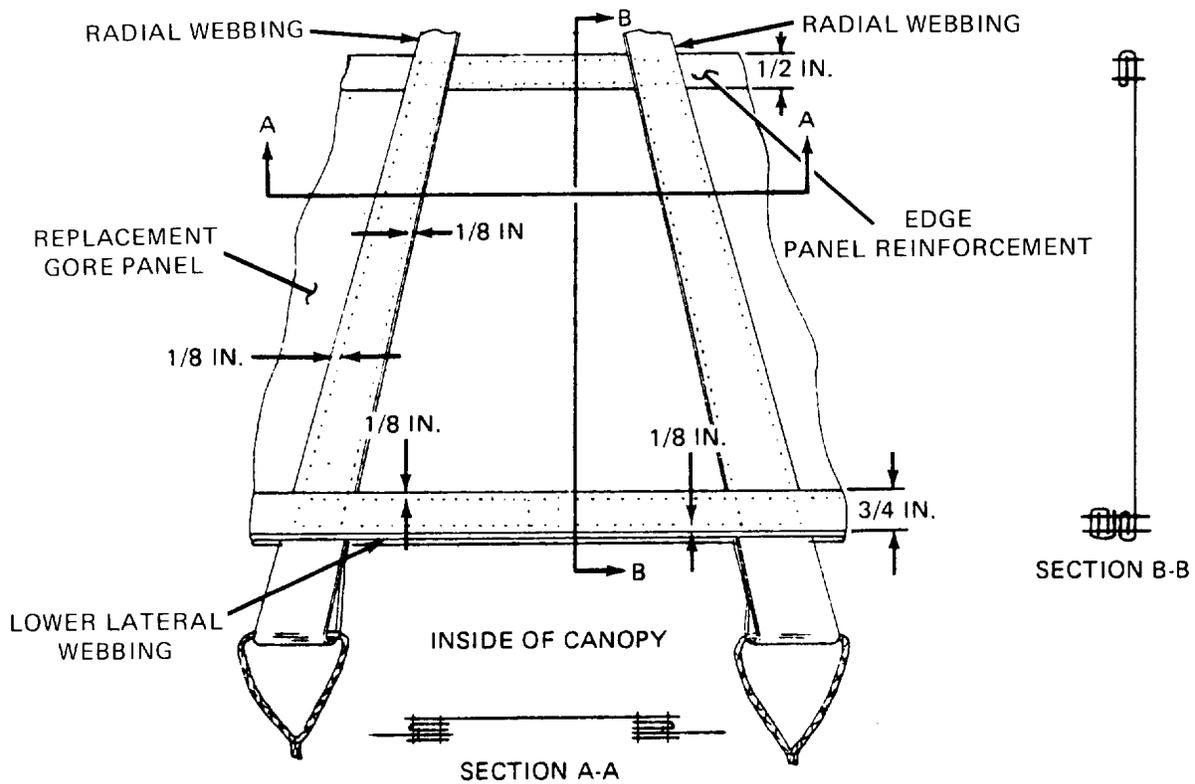


Figure 1. Gore Panel Replacement.

- e. Cut the remaining material diagonally at each corner. Fold each raw edge back by 1/2-inch. Pin and baste the raw edges (WP 0014 00) to complete the area preparation.
- f. Cut a piece of 2.25-ounce nylon cloth to a size that will cover the entire prepared area. Maintain the salvaged edge of the cloth piece, if possible. Allow at least 3 inches of extra fabric to remain on each raw edge.
- g. Fold under the salvaged edge of the cloth piece to a width equal to the width of the adjacent seam and align the cloth folded edge with the outside edge of the adjacent seam or lateral band. Secure the folded edges with push pins.
- h. Fold the raw edges of the cloth piece as follows:
 - (1) Fold under the raw edges located adjacent to the edge reinforcements and a lateral band, as applicable, and align the folded edges with the outside edges of the reinforcements on the lateral band. Secure these folds with push pins.
 - (2) Fold under the raw edges located along the radial seams and align the folded edges with the outside edges of the radial seams. Secure these folds with push pins.
- i. Secure the replacement section cloth to the canopy material by basting along each of the folded edges. Basting will be made in accordance with WP 0014 00.

- j. Remove the push pins from the edges of the replacement section and secure the section material to the inside of the canopy using a light duty sewing machine and size E nylon thread. Stitching will be 7 to 11 stitches per inch.
- k. Turn the canopy section right side out and trim the raw edges of the section material to a point $\frac{1}{2}$ inch from the stitching made in j. above.
- l. On the outside of the canopy, using a light duty sewing machine and size E nylon thread, stitch completely around the prepared area. Stitching will be 7 to 11 stitches per inch.
- m. Remove basting and reinvert canopy to the outside.
- n. Restore items laid aside in step 1. b., above. Refer to the applicable work package for detailed instructions.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SUSPENSION LINE
REPLACE**

INITIAL SETUP:**Tools**

Aid, Splicing (Item 1, WP 0054 00)
 Knife (Item 6, WP 0054 00)
 Sewing Machine, Light Duty (Item 24, WP 0054 00)
 Sewing Machine, Zig-Zag (Item 26, WP 0054 00)
 Shears (Item 27, WP 0054 00)
 Yard Stick (Item 30, WP 0054 00)

Personnel Required

92R (10) Parachute Rigger

Equipment Condition

Cleaned.
 Inspected.
 Unpacked, canopy laid flat.

Materials/Parts

Cord, Nylon, Type IV, Coreless (Item 8, WP 0065 00)
 Marker, Felt-Tip, Black (Item 12, WP 0065 00)
 Thread, Nylon, Size E (Item 25/26, WP 0065 00)

REPLACEMENT

Replace an unserviceable suspension line by fabricating as follows:

1. Place the canopy assembly in proper layout on an inspection table.
2. Apply partial tension to the suspension lines and trace the defective suspension line from the connector link to the suspension line attaching the loop at the canopy skirt. Upon completion of the line tracing, release line tension.
3. Remove the original suspension line from the canopy by cutting the formed loop located at the upper end of the suspension line.
4. Cut a length of type IV coreless nylon 24 inches longer than the distance from the canopy to the connector link. Taper cut one end.
5. Using a suitable marking aid, mark the cord at 6, 9, and 15 inches from the tapered end.

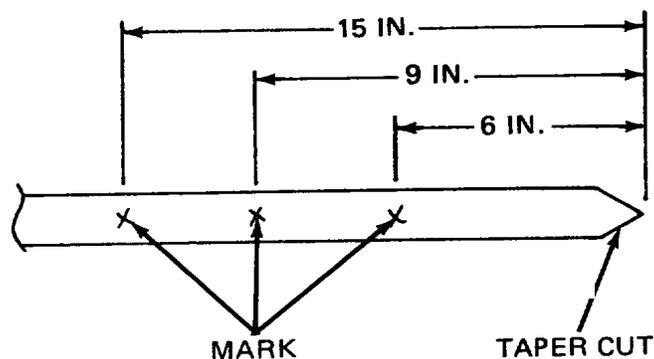


Figure 1. Right Side Replacement Suspension Line Construction Details.

6. Pass 7¹/₂ inches of the tapered cord end through the original suspension-line attaching loop.
7. Insert a splicing aid through the cord casing at the 15-inch mark and pass the inserted aid up through the cord casing, exiting at the 9-inch mark.
8. Thread the tapered end of the cord through the eye of the splicing aid.
9. Pull the splicing aid and cord (tapered end down) inside the cord casing until the 6- and 9-inch marks are aligned (see illustration below).
10. Holding the aligned marks together, pull the splicing aid and cord (with tapered end down) outside of the casing at the 15-inch mark.
11. Remove the tapered end of the cord from the splicing aid, and while holding the 6- and 9-inch marks together, pull the cord at a point below the 11-inch mark to allow the tapered end of the cord to withdraw into the cord casing.
12. Begin at a point as close as possible to the aligned 6- and 9-inch marks, use a zig-zag sewing machine and size E nylon thread to secure the formed loop by stitching a ¹/₈-inch-wide, 3-inch-long row of stitching. The stitching will be 7-to-10 stitches per inch.

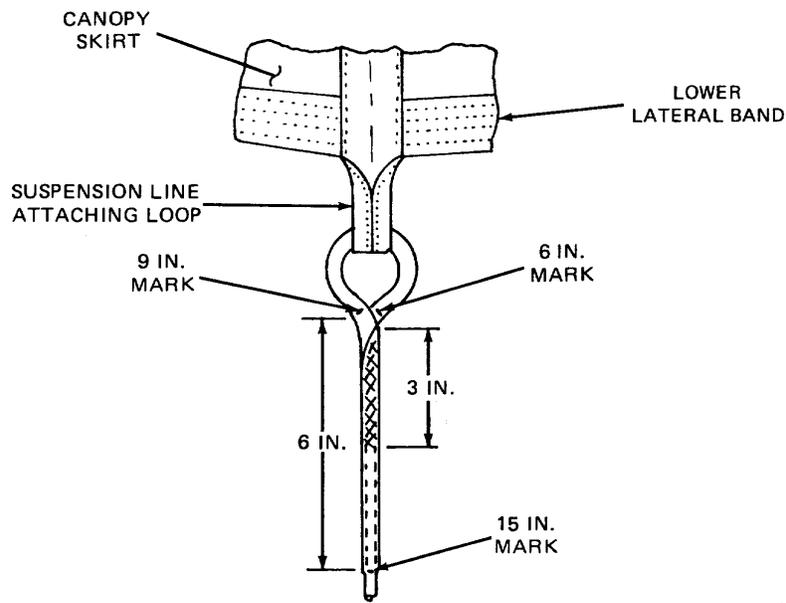


Figure 2. Securing Suspension Line at Suspension Line Attaching Loop.

13. Holding the attaching loop of an adjacent suspension line and the attaching loop of the replacement suspension line together at the canopy skirt, and while lines are under equal tension, trace the length of both lines from the canopy attaching loops to the applicable connector link assembly.
14. Using a marking aid of contrasting color, mark the replacement line length at a point aligned with the inside edge of the link assembly. Reapply equal tension to both line lengths and check to ensure the replacement line length is marked correctly. Release tension.

15. Cut and remove the lower end of the original suspension line from the connector link assembly, and note the original location.
16. Cut the running end of the replacement line at a point 7 inches beyond the 6-inch mark made in step 14 above (taper cut $\frac{1}{2}$ inch of the remaining line end).
17. Using an authorized marking aid of contrasting color, mark the line length at 6-, 8-, and 14-inches from the tapered running end.

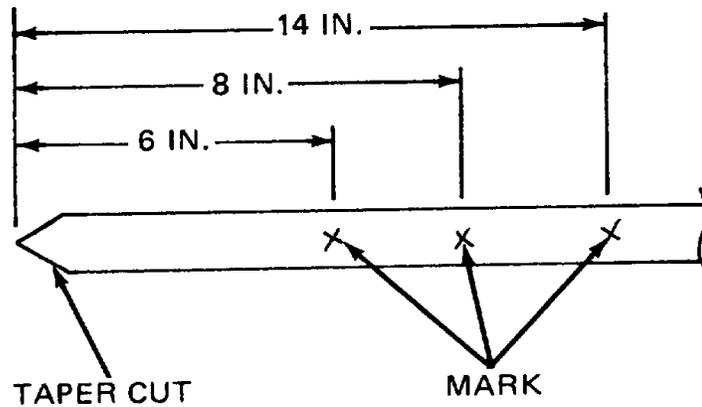


Figure 3. Left Side Replacement Suspension Line Construction Details.

18. Pass 7 inches of the line through the connector link in the original line location. The suspension lines should be attached to the riser in numerical sequence as shown below.

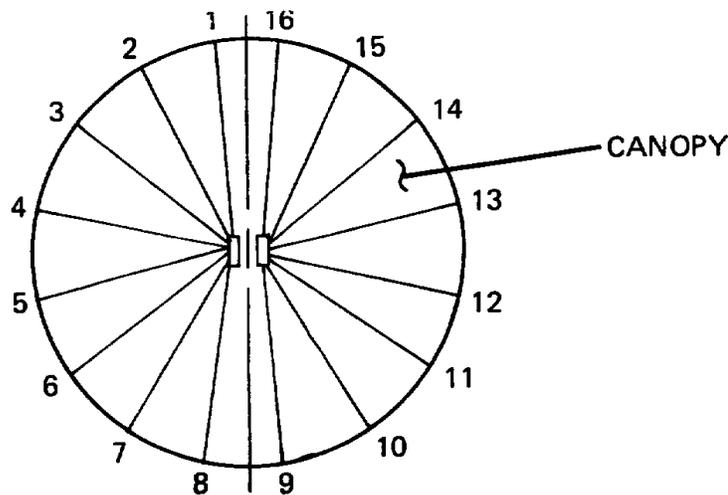


Figure 4. Suspension Line Numerical Sequence.

19. Insert a splicing aid through the cord casing at the 14-inch mark and pass the inserted aid down through the cord casing to the outside at the 8-inch mark.
20. Thread the tapered end of the cord through the eye of the splicing aid.
21. Pull the splicing aid and cord (tapered end up) inside the cord casing until the 6- and 8-inch marks are aligned (see illustration below).
22. Holding the aligned marks together, pull the splicing aid and cord (with tapered end up) outside of the casing at the 14-inch mark.
23. Remove the tapered end of the cord from the splicing aid, and while holding the 6- and 8-inch marks together, pull the cord at a point below the 14-inch mark to allow the tapered end of the cord to withdraw into the cord casing.
24. Begin at a point as close as possible to the aligned 6- and 8-inch marks and working towards the canopy, use a zig-zag sewing machine and size E nylon thread to secure the formed loop by stitching a $\frac{1}{8}$ -inch-wide, 3-inch-long row of stitching. The stitching will be 7 to 10 stitches per inch.

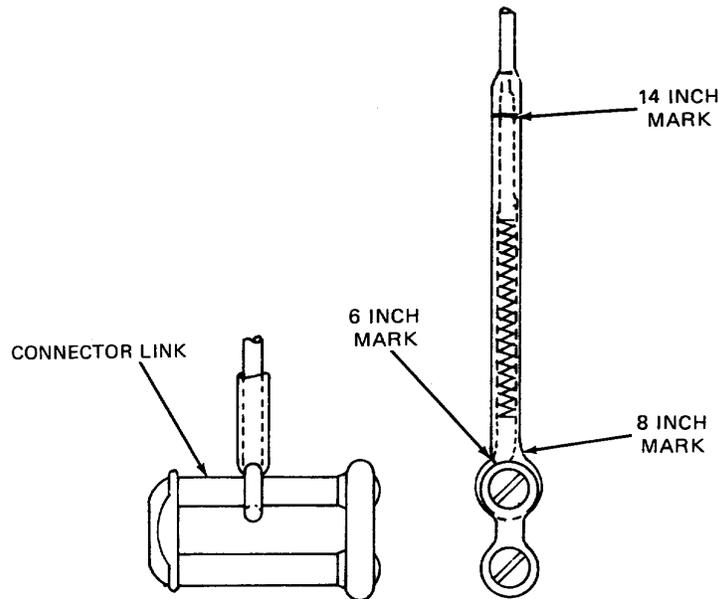


Figure 5. Securing Suspension Line To Connector Link.

25. Trace replacement line from connector link to suspension line attaching loop to ensure proper attachment, position and sequence.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
ILLUSTRATED LIST OF MANUFACTURED PARTS**

INTRODUCTION

SCOPE

This work package includes complete instructions for making items authorized to be manufactured or fabricated at unit and direct support maintenance.

Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included in Figure 1.

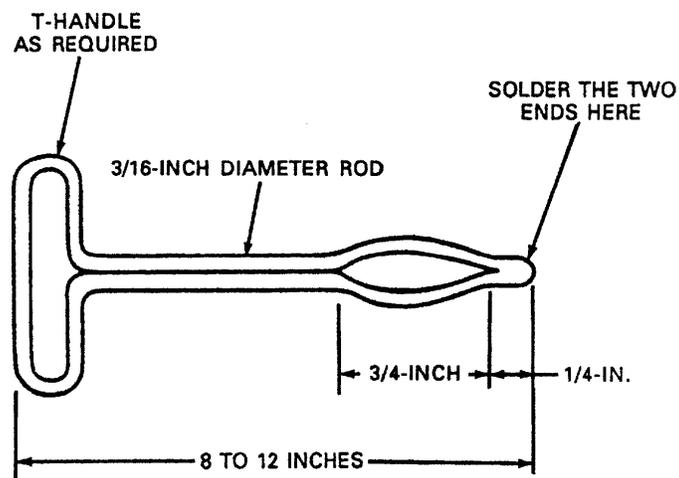


Figure 1. Splicing Aid Fabrication.

END OF WORK PACKAGE

CHAPTER 6
SUPPORTING INFORMATION
FOR
PARACHUTE, CARGO TYPE:
15-FOOT DIAMETER, CARGO
EXTRACTION PARACHUTE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
REFERENCES**

SCOPE

This appendix lists all forms, technical manuals, and miscellaneous publications referenced in this manual.

PUBLICATION INDEXES

The following publication indexes should be consulted frequently for the latest changes or revisions of references given in this work package, and for new publications relating to the material covered in this manual:

PAMPHLETS

Consolidated Index of Army Publications and Blank Forms	DA PAM 25-30
Functional Users Manual for The Army Maintenance Management System (TAMMS)	DA PAM 738-750
Functional Users Manual for The Army Maintenance Management System (Aviation) (TAMMS-A)	DA PAM 738-751

TECHNICAL MANUALS

General Maintenance of Parachutes and Other Airdrop Equipment	TM 10-1670-201-23/ T.O. 13C-1-411/ NAVAIR 13-1-17
Ancillary Equipment for Low Velocity Air Drop System (LVADS)	TM 10-1670-296-20&P T.O. 13C7-4911
Preservation, Packaging, Packing of Military Supplies and Equipment (Vols. 1 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

FIELD MANUALS

Airdrop of Supplies and Equipment: Information Rigging Airdrop Platform	FM 4.20.120 (FM 10-500-2)
First Aid for Soldiers	FM 4-25.11 (FM 21-11)

ARMY REGULATIONS

Dictionary of United States Army Terms	AR 310-25
Authorized Abbreviation and Brevity Codes and Acronyms	AR 310-50
Packaging of Material	AR 700-15
Army Material Maintenance Concepts and Policies	AR 750-1
Air Drop, Parachute Recovery and Aircraft Personal Escape Systems	AR 750-32
Reporting of Item and Packaging Discrepancies	AR 735-11-2
Reporting of Transportation Discrepancies in Shipments	AR 55-38

TECHNICAL BULLETINS

Maintenance Expenditure Limits for FSC Group 16, FSC Class 1670	TB 43-0002-43
Use of Material Condition Tags and Labels on Army Aeronautical and Air Delivery Equipment	TB 750-126

FORMS

Parachute Log Record	DA Form 3912
Equipment Inspection & Maintenance Worksheet	DA Form 2404
Report of Discrepancy	SF Form 364
Transportation Discrepancy Report	SF Form 361
Product Quality Deficiency Report	SF Form 368

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
Report of Item and Packaging Discrepancies	MCO 2430.3
Parachute History Record	NAV WPN CEN or NAV WPNS CL 13512/11
Product Quality Deficiency Report (PQDR)	MCO 4855.10B
Recommended Changes to Technical Publications	NAVMC 10772

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
INTRODUCTION FOR MAINTENANCE ALLOCATION CHART (MAC)**

INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level 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:

Field - includes two columns, Unit maintenance and Direct Support maintenance. The Unit maintenance column is divided again into two more subcolumns, C for Operator or Crew and O for Unit maintenance.

Sustainment – includes two subcolumns, General Support (H) and Depot (D).

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, e.g. 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. The following are examples of service functions:
 - a. Unpack. To remove from packing box for service or when required for the performance of maintenance operations.
 - b. Repack. To return item to packing box after service and other maintenance operations.
 - c. Clean. To rid the item of contamination.

- d. Touch up. To spot paint scratched or blistered surfaces.
- e. Mark. To restore obliterated identification.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or 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 an equipment or system.
8. Paint. To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be repainted as original so as to retain proper ammunition identification.
9. 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 third position code of the Source, Maintenance and Recoverability (SMR) code.
10. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, 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.

11. 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.

12. 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) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Column (1) Group Number. Column (1) lists Functional Group Code (FGC) numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

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 hours 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 disassembly/assembly 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:

Field:

- C Operator or Crew maintenance
- O Unit maintenance
- F Direct Support maintenance

Sustainment:

- L Specialized Repair Activity
- H General Support maintenance
- D Depot maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by 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 support special 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 alphabetic 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.

Explanation of Columns in 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.

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
MAINTENANCE ALLOCATION CHART (MAC)**

Table 1. Maintenance Allocation Chart for 15-Foot Diameter, Cargo Extraction Parachute

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT				
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT		
			C	O	F	H	D		
00	15- FOOT DIAMETER EXTRACTION PARACHUTE								
01	CANOPY	Inspect Service Repair		0.7 1.0 0.4				A B, C D	
0101	ATTACHMENT LOOP	Repair Replace		0.2 0.3				D	
0102	VENT LINE	Repair Replace		0.3	0.5		26 6,15,26,27,30	D	
0103	BRIDLE CENTERING LINE	Repair Replace		0.3	0.5		26 15,26,30		
0104	UPPER LATERAL BAND	Repair		0.5			6, 15, 24, 27		
0105	GORE SECTION	Repair Replace		0.4	0.8		6,11,22,24, 27 6,11,22,24, 27	E	
0106	RADIAL WEBBING	Repair		0.3			24, 26		
0107	PANEL EDGE REINFORCEMENT	Repair		0.4			7, 24, 27		
0108	LOWER LATERAL BAND	Repair		0.5			24, 26		
0109	POCKET BAND	Repair Replace		0.3 0.4			24 6, 17, 29, 27		
0110	SUSPENSION LINE	Repair Replace		0.3	0.6		26 6, 26, 27		
0111	CONNECTOR LINK	Repair Replace		0.1 0.1			6 10, 18, 20		

Table 1. Maintenance Allocation Chart for 15-Foot Diameter, Cargo Extraction Parachute-continued

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE	
			FIELD		SUSTAINMENT					
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT			
			C	O	F	H	D			
02	DEPLOYMENT BAG	Inspect		0.3				6	A B F	
		Service		0.1				6-8,10-11 17,22-27,30		
		Repair		0.4						
		Modify		1.0						
		Replace		0.1						
0201	GROMMET	Repair		0.1				10, 17, 25, 24	F	
		Replace		0.2						
0202	RETAINER BAND KEEPER	Repair		0.2				23		
		Replace		0.4				23		
0203	BAG RETAINER LINE	Repair		0.2				24, 26		
		Replace		0.5				24, 26		
0204	BAG CLOSING LOOP	Repair		0.2				23		
		Replace		0.4				23		
0205	LOG RECORD BOOK POCKET	Repair		0.1				25		
		Replace		0.2				25		
0206	RETAINER BAND KEEPER REINFORCEMENT	Repair		0.2				25		
		Replace		0.3				25		
0207	TIE LOOP REINFORCEMENT	Repair		0.2				25		
		Replace		0.3				25		
0208	SAFETY CORD	Repair		0.2				26		
		Replace		0.4				26		
0209	TIE LOOP	Repair		0.2				25		
		Replace		0.3				25		
0210	EDGE BINDING	Repair		0.3				25		
0211	SUSPENSION LINE STOWAGE FLAP	Repair		0.4				22, 25		
0212	BAG PANELS	Repair		0.1						
03	DEPLOYMENT BAG (UNIVERSAL)	Inspect		0.3				6	A B F	
		Service		0.1				6-8,10-11 17,22-27,30 6,24		
		Repair		0.4						
		Modify		1.0						
		Replace		0.1						
0301	GROMMET	Repair		0.1				10, 17, 25	F	
		Replace		0.2				24		

Table 1. Maintenance Allocation Chart for 15-Foot Diameter, Cargo Extraction Parachute-continued

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE	
			FIELD		SUSTAINMENT					
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT			
			C	O	F	H	D			
0302	RETAINER BAND KEEPER	Repair		0.2				23		
		Replace		0.4				23		
0303	BAG CLOSING LOOP	Repair		0.2				23		
		Replace		0.4				23		
0304	LOG RECORD BOOK POCKET	Repair		0.1				25		
		Replace		0.2				25		
0305	RETAINER BAND KEEPER REINFORCEMENT	Repair		0.2				25		
		Replace		0.3				25		
0306	TIE LOOP REINFORCEMENT	Repair		0.2				25		
		Replace		0.3				25		
0307	SAFETY CORD	Repair		0.2				26		
		Replace		0.4				26		
0308	TIE LOOP	Repair		0.2				25		
		Replace		0.3				25		
0309	EDGE BINDING	Repair		0.3				25		
0310	SUSPENSION LINE STOWAGE FLAP	Repair		0.4				22,25		
0311	BAG PANELS	Repair		0.1						
04	ADAPTER WEB	Inspect		0.1						
		Service		0.1				11	A	
		Repair		0.1				6	B,C	
		Replace		0.1						

Table 2. Tools and Test Equipment for 15-Foot Diameter, Cargo Extraction Parachute

(1) TOOL OR TEST EQUIPMENT REFERENCE CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
1	O	Aid, Splicing	WP 0051 00	
2	O	Brush, Scrub, Household	7920-00-282-2490	H-B-1490
3	O	Brush, Stenciling	7520-00-248-9285	H-B-621
4	O	Cutter, Single Bow, ¼-inch	5110-00-180-0943	666-P-833
5	O	File, Flat	5110-00-249-2848	GGG-F-325
6	O	Knife	5110-00-162-2205	A-A-59100
7	O	Knife, Hot Metal	3439-01-197-7656	4025
8	O	Lead, Pig, 5-pounds	9650-00-264-5050	QQ-C-40
9	O	Machine, Stencil Cutting	7490-00-164-0537	A-A-2722
10	O	Mallet, Rawhide	5120-00-293-3397	GGG-H-33
11	O	Needle, Tacking	8315-00-262-3733	A-A-55066
12	O	Paddle, Packing	1670-00-764-6381	11-1-152
13	O	Pins, Push	Local Purchase	
14	O	Pliers, Large, Diagonal Cut	5110-00-222-2708	A-A-2330
15	O	Pot, Melting, Electric	5120-00-924-5213	34-6125-02
16	O	Press, Hand Operated	5120-00-880-0619	A741
17	O	Punch & Die, Grommet, Inserting	5120-00-357-5754	216-0
18	O	Screwdriver, Cross-Tip	5120-00-234-8913	BD122
19	O	Screwdriver, Flat Tip	5120-00-278-1283	66-176
20	O	Separator, Line	1670-00-092-8661	11-1-3512
21	O	Separator, Link	1670-00-072-4941	11-1-176-1
22	O	Sewing Machine, Darning	Table 2, WP 0014 00	
23	O	Sewing Machine, Heavy-Duty	Table 2, WP 0014 00	
24	O	Sewing Machine, Light-Duty	Table 2, WP 0014 00	
25	O	Sewing Machine, Medium-Duty	Table 2, WP 0014 00	
26	O	Sewing Machine, Zig-Zag	Table 2, WP 0014 00	
27	O	Shears	5110-00-223-6370	PD5110002236370
28	O	Weight, Packing	1670-00-375-9134	AA52197-II
29	O	Wrench Set	5120-729-6392	GGG-K-275
30	O	Yardstick	5120-00-985-6610	A-A-2940

Table 3. Remarks for 15-Foot Diameter, Cargo Extraction Parachute

(1) REMARKS CODE	(2) REMARKS
A	Inspect is a technical-rigger type inspection.
B	Service is to clean the equipment.
C	Service is the packing of parachutes.
D	Repair by restitching, darning, or restencilling the canopy panel.
E	Repair at unit maintenance consists of darning, restitching, patching and replacement of parts authorized for unit maintenance. Direct support repair consists of replacing gore sections.
F	Repair by darning, retacking, restitching splice edge binding and repairing grommets. Replacement of parts authorized for unit maintenance.

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL), INTRODUCTION**

SCOPE

This RPSTL authorizes spare and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for the performance of unit and direct support maintenance of the 15-Foot Diameter, Cargo Extraction Parachute. 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

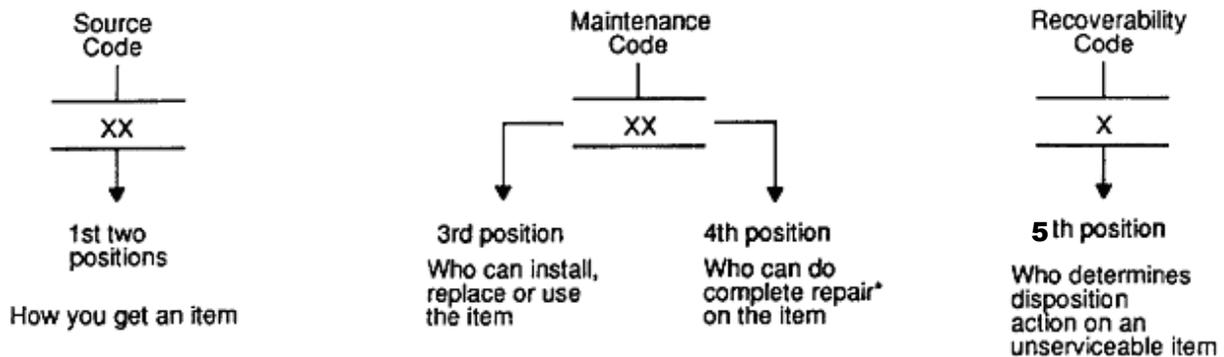
In addition to the Introduction work package, this RPSTL is divided into the following work packages:

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 that 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 repairable 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 MIL-STD-40051-5B(TM)) column). Tools that are components of common tool sets and/or Class VII are not listed.
3. **Cross-Reference Indexes Work Packages.** There are two cross-reference index 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 also refers you to the figure and item number.

EXPLANATION OF RPSTL COLUMNS

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instructions, as shown in the following breakout:



*Complete Repair: Maintenance capacity, capability, and authority to perform all the 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. Source codes are always the first and second positions of the SMR code. Explanations of source codes follow:

Source Code

Application/Explanation

PA
PB
PC
PD
PE
PF
PG

Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the 3rd position of the SMR code.

NOTE

Items coded PC are subject to deterioration.

KD
KF
KB

Items with these codes are not to be requested/requisitioned individually. They are part of a kit that 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 requisitioned/requested individually. They must be made from bulk material that 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 3rd 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 item is not available from salvage, order it using the CAGEC and P/N.

Source Code – continued

Application/Explanation - continued

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 given, if no NSN is available.

NOTE

Cannibalization or controlled exchanged, 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 code are entered in the third and fourth positions of the SMR code as follow:

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 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 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 code.

<u>Maintenance Code</u>	<u>Application/ Explanation</u>
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 (designate the 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 -	Non-repairable. No repair is authorized.
B -	No repair is authorized. No parts or special tools are authorized for the maintenance of a 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 entered in the fifth position of the SMR code as follows:

<u>Recoverability Code</u>	<u>Application/Explanation</u>
Z -	Nonrepairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR Code.
O -	Repairable item. When uneconomically repairable, condemn and dispose of the item at the unit level.
F -	Repairable item. When uneconomically repairable, condemn and dispose of the item at the direct support level.
H -	Repairable item. When uneconomically repairable, condemn and dispose of the item at the general support level.
D -	Repairable item. When beyond the lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L -	Repairable item. Condemnation and disposal are not authorized below the Specialized Repair Activity (SRA) level.
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 the 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 numeric code that is used to identify the manufacturer, distributor, or Government agency 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 part ordered.

Description and Usable on Code (UOC).(Column 6). This column includes the following information:

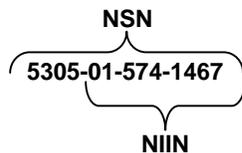
1. The federal item name and, when repaired, a minimum description to identify the item.
2. The P/Ns for bulk materials are referenced in this column in the line entry for the to be manufactured or fabricated.
3. The Hardness Critical Item (HCI) is a support item that provides the equipment with special 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, sub-functional group, or an assembly. A "V" appearing in the column instead of a quantity indicates that the quantity is variable and that the quantity may change from application to application.

EXPLANATION OF CROSS-REFERNCE INDEXESCOLUMNS

1. National Stock Number (NSN) Index Work Package.

STOCK NUMBER Column. This column lists the NSN by National Item Identification Number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN.



When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the RPSTL 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 (vertical arrangement of letter and number combinations that places 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 RPSTL work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

Usable On Code (UOC). The UOC 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 UOC used in the RPSTL is:

Code:	Used on:
DWT	1670-01-063-3715

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 this TM.

Index Numbers. Items that have the word BULK in the FIG. column will have an index number shown in the Item 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.

Illustration List. The illustrations in this RPSTL contain unit-authorized items. Illustrations published in this TM that contain unit-authorized items also appear in this RPSTL. The tabular list in the RPSTL 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 the figures are prepared for assembly groups and subassembly; 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.

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 it 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 P/N 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 RPSTL work package.

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
REPAIR PARTS LIST, GROUP 00

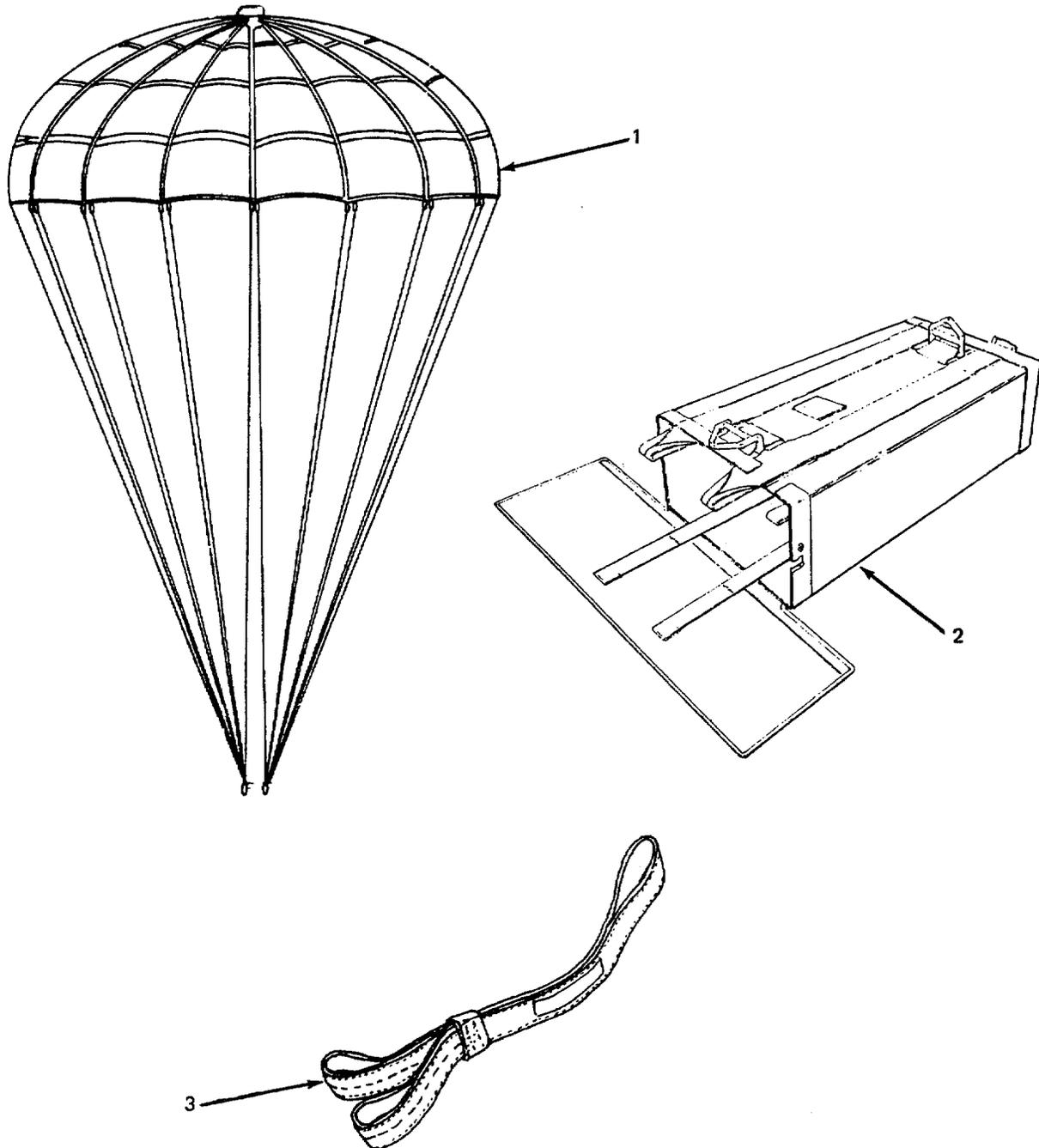


Figure 1. 15-Foot Diameter Cargo Extraction Parachute.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 00. PARACHUTE CARGO, 15-FOOT DIAMETER, EXTRACTION	
					FIGURE 1. 15-FOOT DIAMETER CARGO EXTRACTION PARACHUTE, P/N 11-1-2583	
1	XAOFF		98750	57J6032	CANOPY, CARGO EXTRACTION, 15-FOOT DIAMETER.....	1
2	PAOOO	1670-00-815-2727	98750	58J6100	DEPLOYMENT BAG, PARACHUTE.....	1
3	PAOOO	1670-00-040-8215	81337	68C380-10	ADAPTER WEB, PARACHUTE UOC: DWT.....	1
END OF FIGURE						

UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
CANOPY
REPAIR PARTS LIST, GROUP 01

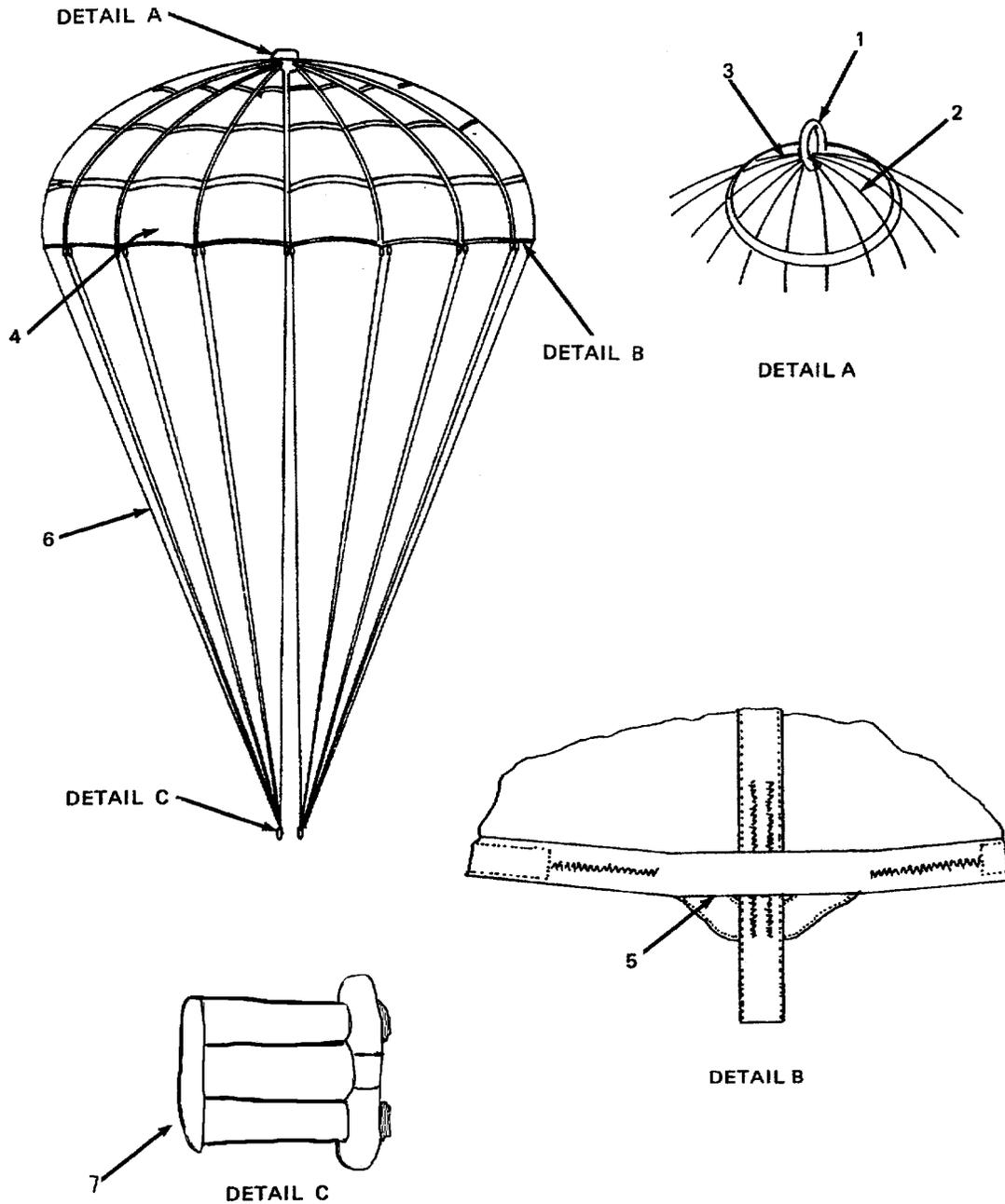


Figure 2. 15-Foot Diameter Cargo Extraction Parachute Canopy.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01. CANOPY, CARGO EXTRACTION PARACHUTE, 15-FOOT DIAMETER	
					FIGURE 2. 15-FOOT DIAMETER CARGO EXTRACTION PARACHUTE CANOPY	
1	MOOOO		98750	57J6032-17	LOOP ATTACHMENT, MAKE FROM WEBBING, COTTON CL 2B, TY VIII OD 1 3/4-IN, P/N MIL-W-5665 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T- 295.....	1
2	MFFFF		98750	57J6032-14	VENT LINE, MAKE FROM CORD, NYLON CORELESS TY IV OD P/N MIL-C-7515 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T- 295.....	4
3	MFFFF		98750	57J6032-15	LINE, CENTER, BRIDLE, MAKE FROM CORD, NYLON CORELESS TY IV OD P/N MIL-C-7515 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T- 295.....	1
4	MFFFF		98750	57J6032-18	GORE, PANEL, CANOPY, MAKE FROM CLOTH, NYLON PARACHUTE TY 1 OD 2.25 OZ, P/N MIL-C-7350 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T- 295.....	80
5	MOOOO		98750	57J6032-13	POCKET BAND, MAKE FROM WEBBING, NYLON TY II OD 3/4-IN P/N MIL-W-4088 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T- 295.....	16
6	MFFFF		98750	57J6032-16	LINE SUSPENSION, MAKE FROM CORD, NYLON CORELESS TY IV OD P/N MIL-C-7515 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T- 295.....	16
7	PAOOO	1670-01-433-2464	96906	MS70118-3	LINK PARACHUTE.....	2
END OF FIGURE						

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02. DEPLOYMENT BAG, PARACHUTE	
					FIGURE 3. DEPLOYMENT BAG, PARACHUTE	
1	PAOOZ	5325-00-231-6589	96906	MS20230BIO	GROMMET, METTALIC, PLAIN W/WASHER, SIZE 0 TY 1 CL1.....	2
2	MOOOO		81337	58J6100-7	KEEPER, RETAINER BAND, MAKE FROM TAPE, NYLON TY IV 1-IN, P/N PIA-T-5038 & THREAD, NYLON SIZE 3 TY 1 CL A, P/N V-T-295.....	2
3	MOOOO		81337	58J6100-17	RETAINING TIE, MAKE FROM CORD, NYLON CORELESS TY IV OD, P/N MIL-C-7515 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T-295.....	1
4	MOOOO		81337	58J6100-19	LINE, PENDULUM, MAKE FROM CORD, NYLON CORELESS TY IV OD, P/N MIL-C-7515.....	1
5	PAOOZ	1670-01-018-6756	81337	11-1-2587	POCKET, INSPECTION DATA	1
6	MOOOO		81337	58J6100-11	REINFORCEMENT, RETAINER BAND KEEPER, MAKE FROM WEBBING NYLON TY VIII, NYLON WEBBING W, P/N V-T-295	2
7	MOOOO		81337	58J6100-10	REINFORCEMENT, TIE LOOP, MAKE FROM TAPE NYLON TY IV 1-IN, P/N MIL-T-5038 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T-295.....	2
8	MOOOO		81337	58J6100-18	SAFETY CORD, MAKE FROM CORD, NYLON CORELESS TY IV OD, P/N MIL-C-7515 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T-295.....	1
9	MOOOO		81337	58J6100-5	TIE LOOP, MAKE FROM TAPE, NYLON TY IV 1-IN, P/N MIL-T-5038 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T-295.....	2
10	MOOOO		81337	58J6100-6	LOOP, RETAINING, MAKE FROM TAPE, COTTON TY 1 1 ¹ / ₂ -IN, MIL-T-43566 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T-295.....	1
11	MOOOO		81337	58J6099	CLOSING LOOP, DEPLOYMENT BAG, MAKE FROM WEBBING, NYLON, TYPE VIII, CG-483, MIL-W-4088 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T-295.....	4
					END OF FIGURE	

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
UNIVERSAL DEPLOYMENT BAG
REPAIR PARTS LIST, GROUP 03**

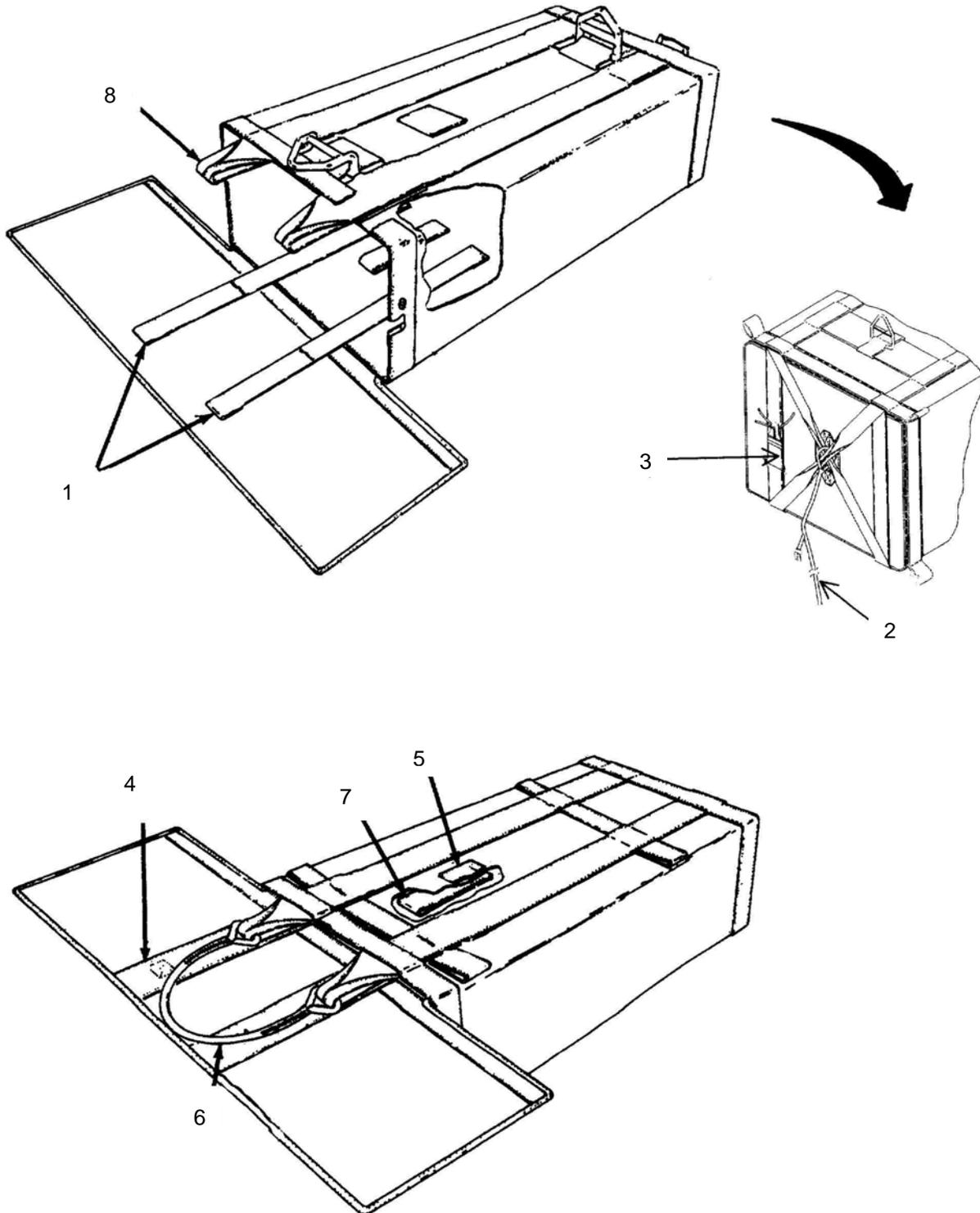


Figure 4. Universal Deployment Bag.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 03. UNIVERSAL DEPLOYMENT BAG, PARACHUTE	
					FIGURE 4. UNIVERSAL DEPLOYMENT BAG	
1	MOOOO		81337	58J6100-7	KEEPER, RETAINER BAND, MAKE FROM WEBBING, NYLON TY IV 1-IN, P/N MIL-T-5038 & THREAD, NYLON SIZE 3 TY 1 CL A, P/N V-T-295.....	2
2	MOOOO		81337	58J6100-19	LINE, PENDULUM, MAKE FROM CORD, NYLON CORELESS TY IV OD, P/N MIL-C-7515.....	1
3	PAOOZ	1670-01-018-6756	81337	11-12587	POCKET, INSPECTION DATA.....	1
4	MOOOO		81337	58J6100-11	REINFORCEMENT, RETAINER BAND KEEPER, MAKE FROM WEBBING, NYLON TY VIII OD, P/N MIL-W-4088 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T- 295.....	2
5	MOOOO		81337	58J6100-10	REINFORCEMENT, TIE LOOP, MAKE FROM TAPE, NYLON TY IV 1-IN, P/N MIL-T-5038 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T-295.....	2
6	MOOOO		81337	58J6100-18	SAFETY CORD, MAKE FROM CORD, NYLON CORELESS TY IV OD, P/N MIL-C-7515 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T- 295.....	1
7	MOOOO		81337	58J6100-5	TIE LOOP, MAKE FROM TAPE, NYLON TY IV, P/N MIL-T- 5038 & THREAD, NYLON SIZE FF TY 1 CL A, P/N V-T- 295.....	2
8	MOOOO		81337	58J6009	CLOSING LOOP, DEPLOYMENT BAG, MAKE FROM WEBBING, NYLON, TYPE VIII, CG-483, MIL-W-4088 & THREAD, NYLON SIZE E TY 1 CL A, P/N V-T-295.....	4
END OF FIGURE						

UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
ADAPTER WEB, 36-INCH-LONG
REPAIR PARTS LIST, GROUP 04

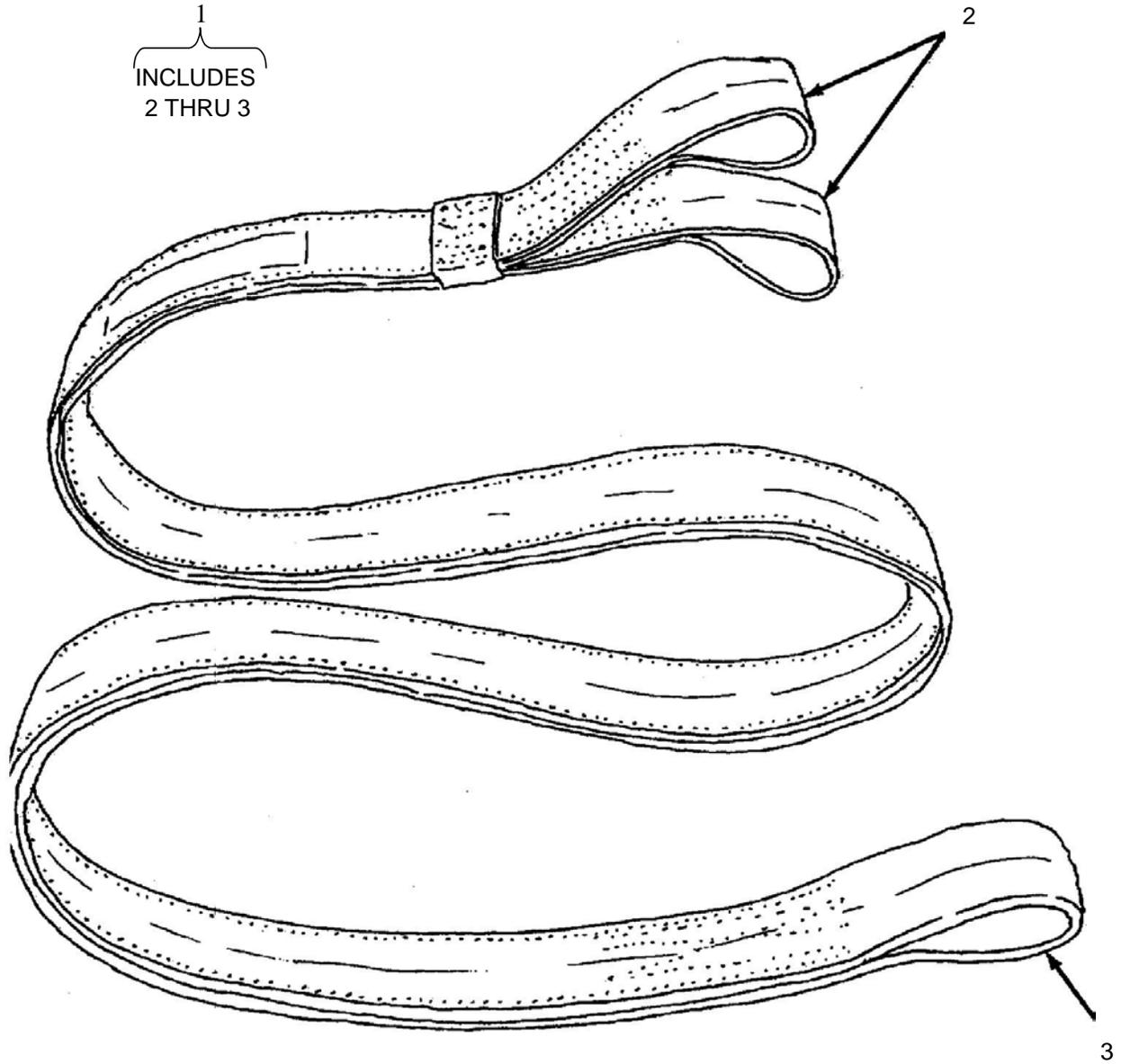


Figure 5. Adapter Web, 36-Inch-Long.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 . ADAPTER WEB, 36- INCH-LONG	
					FIGURE 5. ADAPTER WEB, 36-INCH-LONG	
1	PAOZZ	1670-00-040-8215	81377	68C380-10	ADAPTER WEB, PARACHUTE.....	1
2	MOOOO		81377	68C380-5	.BUFFER, SHORT, MAKE FROM WEBBING, COTTON TY VIII CL 2B OD, P/N MIL-W-5665 & THREAD, COTTON, TICKET 8/7, P/N V-T- 276.....	2
3	MOOOO		81377	68C380-3	.BUFFER, LONG, MAKE FROM WEBBING, COTTON TY X CL 2B OD, P/N MIL-W-5665 & THREAD, COTTON, TICKET 8/7, P/N V-T- 276.....	1
END OF FIGURE						

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
BULK MATERIALS LIST
REPAIR PARTS LIST, GROUP 99**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 99, BULK MATERIALS	
1	PAOZZ	5350-00-221-0872	80204	ANSIB74.18	CLOTH, ABRASIVE, FERRIC OXIDE & QUARTZ ...	SH
2	PAOZZ	8305-01-173-4436	81349	MIL-C-7219	CLOTH, NYLON, DUCK, 7.25 OZ...	V
3	PAOZZ	8305-00-641-4380	81349	MIL-C-7350	CLOTH, NYLON, PARACHUTE, TY I 2.25 OZ, OD, 60-IN.....	V
4	PAOZZ	4020-00-262-2020	81348	MIL-C-7515	CORD, NYLON, FIBROUS, TY IV, OD.....	V
5	PAOZZ	4020-00-246-0688	81349	MIL-C-7515	CORD, NYLON, TY III, OD.....	V
6	PAOZZ	5325-00-231-6589	81348	MS20230BIO	GROMMET, METALLIC, PLAIN W/WASHER, TY 1, CL 1, SIZE 0.....	EA
7	PAOZZ	7920-00-205-3570	81348	A-A-531	RAG, WIPING.....	BE
8	PAOZZ	8315-00-253-6292	81349	MIL-T-43566	TAPE, COTTON, TY I, CL 4, 1 ¹ / ₂ -IN, OD.....	V
9	PAOZZ	4020-00-226-5024	58536	A-A-52080	TAPE, LACING AND TYING.....	V
10	PAOZZ	8315-00-253-6265	81348	MIL-T-4088	TAPE, NYLON, TY II, ¾ -IN, OD.....	V
11	PAOZZ	8305-00-263-3592	81349	MIL-T-4088	TAPE, NYLON, TY II, 1-IN, OD.....	V
12	PAOZZ	8315-00-176-8083	81349	MIL-T-5038	TAPE, NYLON, TY III, ¾ -IN, OD.....	V
13	PAOZZ	8305-00-261-8579	81349	MIL-T-5038	TAPE, NYLON, TY IV, 1-IN, OD.....	V
14	PAOZZ	8305-00-263-2472	81349	MIL-T-5038	TAPE, NYLON, TY IV, 1 ¹ / ₂ -IN, OD.....	V
15	PAOZZ	7510-00-663-0199	81348	PPP-T-60	TAPE, PRESSURE SENSITIVE, 1-IN.....	RL
16	PAOZZ	8310-00-917-3945	81348	AA-52094	THREAD, COTTON, TICKET NO. 8/7.....	V
17	PAOZZ	8310-00-262-2770	81348	V-T-295	THREAD, NYLON, TY I, CL A, SIZE E, NATURAL	V

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
18	PAOZZ	8310-00-262-2772	81348	V-T-295	THREAD, NYLON, TY I, CL A, SIZE E, OD.....	V
19	PAOZZ	8310-00-267-3024	81348	V-T-295	THREAD, NYLON, TY I, CL A, SIZE FF, NATURAL	V
20	PAOZZ	8310-00-227-1244	81348	V-T-295	THREAD, NYLON, TY I, CL A, SIZE FF, OD.....	V
21	PAOZZ	8310-00-248-9714	81348	V-T-295	THREAD, NYLON, TY I, CL A, SIZE 3, NATURAL.....	V
22	PAOZZ	8310-00-267-3027	81348	V-T-295	THREAD, NYLON, TY I, CL A, SIZE 3, OD.....	V
23	PAOZZ	8310-00-281-2898	81348	V-T-295	THREAD, TY 1, CL A, SIZE E, OD.....	V
24	PAOZZ	8310-00-204-3787	81348	V-T-295	THREAD, TY 1, CL A, SIZE FF, OD.....	V
25	PAOZZ	8305-00-268-2411	81349	MIL-T-5661	WEBBING, COTTON, TY I, ¼-IN.....	V
26	PAOZZ	8305-00-260-2565	81348	MIL-W-5665	WEBBING, COTTON, TY VIII, CL 2, OD.....	V
27	PAOZZ	8305-00-260-6909	81349	MIL-W-4088	WEBBING, NYLON, TY I, 9/16-IN, OD.....	V
28	PAOZZ	8305-00-260-2564	81349	MIL-W-5665	WEBBING, NYLON, TY VIII, CL 2B, OD.....	V
29	PAOZZ	8305-00-261-8585	81349	MIL-W-4088	WEBBING, NYLON, TY VIII, OD.....	V
30	PAOZZ	8305-00-753-6086	81349	MIL-W-5665	WEBBING, TEXTILE, TY X, CL 2B, OD, MILDEW-RESISTANT....	V
31	PAOZZ	8305-00-082-5750	81349	MIL-W-5625	WEBBING, TEXTILE, NYLON, TUBULAR, 9/16-IN, NATURAL.....	V
END OF FIGURE						

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
SPECIAL TOOLS LIST**

-

Not Applicable

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
NATIONAL STOCK NUMBER INDEX**

STOCK NUMBER	FIGURE	ITEM
1670-00-040-8215	1	3
	5	1
8305-00-082-5750	BULK	31
8315-00-176-8083	BULK	12
8310-00-204-3787	BULK	24
7920-00-205-3570	BULK	7
5350-00-221-0872	BULK	1
4020-00-226-5024	BULK	9
8310-00-227-1244	BULK	20
5325-00-231-6589	3	1
	BULK	6
4020-00-246-0688	BULK	5
8310-00-248-9714	BULK	21
8315-00-253-6265	BULK	10
8315-00-253-6292	BULK	8
8305-00-260-2584	BULK	28
8305-00-260-2565	BULK	26
8305-00-260-6909	BULK	27
8305-00-261-8759	BULK	13
8305-00-261-8585	BULK	29
4020-00-262-2020	BULK	4
8310-00-262-2770	BULK	17
8310-00-262-2772	BULK	18
8305-00-263-2472	BULK	14
8305-00-263-3592	BULK	11
8310-00-267-3024	BULK	19
8310-00-267-3027	BULK	22
8305-00-268-2411	BULK	25
8310-00-281-2898	BULK	23
8305-00-641-4380	BULK	3
7510-00-663-0199	BULK	15
8305-00-753-6086	BULK	30
1670-00-815-2727	1	2
8310-00-917-3945	BULK	16
1670-01-018-6756	3	5
	4	3

NATIONAL STOCK NUMBER INDEX – continued

STOCK NUMBER	FIGURE	ITEM
8305-01-173-4436	BULK	2
1670-01-433-2464	2	7

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
PART NUMBER INDEX**

PART NUMBER	FIGURE	ITEM
A-A-531	BULK	7
A-A-52080	BULK	9
A-A-52094	BULK	16
ANSIB74.18	BULK	1
MIL-C-7219	BULK	2
MIL-C-7350	BULK	3
MIL-C-7515	BULK	4
MIL-C-7515	BULK	5
MIL-T-4088	BULK	10
	BULK	11
MIL-T-43566	BULK	8
MIL-T-5038	BULK	12
	BULK	13
	BULK	14
MIL-T-5661	BULK	25
MIL-W-4088	BULK	27
MIL-W-4088	BULK	29
MIL-W-5625	BULK	31
MIL-W-5665	BULK	26
	BULK	28
	BULK	30
MS20230BIO	3	1
	BULK	6
MS70118-3	2	7
PPP-T-60	BULK	15
V-T-295	BULK	17
	BULK	18
	BULK	19
	BULK	20
	BULK	21
	BULK	22
	BULK	23
	BULK	24
11-1-2587	3	5
	4	3
57J6032	1	1
57J6032-13	2	5
57J6032-14	2	2
57J6032-15	2	3

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PART NUMBER	FIGURE	ITEM
57J6032-16	2	6
57J6032-17	2	1
57J6032-18	2	4
58J6099	3	11
	4	8
58J6100	1	2
58J6100-5	3	9
	4	7
58J6100-6	3	10
58J6100-7	3	2
	4	1
58J6100-10	3	7
	4	5
58J6100-11	3	6
	4	4
58J6100-17	3	3
58J6100-18	3	8
	4	6
58J6100-19	3	4
	4	2
68C380-3	5	3
68C380-5	5	2
68C380-10	1	3
	5	1

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
15-FOOT DIAMETER, CARGO EXTRACTION PARACHUTE ASSEMBLY
NSN 1670-01-063-3715
EXPANDABLE/DURABLE SUPPLIES AND MATERIALS LIST**

SCOPE

This work package lists expendable and durable items that you will need to operate and maintain the 15-Foot-Diameter, Cargo Extraction Parachute. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (except for Medical Supplies, Class V Repair Parts, and Heraldic Items or by CTA 8-100, Army Medical Department Expendable/Durable Items).

EXPLANATION OF COLUMNS

Column (1) Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use Cloth, Abrasive (Item 4,WP 0065 00).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item. (O = Unit Maintenance).

Column (3) National Stock Number (NSN). This is the NSN assigned to the item that you can use to requisition it.

Column (4) Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) Unit of Issue (U/I). This code indicates the physical measurement or count of the item as issued per the NSN shown in column (3).

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) UNIT OF ISSUE
1	O	1670-00-568-0323	Band, Retainer, Rubber (81337) 11-1-4095-1, TY 1	BX
2	O	9160-00-253-1171	Beeswax, Technical, 1-Lb (59148)	LB
3	O	7930-001-506-9885	Cleaner, Industrial, Multipurpose Cleaning Fluid, (1010) (Everblum Gold™)	GAL
4	O	5350-00-221-0872	Cloth, Abrasive, Ferric Oxide & Quartz (81349) 05114-02435	SH
5	O	8305-01-173-4436	Cloth, Nylon, Duck, 7.25 OZ	YD
6	O	8305-00-641-4380	Cloth, Nylon, Parachute, TY 1, 2.25 OZ, OD, 60-In (81349) MIL-C-7350	FT
7	O	4020-00-246-0688	Cord, Nylon, TY III, OD (81349) MIL-C-7515	YD

Table 1. Expendable and Durable Items List - continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) UNIT OF ISSUE
8	O	4020-00-262-2020	Cord, Nylon, TY IV, OD, Coreless (81349) MIL-C-7515	YD
9	O	7930-00-281-4731	Dishwashing Compound, Hand, Flake, (81348) P-D-410	LB
10	O	5325-00-231-6589	Grommet, Metallic, Plain w/ Washer, TY I, CL I, Size 0	EA
11	O	7510-00-286-5362	Ink, Marking, Parachute, Strata-Blue (81349) AA-59291	PT
12	O	7520-00-230-2734	Marker, Black (81348) GG-M-0014	EA
13	O	7520-00-491-2917	Pen, Ballpoint (81348) GG-B-0060	EA
14	O	7520-00-240-1525	Pencil, White (81348) A-A-87	EA
15	O	7520-00-264-4612	Pencil, Yellow (81348) A-A-87	EA
16	O	7920-00-205-3570	Rag, Wiping (81348)	BE
17	O	9310-00-160-7858	Stencil Board, Oiled, TY II (81348) AA-1733	SH
18	O	8315-00-253-6292	Tape, Cotton, TY I, CL 4,1½-IN, OD (81349) MIL-T-43566	YD
19	O	4020-00-226-5024	Tape, Lacing and Tying, A-A-5280	SP
20	O	8315-00-176-8083	Tape, Nylon, TY III, ¾-IN, OD (81349) MIL-T-5038	YD
21	O	8305-00-261-8579	Tape, Nylon, TY IV, 1-IN, OD (81349) MIL-T-5038	YD

Table 1. Expendable and Durable Items List - continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) UNIT OF ISSUE
22	O	8305-00-263-2472	Tape, Nylon, TY IV, 1½-IN, OD (81349) MIL-T-5038	YD
23	O	7510-00-663-0199	Tape, Pressure Sensitive, 1-IN (81348) PPP-T-60	RL
24	O	8310-00-917-3945	Thread, Cotton, Ticket No. 8/7, Natural (81348) A-A-52094	YD
25	O	8310-00-262-2770	Thread, Nylon, TY I, CL A, Size E, Natural (81348) V-T-295	YD
26	O	8310-00-262-2772	Thread, Nylon, TY I, CL A, Size E, OD (81348) V-T-295	YD
27	O	8310-00-267-3024	Thread, Nylon, TY I, CL A, Size FF, Natural White (81348) V-T-295	YD
28	O	8310-00-227-1244	Thread, Nylon, TY I, CL A, Size FF, OD (81348) V-T-295	YD
29	O	8310-00-248-9714	Thread, Nylon, TY I, CL A, Size 3, Natural (81348) V-T-295	YD
30	O	8310-00-267-3027	Thread, Nylon, TY I, CL A, Size 3, OD (81348) V-T-295	YD
31	O	9160-00-285-2044	Wax, Paraffin, TY I, Grade A, 1-LB Cake (81348) A-A-59255	LB
32	O	8305-00-268-2411	Webbing, Cotton, Type I, ¼-IN, (81349) MIL-T-5661	FT
33	O	Local Purchase	Webbing, Cotton, Type IIa	YD
34	O	8305-00-260-2565	Webbing, Cotton, TY VIII, 1¼-IN, OD (81349)	YD
35	O	8305-00-753-6086	Webbing, Cotton, TY X, CL 2B, OD (81349) MIL-W-5665	YD
36	O	8305-00-260-6909	Webbing, Nylon, TY I, 9/16-IN, OD (81349) MIL-W-4088	YD
37	O	8305-00-263-3592	Webbing, Nylon, TY II, 1-IN, OD (81349) MIL-W-4088	YD

Table 1. Expendable and Durable Items List - continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) UNIT OF ISSUE
38	O	8305-00-261-8585	Webbing, Nylon, Type VIII, OD (81349) MIL-W-4088	YD
39	O	8305-00-082-5750	Webbing, Textile, Nylon, Tubular, ⁹ / ₁₆ -IN.	YD

END OF WORK PACKAGE

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By Order of the Secretaries of the Army, Air Force and Navy (Including the Marine Corps):

PETER J. SCHOOMAKER
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Chief of Staff

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Marine Corps Systems Command*

Distribution: To be distributed in accordance with initial distribution number (IDN) 252513 requirements for TM 10-1670-278-23&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 15 KANSAS STREET NATICK, MA 01760-5052						FROM: (Activity and location) (Include ZIP Code) <i>PFC Jane Doe</i> <i>CO A 3rd Engineer BR</i> <i>Ft. Leonardwood, MO 63108</i>			
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS									
PUBLICATION/FORM NUMBER TM 10-1670-296-23&P						DATE 30 October 2002		TITLE 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 <i>(Provide exact wording of recommended changes, if possible).</i>			
	0036 00-2				1	<i>In table 1, Sewing Machine Code Symbols, the second sewing machine code symbol should be MD ZZ not MD 22.</i> <i>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.</i>			
<small>*Reference to line numbers within the paragraph or subparagraph.</small>									
TYPED NAME, GRADE OR TITLE Jane Doe, PFC					TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION 508-233-4141			SIGNATURE Jane Doe <i>Jane Doe</i>	

TO: <i>(Forward direct to addressee listed in publication)</i> COMMANDER U.S. ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND ATTN: AMSSB-RIM-L KANSAS STREET NATICK, MA 01760-5052	FROM: <i>(Activity and location) (Include ZIP Code)</i> <i>PFC Jane Doe</i> <i>CO A 3rd Engineer BR</i> <i>Ft. Leonardwood, MO 63108</i>	DATE 21 October 2003
--	---	--------------------------------

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 10-1670-296-23&P	DATE 30 October 2002	TITLE 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			<i>Callout 16 in figure 4 is pointed to a <u>D-Ring</u>. In the Repair Parts List key for figure 4, item 16 is called a <u>Snap Hook</u>. Please correct one or the other.</i>

SAMPLE

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 (<i>reverse</i>) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: (<i>Forward to proponent of publication or form</i>) (<i>Include ZIP Code</i>) COMMANDER U.S. ARMY TANK-AUTOMOTIVE AND ARMAMENT COMMAND ATTN:AMSTA-LC-CECT 15 KANSAS STREET NATICK, MA 01760-5052						FROM: (<i>Activity and location</i>) (<i>Include ZIP Code</i>)	
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER TM 10-1670-278-23&P				DATE 31 December 2004	TITLE Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Parachute, Cargo Type: 15-Foot Diameter, Cargo Extraction Parachute Assembly		
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible).</i>	
<i>*Reference to line numbers within the paragraph or subparagraph.</i>							
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

TO: <i>(Forward direct to addressee listed in publication)</i> COMMANDER U.S. ARMY TANK-AUTOMOTIVE AND ARMAMENT COMMAND ATTN: AMSTA-LC-CECT 15 KANSAS STREET NATICK, MA 01760-5052	FROM: <i>(Activity and location) (Include ZIP Code)</i>	DATE
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 10-1670-278-23&P	DATE 31 December 2004	TITLE Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Parachute, Cargo Type: 15-Foot Diameter, Cargo Extraction Parachute Assembly
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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.)*

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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 AND ARMAMENT COMMAND ATTN:AMSTA-LC-CECT 15 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 10-1670-278-23&P				DATE 31 December 2004	TITLE Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Parachute, Cargo Type: 15-Foot Diameter, Cargo Extraction Parachute Assembly		
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible).</i>	
<i>*Reference to line numbers within the paragraph or subparagraph.</i>							
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE	

TO: <i>(Forward direct to addressee listed in publication)</i> COMMANDER U.S. ARMY TANK-AUTOMOTIVE AND ARMAMENT COMMAND ATTN: AMSTA-LC-CECT 15 KANSAS STREET NATICK, MA 01760-5052	FROM: <i>(Activity and location) (Include ZIP Code)</i>	DATE
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 10-1670-278-23&P	DATE 31 December 2004	TITLE Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Parachute, Cargo Type: 15-Foot Diameter, Cargo Extraction Parachute Assembly
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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.)*

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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 = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 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

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

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 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

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
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	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	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 $\times \frac{5}{9}$ (after subtracting 32) = Celsius temperature _C

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