

# TECHNICAL MANUAL

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

FOR

**PARACHUTE, CARGO TYPE:**

**100-FOOT DIAMETER, MODEL  
G-11B, G-11C, AND G-11D**

**NSN 1670-01-016-7841**

**DISTRIBUTION STATEMENT A:** Approved for public release; distribution is unlimited.  
\*This manual supercedes TM 10-1670-280-23&P, dated 5 August 1991



**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.**

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**WARNING**

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

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**WARNING**

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For First Aid treatment, refer to FM 4-25.11 (FM 21-11).

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**WARNING**

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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.

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**WARNING**

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



TM 10-1670-280-23&P

CHANGE  
NO. 1

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

TECHNICAL MANUAL

UNIT AND DIRECT SUPPORT (DS)  
MAINTENANCE MANUAL  
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)  
FOR  
PARACHUTE, CARGO TYPE:  
100-FOOT DIAMETER, MODEL G-11B, G-11C, AND G-11D  
NSN 1670-01-016-7841

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TM 10-1670-280-23&P, dated 15 September 2002, 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:

**Remove Pages**

A/(B Blank)  
i-iii/(iv Blank)  
Sample DA 2028  
DA 2028

**Insert Pages**

A/B  
i-iv  
Sample DA 2028  
DA 2028 Front/Back  
DA 2028 Front/Back  
DA 2028 Front/Back

5. Replace the following work packages with their revised version:

<b><u>Work Package</u></b>	<b><u>Work Package</u></b>	<b><u>Work Package</u></b>	<b><u>Work Package</u></b>
<b><u>Number</u></b>	<b><u>Number</u></b>	<b><u>Number</u></b>	<b><u>Number</u></b>
0001 00	0018 00	0029 00	0039 00
0003 00	0019 00	0032 00	0040 00
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0011 00	0021 00	0035 00	0044 00
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0013 00	0026 00	0037 00	0046 00
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			0050 00


ARMY TM 10-1670-280-23&P  
AIR FORCE T.O. 13C5-31-2  
NAVY NAVAIR 13-1-30

C-1

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INSERT LATEST CHANGED PAGES/WORK PACKAGES. DESTROY SUPERSEDED DATA.

**LIST OF EFFECTIVE PAGES**

**NOTE:** The portion of text affected by the update is indicated by a vertical line in the outer margins of the page. Updates to illustrations are indicated by miniature pointing hands.

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

Original 15 September 2002  
 Change 1 31 August 2005

**TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 32 AND THE TOTAL NUMBER OF WORK PACKAGES IS 60, CONSISTING OF THE FOLLOWING:**

Page/Work Package No.	Change No.	Page/Work Package No.	Change No.
Front Cover	0	WP 0015 00 (2 pages)	0
a/(b Blank)	0	WP 0016 00 (2 pages)	0
i-iv	1	WP 0017 00 (2 pages)	0
Chapter 1 Title page	0	WP 0018 00 (2 pages)	1
WP 0001 00 (6 pages)	1	WP 0019 00 (4 pages)	1
WP 0002 00 (6 pages)	0	WP 0020 00 (10 pages)	1
Chapter 2 Title page	0	WP 0021 00 (2 pages)	1
WP 0003 00 (8 pages)	1	WP 0022 00 (2 pages)	1
WP 0004 00 (2 pages)	0	WP 0023 00 (2 pages)	0
WP 0005 00 (2 pages)	0	WP 0024 00 (2 pages)	0
WP 0006 00 (4 pages)	1	WP 0025 00 (2 pages)	0
Chapter 3 Title page	0	WP 0026 00 (2 pages)	1
WP 0007 00 (4 pages)	0	WP 0027 00 (2 pages)	1
WP 0008 00 (4 pages)	0	WP 0028 00 (2 pages)	0
WP 0009 00 (4 pages)	0	WP 0029 00 (2 pages)	1
WP 0010 00 (2 pages)	0	WP 0030 00 (2 pages)	0
WP 0011 00 (50 pages)	1	WP 0031 00 (2 pages)	0
WP 0012 00 (46 pages)	1	WP 0032 00 (2 pages)	1
WP 0013 00 (50 pages)	1	WP 0033 00 (2 pages)	1
WP 0014 00 (6 pages)	1	WP 0034 00 (2 pages)	0

INSERT LATEST UPDATED PAGES/WORK PACKAGES. DESTROY SUPERSEDED DATA.

LIST OF EFFECTIVE PAGES-CONTINUED

Page/Work Package No.	Change No.	Page/Work Package No.	Change No.
WP 0035 00 (2 pages)	1	Chapter 5 Title page	0
WP 0036 00 (2 pages)	1	WP 0049 00 (4 pages)	1
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WP 0048 00 (2 pages)	0	Back Cover	0



HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 15 SEPTEMBER 2002

**TECHNICAL MANUAL**  
**UNIT AND DIRECT SUPPORT (DS)**  
**MAINTENANCE MANUAL**  
*(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)*  
**FOR**  
**PARACHUTE, CARGO TYPE:**  
**100-FOOT DIAMETER, MODEL**  
**G-11B, G-11C, AND G-11D**  
**NSN 1670-01-016-7841**

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

**ARMY**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028, located in the back of this manual directly to: Commander, US Army Tank-automotive and Armaments Command, ATTN: AMSTA-LE-CECT, Kansas St., Natick, MA 01760-5052. You may also submit your recommended changes by email directly to: amssbriml@natick.army.mil.

A reply will be furnished directly to you. Instructions for sending electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

**AIR FORCE**

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

**MARINE CORPS**

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

**NAVY**

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

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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 – DESCRIPTION AND INTRODUCTION.** Chapter 1 contains general information and equipment.

**CHAPTER 2 - OPERATOR MAINTENANCE INSTRUCTIONS.** Chapter 2 contains service upon receipt, initial receipt, receipt of used parachute assembly, and preventive maintenance checks and services information and instructions.

**CHAPTER 3 – UNIT MAINTENANCE INSTRUCTIONS.** Chapter 3 contains maintenance procedures authorized at the unit level.

**CHAPTER 4 – DIRECT SUPPORT MAINTENANCE INSTRUCTIONS.** Chapter 4 provides maintenance procedures authorized at the direct support level.

**CHAPTER 5 - SUPPORTING INFORMATION.** Chapter 5 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 five 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 the for 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.

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

Example: If the reader were looking for instructions on RADIAL TAPE, which is a unit maintenance topic, the table of contents indicates that unit maintenance information can be found in chapter 3. Scanning down the listings for chapter 3, RADIAL TAPE information can be found in WP 0023 00 (Work Package 23).

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



## **CHAPTER 1**

### **DESCRIPTION AND INTRODUCTION FOR PARACHUTE, CARGO TYPE: 100-FOOT DIAMETER, MODEL G-11B, G-11C, AND G-11D**





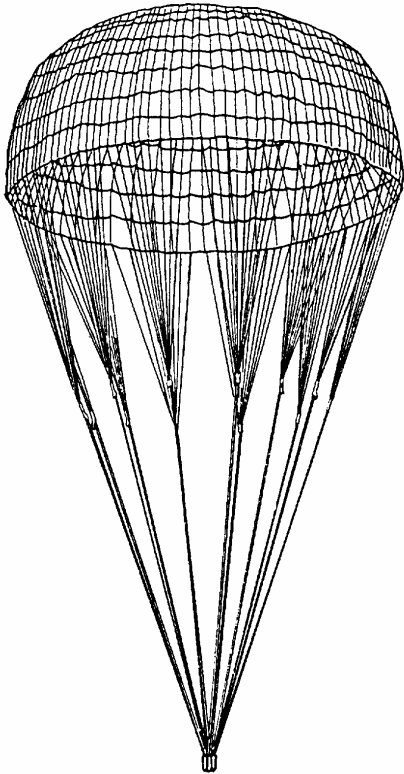
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**100-FOOT DIAMETER CARGO PARACHUTE  
GENERAL INFORMATION**

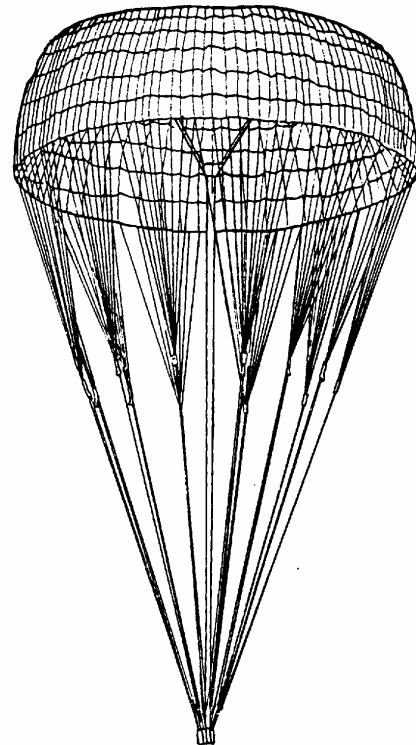
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**SCOPE**

This manual provides unit and direct support (DS) maintenance instructions for the 100-Foot Diameter, Cargo Parachute NSN 1670-01-016-7841. This manual also provides a Repair Parts and Special Tools List (RPSTL), located in WP 0051 00 through WP 0056 00.



**100-Foot Diameter, Cargo  
Parachute Assembly,  
Model G-11D**



**100-Foot Diameter, Cargo  
Parachute Assembly,  
Models G-11B and G-11C**

**Equipment Name.** 100-Foot Diameter Cargo Parachute, Model G-11B, Model G-11C, and Model G-11D, hereinafter called 100-Foot Cargo Parachute.

**Purpose of Equipment.** The parachute provides air delivery of vehicular and bulk-type platform loads. It may be used singly or in clusters of two or more.

**MAINTENANCE FORMS, RECORDS, AND REPORTS**

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8, functional users manual for The Army Maintenance Management System (TAMMS), as contained in Maintenance Management Update. Air Force personnel will use AFR 66-1 for maintenance reporting and T.O.-00-35D54 for unsatisfactory equipment reporting. Navy personnel will report maintenance performed utilizing 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.

Reporting of Item and Packaging Discrepancies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) 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 100-Foot Diameter, Cargo 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. Army Soldier and Biological Chemical Command, ATTN: AMSSB-RIM-E (N), Kansas Street, Natick, MA 01760-5052. Navy-Submit NAVSEA Form 4160/1 (REV 2-99) to Commander, NSDSA Code 5E30, NAVSURFCENDIV, 4363 Missile Way, Port Hueneme, CA 93043-4307. A reply will be 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 Standard Form 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 750-8, 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, fire, or by use of natural surroundings.

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

#### **WARNING**

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

**Destruction by Fire.** Items that can be destroyed by fire shall be burned. The destruction of equipment by use of fire is an effective method of destroying low-melting-point metal items (e.g., cutter brackets, threaded portions of nuts and bolts, and clevises). 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, which 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: Disposal or denial of equipment to an enemy may be accomplished through use of natural surroundings. 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**

For storage, refer to TM 10-1670-201-23/T.O. 13C-1-41/NAVAIR 13-1-17, and WP 0047 00 of this manual; for shipment, refer to WP 0048 00 of this manual.

#### **WARRANTY INFORMATION**

The 100-Foot Diameter, Cargo Parachute does not contain warranty provisions.

**NOMENCLATURE CROSS-REFERENCE LIST**

<b>Common Name</b>	<b>Official Nomenclature</b>
100-Foot Cargo Parachute	100-Foot Diameter, Cargo 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

**LIST OF ACRONYMS AND ABBREVIATIONS - Continued**

ROD	Report of Discrepancy
RPSTL	Repair Parts and Special Tools List
SF	Standard Form
SMR	Source, Maintenance and Recoverability
TAMMS	The Army Maintenance Management System
TB	Technical Bulletin
TDR	Transportation Discrepancy Report
TM	Technical Manual
TMDE	Test Measurement and Diagnostic Equipment
UOC	Usable on Code
WP	Work Package

**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 painful injuries. It is imperative that you observe all safety precautions specified on the warning summary in the front of this manual. You must also observe specific warnings and cautions specified throughout this manual. The warnings are provided to tell you how to protect yourself from serious injury or death.

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

Use care in handling packed parachutes as metal parts could cause personal injury.

Remove all jewelry when packing or performing maintenance on the parachute. Damage to the canopy materials could result from watches, rings, bracelets, etc.

Cover canopy during periods of inactivity. Avoid exposing canopy for prolonged periods to sunlight, inspections lights or fluorescent lights. Nylon material is subject to deterioration under ultraviolet light.

**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 are listed and illustrated in WP 0052 00 – WP 0055 00 of this manual.

**END OF WORK PACKAGE**



## 100-FOOT DIAMETER CARGO PARACHUTE EQUIPMENT DESCRIPTION AND DATA

### EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

A summary of the characteristics, capabilities and features of the equipment is contained in the following subparagraphs:

**Characteristics.** A heavy capacity parachute designed for the air delivery of vehicular and bulk-type platform loads.

**Capabilities and Features:**

Capable of supporting up to 42,000-pounds, when in a cluster of eight. (Refer to FM 4-20.102)

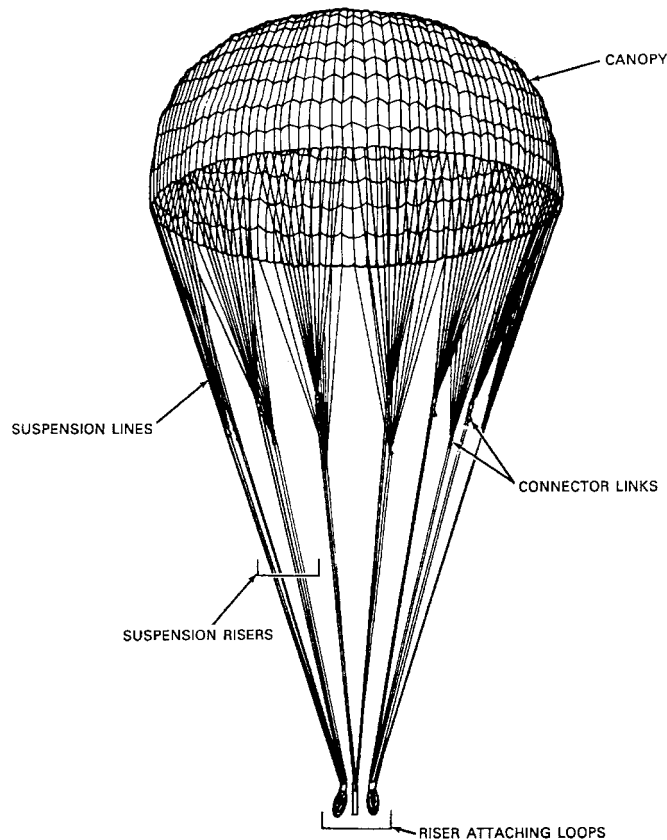
Can be used singly or in clusters of two or more, depending upon air delivery load weight.

Designed for deceleration and stabilization of vehicular and bulk-type platform air delivery cargo loads.

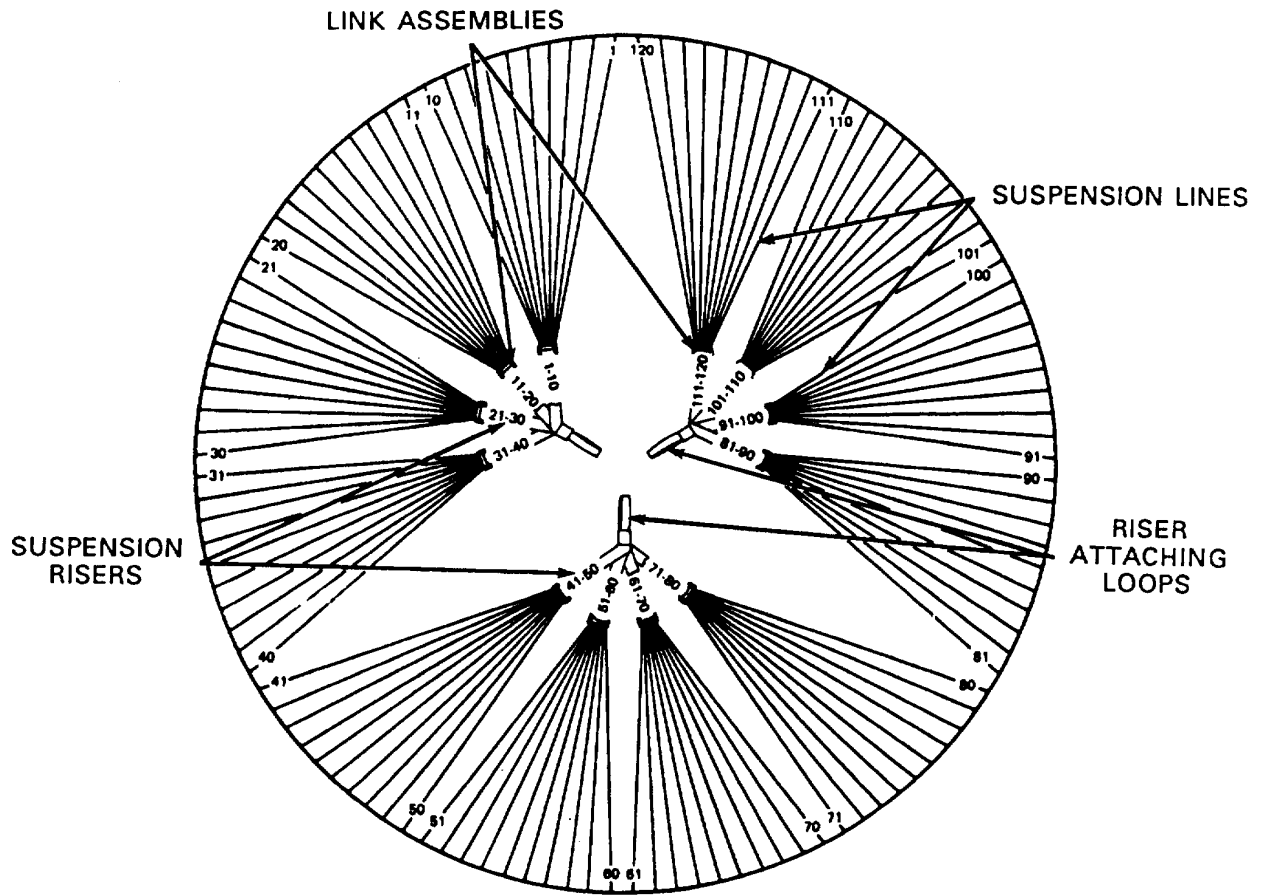
### LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The following subparagraphs contain locations and descriptions of major components.

**Canopy (see illustrations below and on the following page).** The canopy assembly consists of a 100-foot diameter nylon canopy, with suspension lines numbered counterclockwise, 1 through 120, as viewed from the connector links, and three riser assemblies, each composed of four suspension risers, terminating in three riser attaching loops. A link assembly connects each of the 12 suspension risers to 10 consecutively numbered suspension lines.



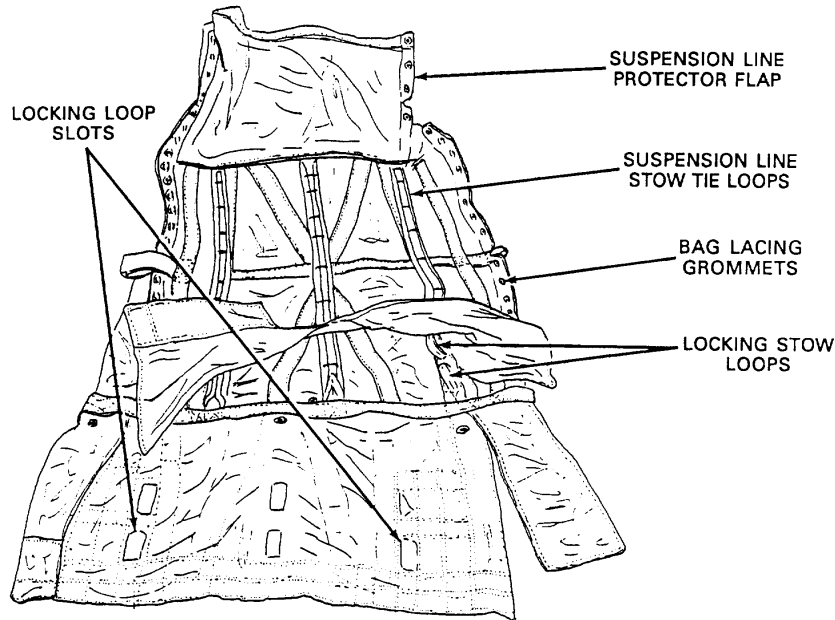
**Parachute Canopy Assembly**



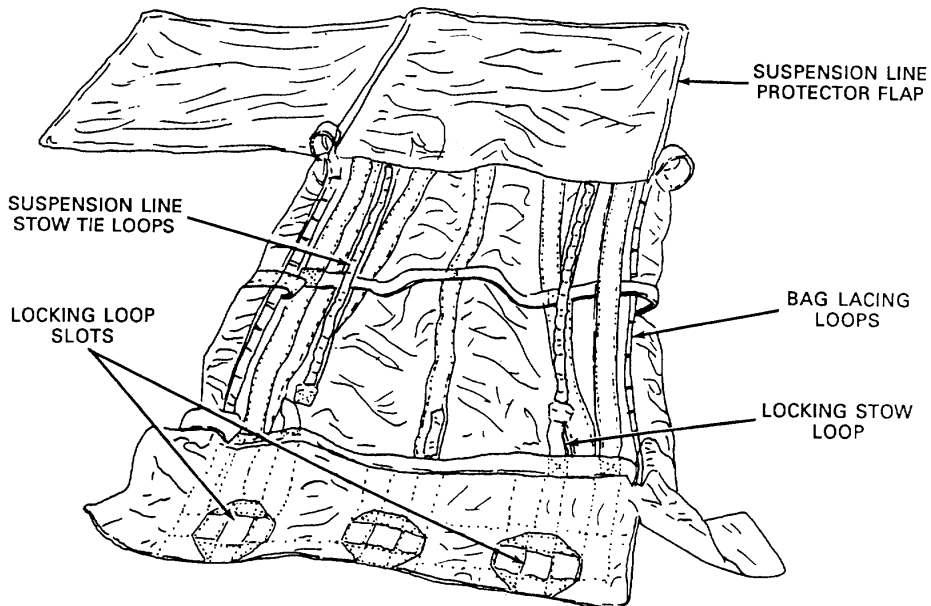
Suspension Line Arrangement and Numbering



**Deployment Bag.** There are two deployment bags used with the 100-foot G-11 parachute, the cotton d-bag and the nylon d-bag (see illustrations below). The cotton bags and the nylon bag are of the locking-closure type. The cotton bag has larger locking stow loops to accommodate the center line used in the model G-11B and G-11C parachutes. The cotton bag also has additional grommets to secure two additional reefing line cutters on the model G-11B and G-11D parachute. The nylon bag also has larger locking stow loops to accommodate the center line.

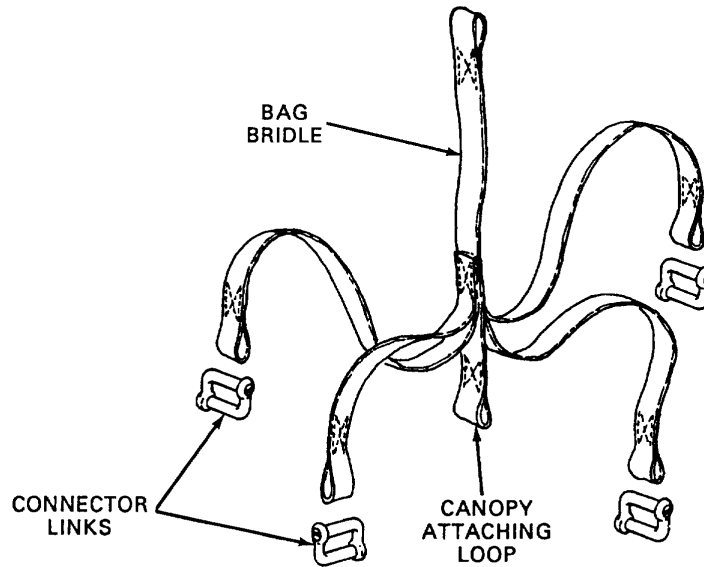


**The Cotton Parachute Deployment Bag**



**The Nylon Parachute Deployment Bag**

**Deployment Bag Bridle.** The deployment bag bridle consists of a main webbing strap with four webbing branch straps. The main strap contains the canopy attaching loop at the lower end. The branch straps are attached to the G-11 d-bag by four connector links.



**Bridle for Cotton Deployment Bag**

**DIFFERENCE BETWEEN MODELS**

MODEL	DIFFERENCE
G-11B	Uses 100-foot centerline to pull down canopy vent and four M-21 reefing line cutters with 2-second delay.
G-11C	Uses 100-foot centerline to pull down canopy vent and two M-21 reefing line cutters with 2-second delay.
G-11D	No centerline. Uses four M-21 reefing line cutters with 2-second delay.

**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 100-foot G-11 cargo parachute.

**100-Foot Diameter G-11 Cargo Parachute**

**General:**

Total weight (packed for use)	250-pounds
Dimensions (packed for use)	35 1/2-inches wide by 48 5/16-inches long by 12-inches high
Cube (packed for use)	11.9 cubic feet

**ASSEMBLY SPECIFICS****Canopy Assembly:**

Shape	Flat-circular
Diameter (nominal)	100-Foot
Number of Gores	120
Number of Sections Per Gore	7 or 13
Gore Material	Type II or Type III, 1.6-Ounce Nylon Parachute Cloth
Number of Suspension Lines	120
Length of Suspension Lines	35-Foot
Number of Suspension Riser Assemblies	3
Length of Suspension Riser	60-Foot
Reefing Line Length:	
Model G-11B (4)	16 ½-Feet
Model G-11C (2)	10-Feet
Model G-11D (4)	12-Feet
Reefing Line Material:	
Models G-11B and G-11D	½-inch-wide tubular nylon webbing
Model G-11C	Type IV coreless nylon cord

**M-21 Reefing Line Cutter:**

Method of Activation	Arming Cable
Method of Actuation	Explosive Powder
Firing Time Delay	2-Seconds

**Deployment Bag:**

Type Bag	Locking-closure
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**END OF WORK PACKAGE**



**CHAPTER 2**  
**OPERATOR MAINTENANCE INSTRUCTIONS**  
**FOR**  
**PARACHUTE, CARGO TYPE:**  
**100-FOOT DIAMETER, MODEL**  
**G-11B, G-11C, AND G-11D**



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## 100-FOOT DIAMETER CARGO PARACHUTE SERVICE UPON RECEIPT

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### THIS TASK COVERS:

- Overview
  - Initial Receipt
  - Receipt of Used Parachute
  - After-Use Receipt
- 

### INITIAL SETUP:

#### Materials/Parts

Tape, Lacing and Tying (Item 31, WP 0059 00)

#### Tools

Needle, Tacking (Item 13, WP 0050 00)

#### Personnel Required

92R (10) Parachute Rigger

#### Equipment Condition

All equipment shall be serviceable and ready for use.

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### OVERVIEW

This work package (WP) contains information necessary to maintain the 100-Foot Diameter Cargo 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) 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 item(s) will be unpacked from the shipping container(s) 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 0009 00, INSPECTION. Upon completion of the inspection, the item(s) will be tagged as prescribed in The Army Maintenance Management System Aviation (TAMMS-A) 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 750-8. Marine Corps users refer to MCO 4855.10.

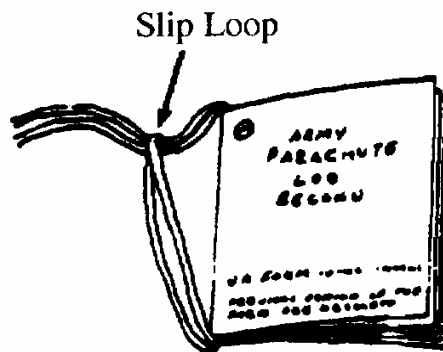
**Inspection Personnel.** Personnel, other than parachute rigger personnel, may assist in the unpacking process of initially received parachutes as directed by the local air delivery equipment maintenance officer. However, the maintenance officer will ensure the entire unpacking effort is conducted under 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 sample lots that have been randomly selected in accordance with military standards. It is incumbent upon the using activity personnel to bear this in mind whenever equipment is first placed in service. Changes will sometimes evolve from the original equipment design and sometimes contractors are authorized 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 shall be air worthy, safe, of the desired configuration, and adequate for intended use.

**Parachute Log Record.** The Army Parachute Log Record, DA Form 3912, is a history-type maintenance document that accompanies the parachute canopy and pack 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 parachute 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, and especially a packed parachute, except as directed by the local airdrop equipment maintenance activity officer. A log record which 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 attaching tie as follows:

1. Cut a 30-inch length of tape, lacing and tying waxed nylon thread and double the lacing length.
2. Pass 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.

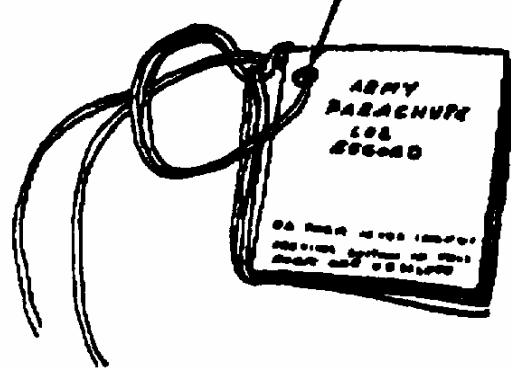


Forming Slip Loop On Log Record Outside



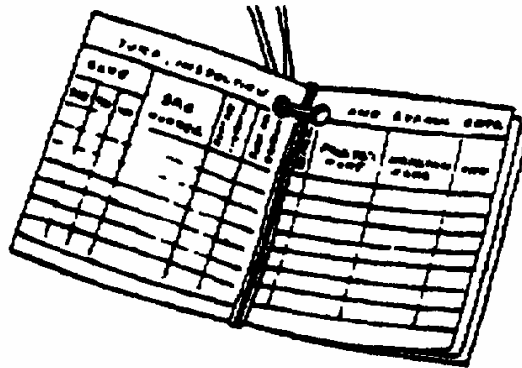
3. Pass lacing length running ends through the corner attaching hole from the front cover of log record book.

Corner Attaching Hole



Passing Lacing Loose Ends Through Corner Attaching Hole

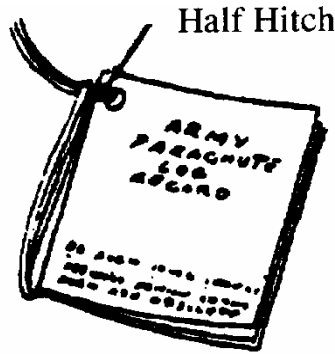
4. Ensure running ends are routed over that part of the lacing length located along the log record centerfold.



Routing Lacing Loose End Through Log Record Centerfold

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

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



**Log Record Attachment Tie Completed**

- Insert log record into the pocket and secure the record within pocket using the pocket flap and applicable type flap fastener.

**Accomplishing a Log Record.** Upon completion of first technical/rigger-type inspection, the individual performing the inspection will initially prepare a log record for an individual parachute 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.

- 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.	
STATION & UNIT	
<i>(Continued on inside back cover)</i>	

**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 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 form is a rectangular box with a circle in the top left corner. To the right of the circle, the text "STATION & UNIT (Continued)" is printed. Below this text are approximately ten horizontal lines for writing.

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 "Modification Work Order Compliance Record" pages of the Log Record.
- a. MWO Number. Enter publication number and date of Modification Work Order (MWO) that describes 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

- d. 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 (Item 2, Illustration below), which signifies the applicable MWO has been complied with.

Modification Work Order		Compliance Record					
MWO Number	MWO Title	Modified By (Name)	INSP By	UNIT	Date		
					Day	MO.	YR.
① 10-1670-213-201 15 JULY 01	STATIC LINE STOW MODIFICATION	VORREKAR	TR	SBCOM	24	3	00
② 10-1670-213-201 15 JULY 01	STATIC LINE STOW MODIFICATION	C/W	TR	SBCOM	24	6	01

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

- e. Inspected By. The individual who accomplished the inspection required after modification will sign this entry with their last name only.

- f. 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.

- g. Date. Enter the date (day, month, and year) the modification work was completed.

- 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 Parachute Log Record. Additional entries will also be made on this page each time the canopy assembly is repaired or is administered an inspection in compliance with a Maintenance Advisory Message (MAM) or Ground Precautionary Message (GPM). The page completion criteria is as follows:


- a. Type of Repair. Enter the type of repair, completion of initial inspection, repair accomplishment, or MAM or GPM compliance.
- b. Inspection By. The individual who accomplished the inspection required will sign this entry with last name.
- 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.

Unit & Direct Support	Repair & Inspection Data				
Type of Repair	Insp. By	Unit	Date		
			Day	MO	YR
① Initial Inspection	VORREKAR	SBCOM	12	2	01
② 1 Sec and 4 Lines replaced	Gravel	SBCOM	3	3	01
③ TBS 10-1670-213-20/5	BURGER	SBCOM	10	4	01

- 1. Completion Of Initial Inspection.
- 2. Repair Accomplishment.
- 3. Technical Bulletin Inspection Compliance.

- 5. Note Page. A page is provided at the back of the parachute log record to accommodate recording of

6. 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: JAN '86	
PLACED IN SERVICE: MAR '86	
IMMERSED IN SALT WATER: 26/10/86	
RINSED 27/10/86	

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.

7. Replacing a filled out or unserviceable log record.
- Using a suitable blue or black marking device, enter NEW BOOK on the outside front cover of the replacement log record.
  - 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.
  - 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.
  - Transcribe all data from the remaining pages of the original log record to the appropriate pages of the replacement log record.
  - After all original data has been transcribed, destroy the original log record.
8. 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.

- Using a suitable blue or black marking device, enter NEW BOOK at the top of the inside front cover of

- b. the replacement log record.
- c. Accomplish the log record inside front cover as detailed above.
- d. The age life of the canopy will be obtained from the date of manufacture or, if available, the date the canopy was placed into service as indicated on 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 as detailed above. Enter IN if date placed in service is known. If unknown, enter UNK.
- e. 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.
- f. 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 used parachute proceed as follows:

1. Follow procedures given in INITIAL RECEIPT detailed above, 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 0050 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 0007 00), and, if necessary, cleaned (WP 0008 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 a SF 361, Transportation Discrepancy Report (TDR).
2. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in DA PAM 750-8. Marine Corps personnel refer to MCO 4430.3.
3. Check to see whether the equipment has been modified.

**END OF WORK PACKAGE**

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**100-FOOT DIAMETER CARGO PARACHUTE  
ASSEMBLING THE 100-FOOT DIAMETER CARGO PARACHUTE**

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**THIS TASK COVERS:**

- Assembly

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**ASSEMBLY**

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**NOTE**

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The procedure for assembling components of the G-11 parachute is incorporated in the following WPs: WP 0011 00 for the G-11B, WP 0012 00 for the G-11C, and WP 0013 00 for the G-11D.

**END OF WORK PACKAGE**





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**100-FOOT DIAMETER CARGO PARACHUTE  
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), INTRODUCTION**

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**GENERAL**

The following describe PMCS procedures on the unit and direct support levels. The purpose of PMCS is to ensure the 100-Foot Diameter Cargo Parachute is in proper operating condition, and ready for its primary use.

**SCOPE**

The following work packages (WP 0007 00 through WP 0048 00) contain maintenance procedures that are the responsibility of the specified technician, as authorized by the Maintenance Allocation Chart (MAC), and the Source, Maintenance, and Recoverability (SMR) coded items that are identified in the Repair Parts and Special Tools List (RPSTL).

**MAINTENANCE FUNCTIONS/PROCEDURES**

Each of the mentioned work packages above identifies as 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 100-Foot Diameter Cargo Parachute will be repacked at a scheduled interval (365 days) to ensure airworthiness. When necessitated by climate/storage/use condition, the local airdrop 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 100-Foot Diameter Cargo Parachute will be repacked at a 365-day interval. However, the repack cycle of the 100-Foot Diameter Cargo Parachutes stored in Depots and facilities that maintain contingency stocks of 100-Foot Diameter Cargo Parachute, that 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 100-Foot Diameter Cargo 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 0003 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 0009 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 0009 00, INSPECTION. If serviceable, the item(s) may then remain in use.

**END OF WORK PACKAGE**



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**100-FOOT DIAMETER CARGO PARACHUTE  
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)**

---

**GENERAL**

The following describe PMCS procedures on the unit and direct support levels. The PMCS table has been provided to ensure the 100-Foot Diameter Cargo 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 airdrop equipment maintenance officer.

**PMCS Columnar Entries Table 1.** Enter data in columns as follows:

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

Interval. This column identifies the required PMCS level.

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

Procedures. Provides a 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 750-8, DA PAM 738-751, and TB 43-0002-43.

**Overage Items.** The 100-foot 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 packing surface or suitable sized floor area.

Should defect or damage be discovered at any point during the inspection, the inspection will be terminated and the applicable item will be processed and forwarded to repair activity. The repair activity, in turn, will conduct a technical/rigger-type inspection that will be performed by only those parachute rigger personnel cited in AR 750-32, Airdrop, Parachute Recovery and Aircraft Personnel Escape Systems.

Any defect discovered during a unit level repair activity inspection which exceeds the capability of that activity will require the affected item to be evacuated to a direct support (DS) maintenance function for further determination of economic repair and repair accomplishment, if applicable.

**NOTE**

A parachute which is deemed unserviceable by a packing or rigging activity will be S-folded in its deployment bag 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		
				The 100-Foot Diameter Cargo Parachute	<p><b>NOTE</b></p> <p>Any defective material noted must be repaired prior to use.</p>
01	•			Parachute <i>(Packed for Use)</i>	Visually check visible parts for serviceability and completeness without opening deployment bag. Check parachute inspection data record for pack date and also check inspection data pocket for availability of reefing line cutter tags to ensure the reefing line cutters are armed. Confirm model of parachute.
02	•		•	Canopy	<p>As canopy is inflated for shakeout, remove all debris by hand using a suitable broom or brush. Also check for dampness, fungus, mildew, acid, grease, oil, dirt, foreign material, holes, cuts, tears; broken lines and webbing.</p> <p><i>Fabric Material.</i> Legibility of marking data; completeness; dampness, fungus, mildew, dirt, acid, grease, oil, foreign material, rips, burns, cuts, breaks, frays, tears, holes, thin spots, loose weaving; loose or broken stitching, tacking lines; freedom of lines in radial seams; raveled ends.</p> <p><i>Hardware Components.</i> Corrosion, rough spots, burrs, breaks, cracks, bends; loose or missing screws and reefing line rings; stripped or damaged threads.</p>
03	•		•	Deployment Bag	Completeness, dampness, fungus/mildew, acid, grease, oil, dirt, foreign material, holes, cuts and breaks.

**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		
					<i>Fabric Materials.</i> Completeness; dampness, fungus/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, breaks, cracks, bends; loose or missing grommets.
04	•		•	Parachute Bridle	Completeness; dampness, fungus/mildew, acid, grease, oil, dirt, foreign material, holes, cuts and breaks.
					<i>Fabric Material.</i> Completeness; dampness, fungus/mildew, dirt, acid, grease, oil, foreign material, rips, burns, cuts, breaks, frays, tears, holes; missing, loose or broken stitching.
					<i>Hardware Components.</i> Corrosion, rough spots, burrs, breaks, cracks, bends; stripped or damaged threads; loose or missing screws.
05	•		•	Center Line	Dampness, fungus/mildew, dirt, acid, grease, oil, burns, cuts, loose or broken stitching. Not Less than 97-feet in length.

**LUBRICATION SERVICE INTERVALS**

The 100-Foot Diameter Cargo Parachute does not require lubrication service.

**END OF WORK PACKAGE**

**CHAPTER 3**

**UNIT MAINTENANCE INSTRUCTIONS**  
**FOR**  
**PARACHUTE, CARGO TYPE:**  
**100-FOOT DIAMETER, MODEL**  
**G-11B, G-11C, AND G-11D**





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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**SHAKEOUT AND AIRING**


---

**THIS TASKS COVERS:**

- Shakeout
  - Airing
- 

**INITIAL SETUP:****Tools**

Broom (Item 2, WP 0050 00)  
 Brush, Scrub, Household (Item 3, WP 0050 00)  
 Fan, Pedestal (Item 5, WP 0050 00)

**Personnel Required**

92R (10) Parachute Rigger, As Required.

**Equipment Condition**

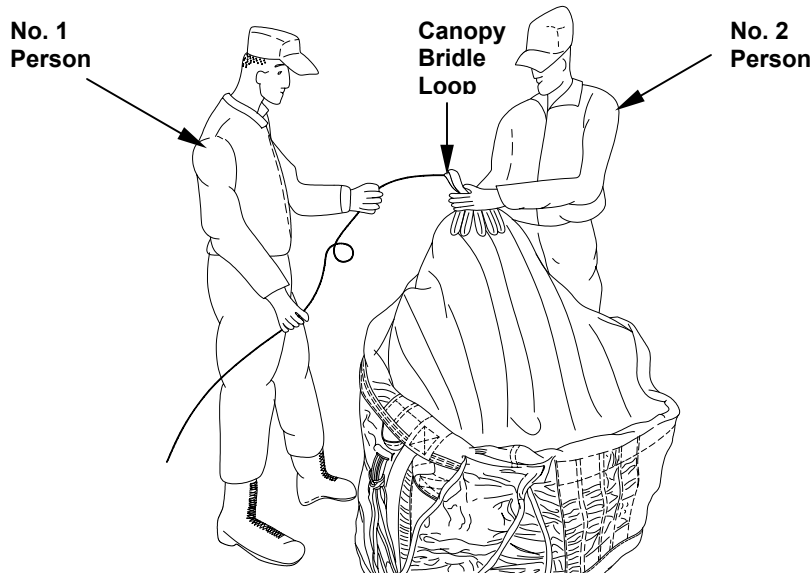
Parachute suspended or inflated.

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**SHAKEOUT**

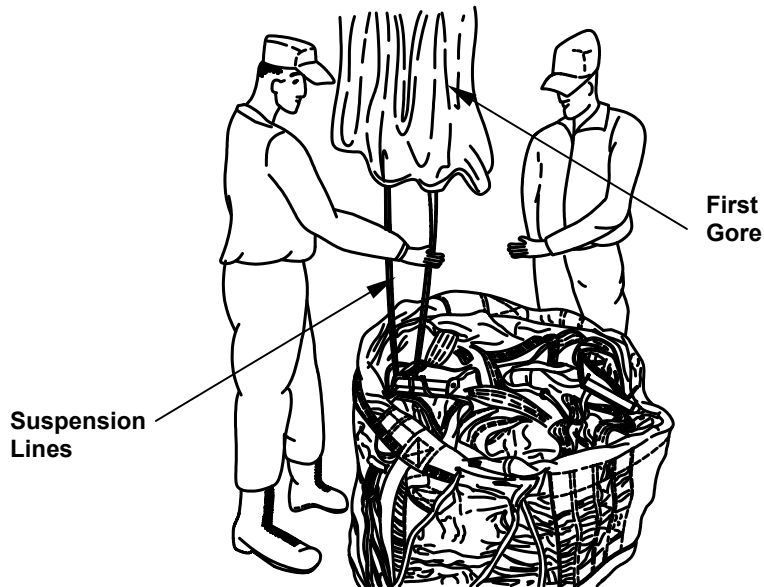
A three-person or four-person team either indoors within a shakeout room or outdoors at a shakeout tower will accomplish the shakeout. If facilities permit, shakeout will be accomplished by suspending the canopy as described in procedure 1., below. If facilities do not permit canopy suspension, the canopy will be inflated and shakeout will be accomplished as described in procedure 2., below.

1. Canopy suspension method. Each parachute will be suspended by the canopy vent and all debris removed by shaking the canopy thoroughly or by brushing with a dry, soft-bristled brush as detailed below:
  - a. With assistance from No. 2 person, No. 1 person will connect snap on a pulley rope to canopy bridle loop.



- b. Through use of a pulley rope, No. 1 and 2 personnel will raise canopy to a suitable height that will enable the No. 3 and 4 personnel to perform shakeout on each canopy gore. Until gore shaking process is completed, No. 1 and 2 personnel will maintain a steady pull (or temporarily secure pulley rope) on pulley rope to hold suspended canopy at working height needed by the No. 3 and 4 personnel.

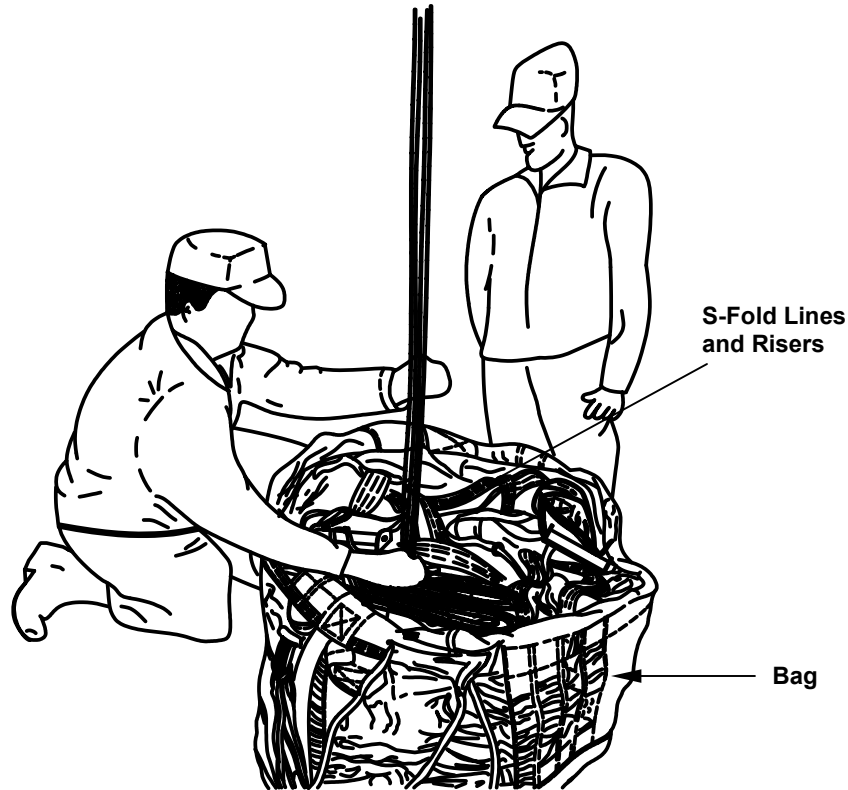
- c. No. 3 and 4 personnel will grasp any two consecutive suspension lines, one in each hand, and vigorously shake first gore. When gore is free of debris, pass line from right hand to left hand and grasps next consecutive suspension line in right hand. Shake out each consecutive gore until all suspension lines are held in left hand and all gores are free of debris.



- d. Once gore shaking process is completed, No. 1 and 2 personnel will slowly raise suspended canopy higher as No. 3 and 4 personnel clear suspension lines and risers of debris and removes entanglements when possible.

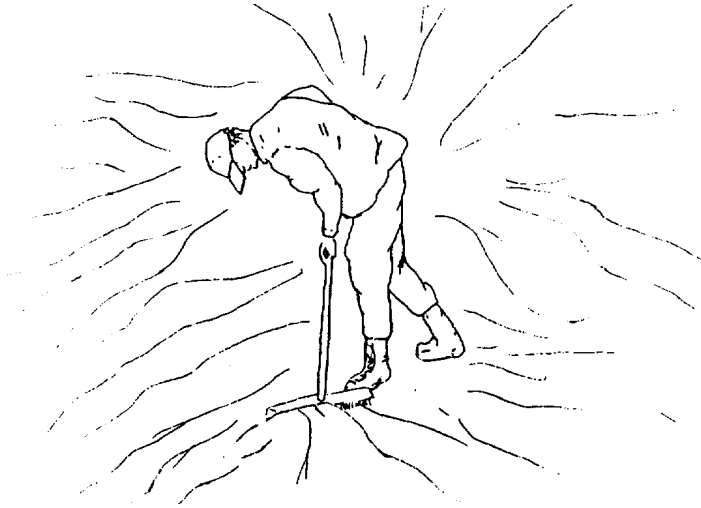


- e. After suspension lines have been cleared, No. 1 and 2 personnel may hold or temporarily secure pulley rope while No. 3 and 4 personnel proceed to clear debris from other parachute components.
- f. When all components are free of debris, No. 1 and 2 personnel will slowly lower canopy while No. 3 and 4 personnel S-fold suspension lines and risers into deployment bag.



- g. After suspension lines and risers have been completely folded, No. 1 and 2 personnel will accordion-fold canopy length on top of folded lines.
  - h. As canopy folding is being completed, No. 1 and 2 personnel disconnects canopy vent from pulley rope snap. Secure folded canopy assembly for further handling.
2. Canopy inflation method. The shakeout will be accomplished by a three-person team, either indoors within a shakeout room or outdoors at a suitably-sized shakeout area. Each parachute canopy will be inflated and all debris removed by shaking the canopy thoroughly or by brushing with a dry soft-bristled brush or broom, as detailed below:
- a. The No. 1 person will position a large pedestal fan at a point 10-feet below the canopy skirt so the air-stream will partially inflate the canopy.

- b. The No. 2 person will enter the inflated canopy with a broom or fine-bristled brush and sweep the inside surfaces of accumulated debris.



- c. The No. 1 person will grasp the first available suspension line, holding it high above the head while holding the next consecutive suspension line with the foot. The No. 3 person on the outside of the canopy and the No. 2 person on the inside will sweep or brush accumulated debris from the exposed canopy gore.
- d. As each gore is cleared of debris, the No. 1 person will continue to expose the next consecutive gore to the sweeping or brushing process until all gores are free of debris.
- e. Once the gore sweeping or brushing process is complete, the No. 2 person will exit the canopy, shut down the pedestal fan and continue to clear accumulated debris from the suspension lines and risers.
- f. When all components are free of debris, the No. 1 person will S-fold the canopy, suspension lines and risers into a deployment bag, while the No. 2 and No. 3 personnel hold the bag open.

**CAUTION**

Prolonged exposure to direct sunlight will cause extension damage to fabric materials.

**AIRING**

Where dampness and mildew are prevalent, airdrop 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. Airdrop 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 airdrop 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**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**CLEANING AND DRYING**

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**THIS TASKS COVERS:**

- Cleaning Fabric Items With Dishwashing Compound
  - Drying Fabric Items
  - Cleaning Metal Items
  - Rinsing Equipment Immersed in Salt-water
  - Rinsing Equipment Immersed in Fresh-water
- 

**INITIAL SETUP:****Materials/Parts**

Cloth, Abrasive (Item 2, WP 0059 00)  
 Dishwashing Compound (Item 16, WP 0059 00)  
 Lubricant, Solid Film (Item 19, WP 0059 00)  
 Rag, Wiping (Item 25, WP 0059 00)

**Tools**

Brush, Scrub, Household (Item 3, WP 0050 00)  
 File, Flat (Item 6, WP 0050 00)

**Equipment Condition**

Laid out on packing table or other suitable surface.

**Personnel Required**

92R (10) Parachute Rigger

**References**

WP 0003 00, WP 0009 00, WP 0050 00

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**CAUTION**

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

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**NOTE**

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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. Use a solution of hand dishwashing compound and warm water to clean soiling caused by airsickness.

**CLEANING FABRIC ITEMS WITH A SOLUTION OF HAND DISHWASHING COMPOUND**

Use dishwashing compound to clean fabric items as follows:

1. Gently brush with a soft bristle brush.
2. Spot clean with a solution of dishwashing compound.

- a. Dissolve one-half cup of dishwashing compound in one-gallon of warm water.
- b. Rub soiled area with a clean cloth dampened with solution of dishwashing compound.
- c. Rinse cleaned area by repeating rubbing process with a clean portion of 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 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). Preferred temperature is 140°F (60°C).

**CLEANING METAL ITEMS**

Clean metal items as follows:

**CAUTION**

Use care not to damage the adjacent fabric materials.

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

**NOTE**

Shield adjacent fabric material before spraying solid film lubricant.

2. Spray metal item with a solid film lubricant and allow to air dry for 24-hours.

**NOTE**

A small amount of lubricant will not damage fabric, but may cause discoloration and make fabric appear soiled.

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**NOTE**

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Equipment made of cotton fabric immersed in salt-water is to be condemned. Refer to WP 0009 00, INSPECTION, for equipment disposition.

**PARACHUTE ASSEMBLY 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. 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 the fabric or the suspension lines. Within 48-hours after recovery, under the supervision of a qualified parachute rigger (92R), rinse the recovered parachute assembly as follows:

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

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**NOTE**

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

2. Agitate container contents by hand for 5-minutes.
3. Remove parachute assembly from container and suspend or elevate it in a shaded area, allowing a 5-minute drainage period. Do not attempt to wring the fabric or the suspension lines.
4. Repeat procedures 1. through 3., above, twice, using fresh, clean water for each rinse.
5. After third rinse, allow the parachute assembly to drain thoroughly. Upon completion of draining, dry the assembly in accordance with the DRYING FABRIC ITEMS procedures detailed above.
6. When dried, perform a technical/rigger-type inspection of the parachute assembly. Corroded metal components, or corrosion-stained fabrics or suspension lines will be either repaired or replaced as prescribed by the MAC, WP 0050 00.
7. Record any repairs, immersion and rinsing in the parachute log record as detailed in WP 0003 00, SERVICE UPON RECEIPT.

**PARACHUTE ASSEMBLY IMMERSSED IN FRESH-WATER**

Any parachute, or its components, that has been immersed in a fresh-water lake, river or stream will not require rinsing unless it has been ascertained that the water is dirty, oily or otherwise contaminated.

Procedures for handling a fresh-water immersed parachute are as follows:

1. Contaminated fresh-water. If the parachute, or its components, has been immersed in contaminated fresh-water, rinse and dry and, if applicable, repair the item(s) using the procedures in the PARACHUTE ASSEMBLY IMMERSSED IN SALT-WATER paragraph, above.
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 this WP. Minor discoloration of fabric items resulting from immersion in uncontaminated fresh-water may occur. No attempt should be made to eliminate a minor discoloration, as a slight discoloring is preferable to employing vigorous techniques that may damage fabric. Small stains caused by petroleum products or blood will be removed using spot-cleaning procedures outlined in this WP.

**END OF WORK PACKAGE**



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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**INSPECTION**

---

**THIS TASK COVERS:**

- Routine
  - Pack-In-Process
  - Technical/Rigger-Type
  - In-Storage
  - Equipment Disposition
- 

**INITIAL SETUP:****Equipment Condition**

Laid out on packing table or other suitable surface.

**Personnel Required**

92R (10) Parachute Rigger

**References**

DA PAM 738-751; TB 43-0002-43;  
DA PAM 738-750; AR 750-1; WP 0009 00;  
WP 0010 00; WP 0050 00

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**NOTE**

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

**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 airdrop 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:

1. After the canopy is placed in proper layout and the reefing line cutters are installed. (G-11B and G-11C center line and temporary tie installed.)
2. After gore folding is completed, reefing line is installed and center line is installed (G-11B and G-11C).
3. After the canopy, suspension lines, connector links and riser ties are completed.
4. After the installation of breakcord tie (G-11D), stowing the canopy and arming the reefing line cutter.
5. After the first regular stow.
6. After the deployment bag is closed and suspension lines protector flap is laced.

**TECHNICAL/RIGGER-TYPE INSPECTION PROCEDURES**

Perform inspection as follows:

1. Overall Inspection. An overall inspection will be made on the 100-foot diameter cargo 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) is enclosed and properly attached as prescribed in WP 0003 00, SERVICE UPON RECEIPT. Further, remove the log record from the pocket and evaluate the recorded entries to ensure compliance with WP 0003 00, SERVICE UPON RECEIPT.
  - 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 assembled product functions in prescribed manner. Further ensure that no stitch formation or sewn seam has been omitted.
  - d. Markings and stenciling. Inspect each assembly and 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 1., above, a detailed inspection will be performed on materials which 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, deterioration; damaged, loose or missing safety pins.
  - b. Cloth. Inspect for breaks, burns, cuts, frays, holes, rips, snags, tears; loose, missing or broken stitching or tacking; weak spots, wear, or deterioration.
  - c. Fabric tape, webbing, and cordage. Inspect for breaks, burns, cuts, frays, holes, snags, tears, incorrect weaving, and sharp edges formed from searing; loose, missing, or broken stitching, tacking, whipping, and weaving; weak spots, wear, and deterioration.
  - d. Pressure-sensitive (adhesive) tape. Inspect for burns, holes, cuts, tears, weak spots, looseness and deterioration.

**IN-STORAGE INSPECTION**

An in-storage inspection is a physical check conducted on a random sample of airdrop 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 shall also concern the methods and procedures applied to the storage of airdrop items, the adequacy of storage facilities, efforts of pest and rodent control, and protection against unfavorable climatic conditions. Airdrop equipment that is in storage will be inspected at least semiannually and at more frequent intervals if prescribed by the local parachute maintenance officer. The frequency of inspection may vary according to the type of storage facilities and local climatic conditions. Only parachute rigger personnel designated by the local parachute maintenance officer will conduct in-storage inspections.

**EQUIPMENT DISPOSITION**

Airdrop 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 airdrop 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 airdrop 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 the MAC, WPs 0050 00.
2. 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 WP 0009 00, INSPECTION, of this manual.
3. 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, US Army Soldier and Biological Chemical Command, ATTN: AMSSB-RIM-E(N), Kansas Street, Natick, MA 01760-5052.
4. Equipment of doubtful serviceability. Equipment which 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 item (s) in question will be held as EIR exhibit material as outlined in DA PAM 738-750 pending receipt of disposition instructions from the NMP. A maintenance activity holding EIR exhibit material will not tamper with the applicable item(s) or make any attempt to ascertain cause factors. Unnecessary handling or EIR exhibit material may disturb or alter peculiar aspects of the affected item(s) which might affect the judgment of engineering personnel who have the responsibility for final evaluation of EIR actions.
5. Equipment immersed in salt-water. Any airdrop 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 of deterioration such as extreme discoloration or indications of broken thread. Any airdrop equipment constructed of nylon or rayon material that has been immersed in salt water in excess of 24-hours will be condemned. Additionally, any nylon or rayon airdrop item 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. However, if the cited time limitations can be met, then immediately upon recovery, suspend or elevate the recovered equipment in a shaded area and allow the item(s) to drain for at least 5-minutes. Do not attempt to wring the equipment fabric 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, SALT/FRESH-WATER CONTAMINATION TEST.

**END OF WORK PACKAGE**



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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**SALT-/FRESH-WATER CONTAMINATION TEST**

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**THIS TASKS COVERS:**

- Inspection
- 

**INITIAL SETUP:****Equipment Condition**

Laid out on packing table or other suitable surface.

**Personnel Required**

Two, 92R (10) Parachute Rigger

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**INSPECTION**

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

**Parachute Assembly 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 cannot be rinsed within 48-hours after recover, it will also 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 the fabric or the suspension lines. Within 48-hours after recovery, under the supervision of a qualified parachute rigger (92R), rinse the recovered parachute assembly as follows:

1. Place the parachute assembly in a large watertight container filled with a suitable amount of fresh, clean water to cover item(s).

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**CAUTION**

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Equipment made of cotton fabric immersed in salt-water is to be condemned. Refer to WP 0009 00, INSPECTION, for equipment disposition.

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**NOTE**

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

2. Agitate container contents by hand for 5-minutes.
3. Remove parachute assembly from container and suspend or elevate it in a shaded area, allowing a 5-minute drainage period. Do not attempt to wring the fabric or the suspension lines.
4. Repeat procedures 1. through 3., above, twice, using fresh, clean water for each rinse.

5. After third rinse, allow the parachute assembly to drain thoroughly. Upon completion of draining, dry the assembly in accordance with the DRYING FABRIC ITEMS procedures detailed in WP 0008 00, CLEANING AND DRYING.
6. When dried, perform a technical/rigger-type inspection of the parachute assembly. Corroded metal components, or corrosion-stained fabrics or suspension lines will be either repaired or replaced as prescribed by the MAC, WP 0050 00.
7. Record any repairs, immersion, and rinsing, in the parachute log record as detailed in WP 0003 00, SERVICE UPON RECEIPT.

**Parachute Assembly Immersed 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 and, if applicable, repair the item(s) using the procedures in this WP.
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 this WP. Minor discoloration of fabric items resulting from immersion in uncontaminated fresh-water may occur. No attempt should be made to eliminate a minor discoloration, as a slight discoloring is preferable to employing vigorous techniques that may damage fabric. Small stains caused by petroleum products or blood will be removed using spot cleaning procedures outlined in this WP.

**END OF WORK PACKAGE**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**G-11B PACKING PROCEDURES**

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**THIS TASK COVERS:**

- Inspection
  - Orientation
  - Preparing Parachute for Proper Layout
  - Removing Inversions
  - Locating Suspension Lines
  - Packing the G-11B Parachute Assembly
- 

**Tools**

Knife (Item 7, WP 0050 00)  
 Line Separator (Item 10, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Center Line, 100-Foot (Item 18, WP 0059 00)  
 Cord, Nylon, Type III (Item 12, WP 0059 00)  
 Cutter, Reefing Line, M-21, 2-Second (Item 15, WP 0059 00)  
 Marking Aid (Item 21/22, WP 0059 00)  
 Paper, Kraft (Item 23, WP 0059 00)  
 Tape, Adhesive, Pressure Sensitive (Item 27, WP 0059 00)  
 Tape, Lacing & Tying (Item 31, WP 0059 00)  
 Tape, Masking (Item 32, WP 0059 00)  
 Thread, Cotton, Size 8/4, Orange (Item 35, WP 0059 00)  
 Thread, Cotton, Ticket 8/7 (Item 36, WP 0059 00)  
 Webbing, Cotton, Type I, 1/4-IN. (Item 44, WP 0059 00)  
 Webbing, Textile, Nylon, Tubular, 1/2-IN. (Item 46, WP 0059 00)

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**Personnel Required**

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

**Equipment Condition**

Parachute cleaned (WP 0008 00) and given a shakeout (WP 0007 00).

**References**

DA PAM 738-750 and DA PAM 738-751;  
 TB 43-0002-43; WP 0008 00, WP 0009 00,

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**WARNING**

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

**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 TM 10-1670-201-23 and DA PAM 738-751. A detailed type inspection and a pack-in-process inspection must be performed in conjunction with the packing of each parachute (refer to WP 0009 00, INSPECTION).

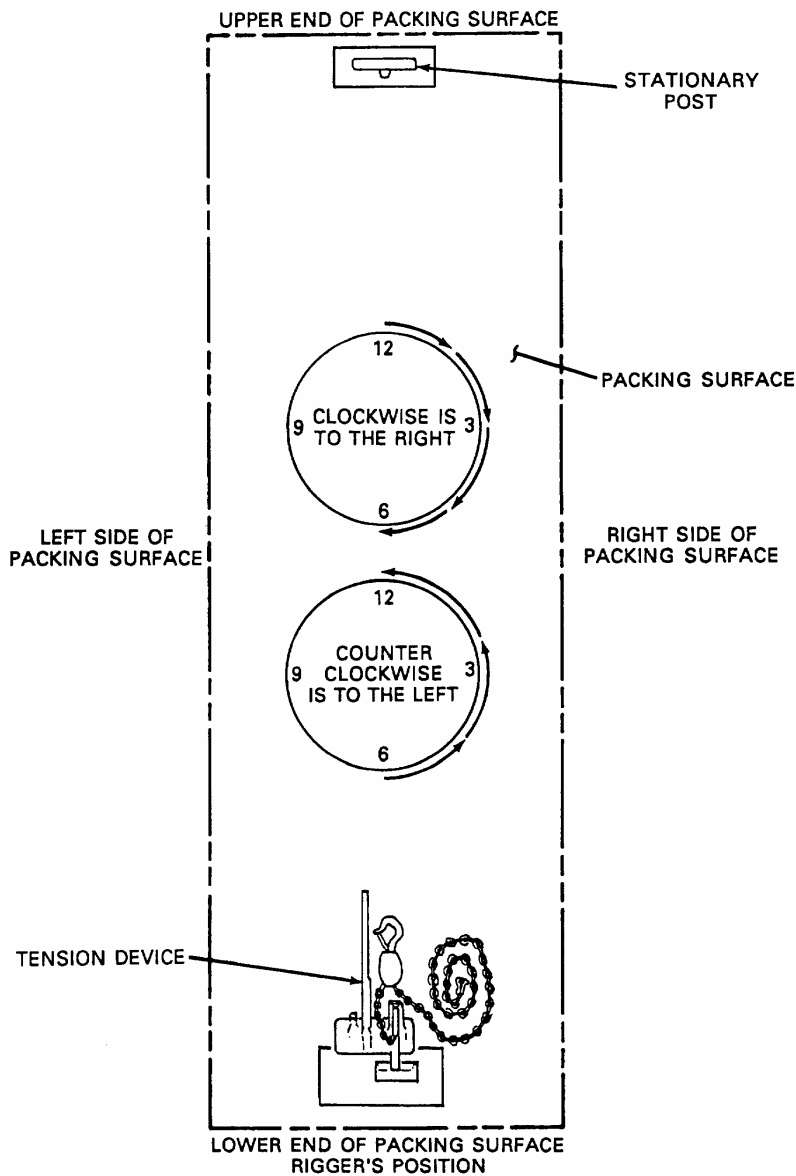
1. **Detailed Inspection.** During the packing of the parachute, it must be given a detailed inspection by the packer in accordance with WP 0009 00, INSPECTION.

2. **Pack-In-Process Inspection.** A designated supervisory parachute rigger, other than the packer, must perform a pack-in process inspection at six intervals during the packing procedure. The inspection is performed to ensure the parachute is packed according to authorized packing procedures (refer to WP 0009 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 looking from the parachute riser (tension device) toward the canopy vent (stationary post).

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.

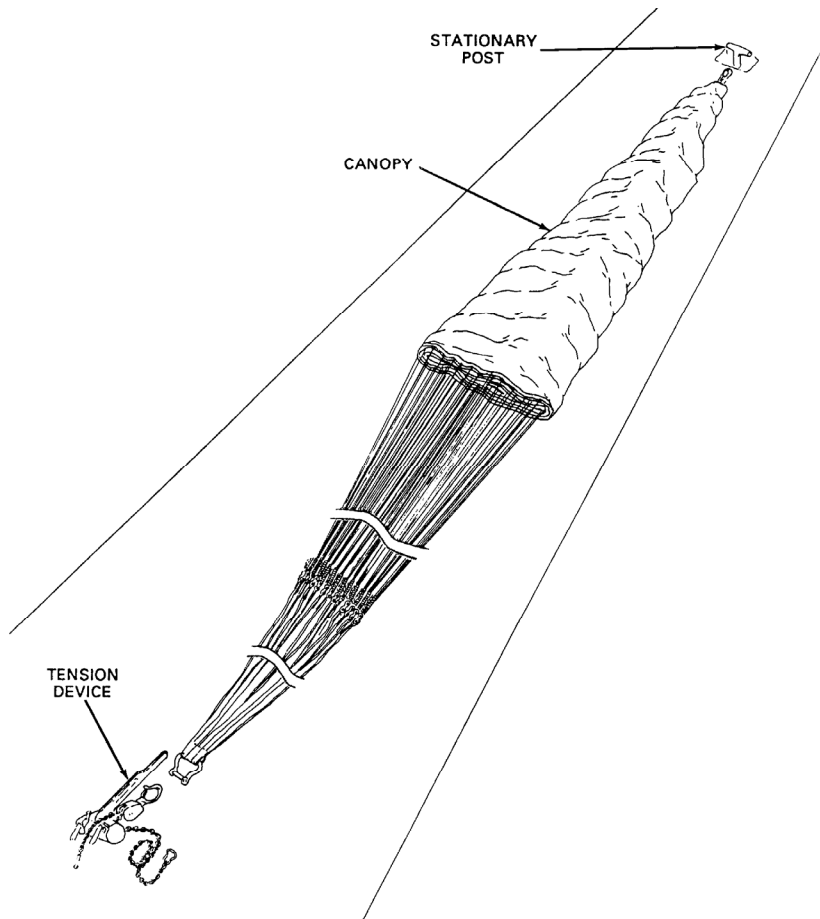




## PREPARING PARACHUTE FOR PROPER LAYOUT

Prepare the parachute as follows:

1. Prepare the parachute for proper layout by positioning the canopy in an elongated manner on a suitable packing surface, with the vent lines located next to a stationary post and the suspension risers near a tension device.
2. Remove the reefing line cutter tags and cotter pins from the log record book pocket.
3. Remove the center line for 'Before Use' inspection.
4. To complete proper layout, ensure canopy inversions are removed, suspension lines are in proper layout, and turn, tangles and twists are removed.



## REMOVING CANOPY INVERSION

To remove an inversion, proceed as follows:

1. Inspect the canopy vent lines to determine if the canopy is inverted. (If the vent lines are located on the inside of the upper lateral band, the canopy is inverted.)
2. To remove the inversion, lift the canopy skirt and walk up through the canopy to the vent area.

3. Grasp the bridle loop and pull the canopy vent down through the canopy skirt between two adjacent suspension lines.



4. On the outside of the canopy, pull the canopy vent back to the stationary post. Attach the bridle loop to the stationary post.

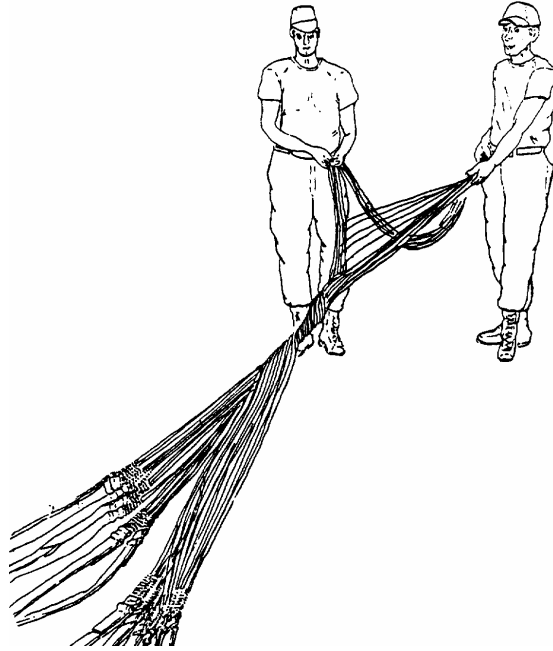
#### **LOCATING SUSPENSION LINES IN PROPER LAYOUT**

To properly locate suspension lines, proceed as follows:

1. Locate the top center gore of the canopy and divide the suspension lines into two groups, Lines 1 through 60 in the left group and lines 61 through 120 in the right group.
2. Maintain group separation by moving from the skirt of the canopy towards the suspension risers, removing turns, tangles and twists from the two groups.

**REMOVING TURNS, TANGLES AND TWISTS FROM SUSPENSION LINES**

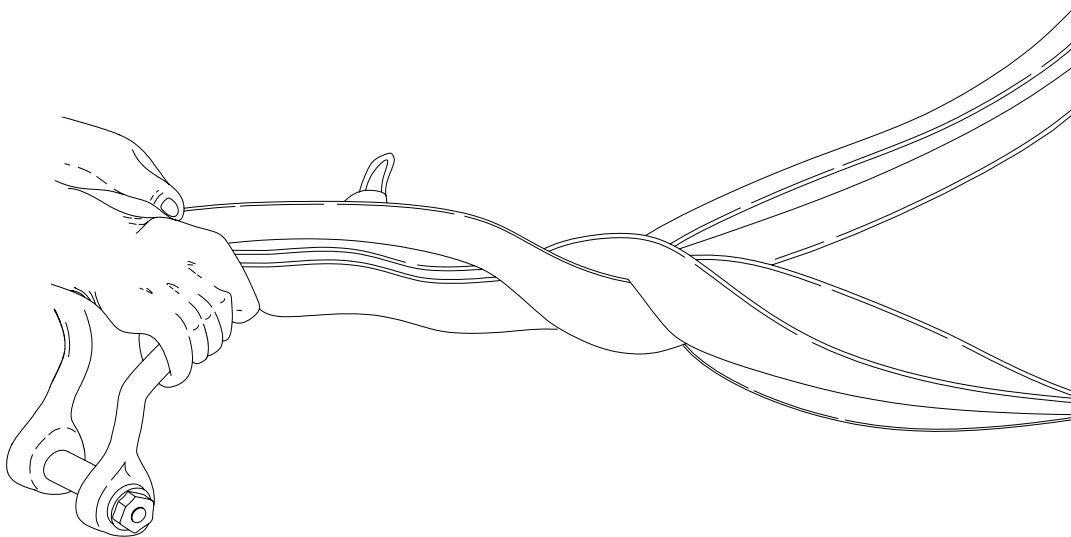
1. Turns. A turn occurs when one group of suspension lines rotates around the opposite group of suspension lines. Remove the turn by rotating the suspension lines in a direction opposite to that of the turn.



2. Tangles. Remove tangles as follows:
  - a. To remove tangle(s) in the suspension lines, begin by separating lines 1 through 40 from the canopy skirt to the connector link assemblies.
  - b. While separating the lines, place all lines that pass over the top of the group over one forearm.
  - c. Grasp the four connector link assemblies which have lines 1 through 40 attached and pull the connector link assemblies and the suspension risers through the remaining suspension lines.



- d. At line 41, count 40 more lines. Separate the lines from the canopy skirt to the connector link assemblies.
  - e. While separating the lines, place all lines that pass over the top of the group over one forearm.
  - f. Grasp the four connector link assemblies that have lines 41 through 80 attached and pull the connector link assemblies and the suspension risers through the remaining suspension lines. This will give you three groups of 40 lines each.
3. Twists. Remove twists as follows:
- a. A twist occurs when the suspension lines in one group become improperly crossed. To remove the twists in the suspension lines, each group of ten suspension lines must be traced from the skirt of the canopy to the connector links.



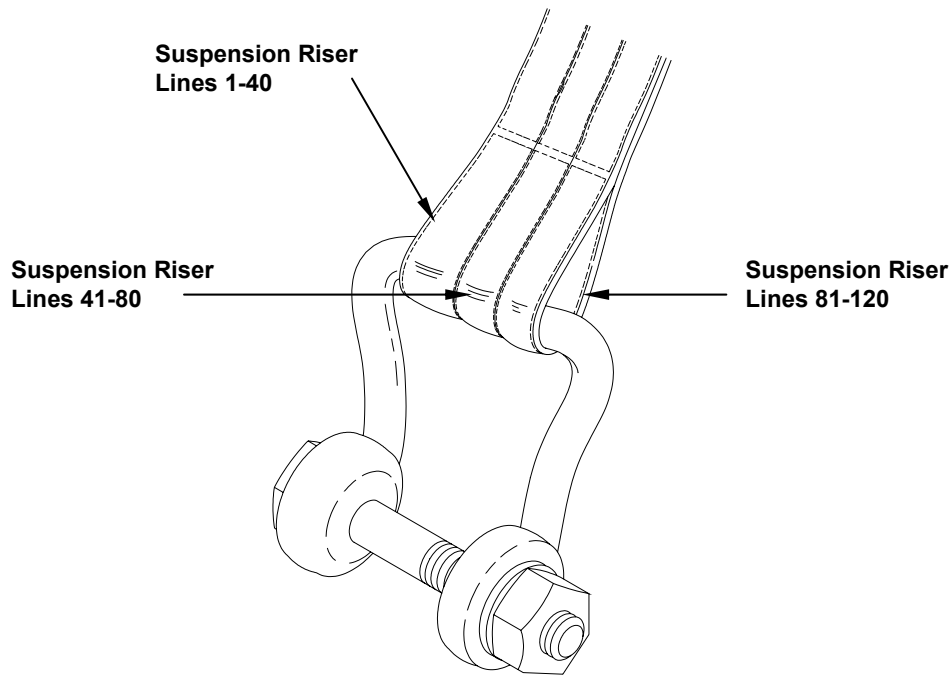
- b. As the lines are being traced they must be threaded onto a nylon strap, such as an A-7A or 60-inch shear strap. To trace the suspension lines and thread the connector link assemblies, three persons shall be required to perform the following:
  - (1) One person grasps the suspension risers at a point just below the connector link assemblies and holds the suspension lines taut.
  - (2) A second person, positioned at the canopy skirt, begins with line 1 and picks up the first line in each line group.
  - (3) As each line is picked up, it will be held in such a manner as to allow the line to be visually traced to the respective connector link assembly.
  - (4) After tracing the first line of each line group, the first person passes the respective connector link assembly containing the line to another person who threads the nylon strap through the connector link assembly.
  - (5) As the strap is being threaded through the connector link assembly, the person positioned at the canopy skirt grasps all suspension lines that are attached to the connector link assembly and throws the line group over his/her shoulder. (This procedure shall be repeated for each succeeding line group.)

- (6) Ensure the connector link assemblies are threaded on the strap in a manner which positions the odd numbered suspension lines to the left side of the strap.
- (7) Secure the ends of the strap.

### RISER LAYOUT

To properly layout the risers, proceed as follows:

1. Adapting the procedures above for locating the suspension lines in the proper layout, remove all turns, tangles, and twists from the suspension risers.
2. Arrange the three suspension clevis attaching loops at the ends of the suspension risers in order, with suspension riser of lines 1 through 40 to the left, suspension riser of lines 41 through 80 in the center and suspension riser of lines 81 through 120 to the right.
3. Install a large suspension clevis through the riser attaching loops to maintain proper layout of the risers

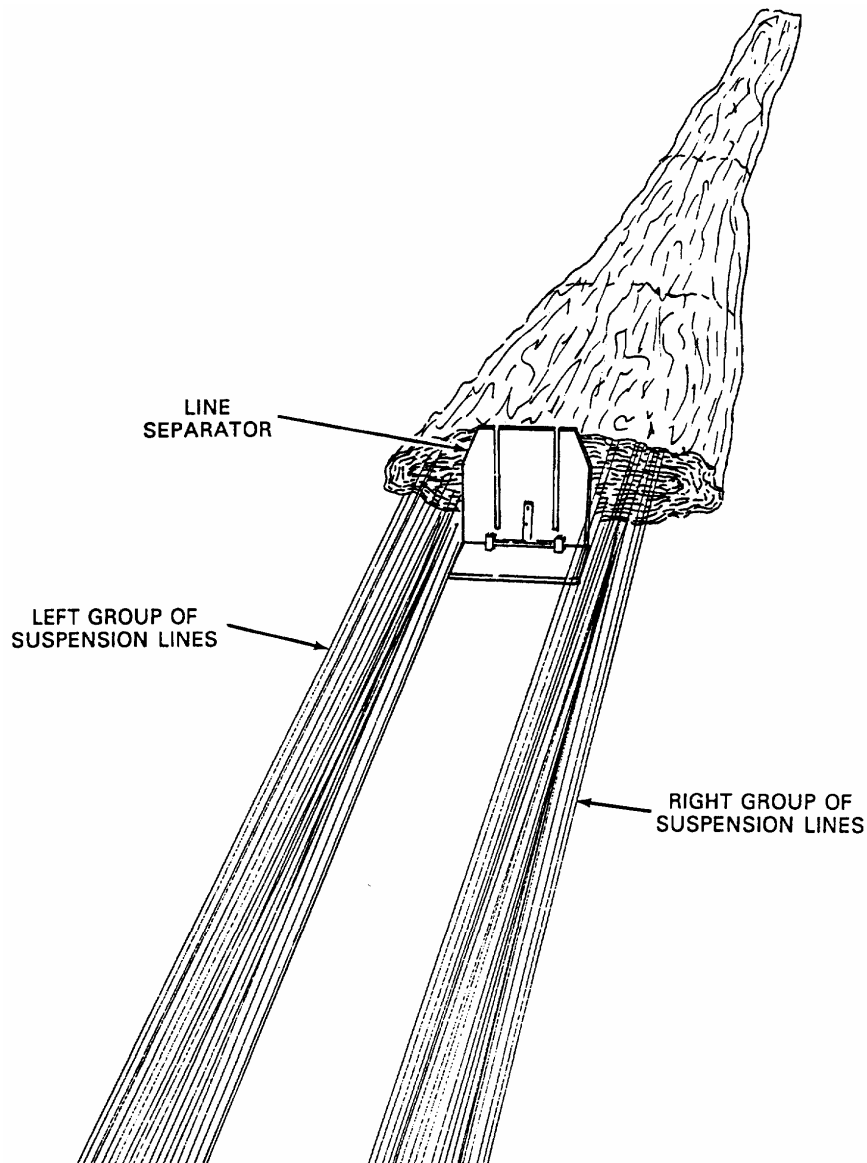


### PACKING THE G-11B PARACHUTE

After preparing the parachute for proper layout, continue packing the G-11B parachute as follows:

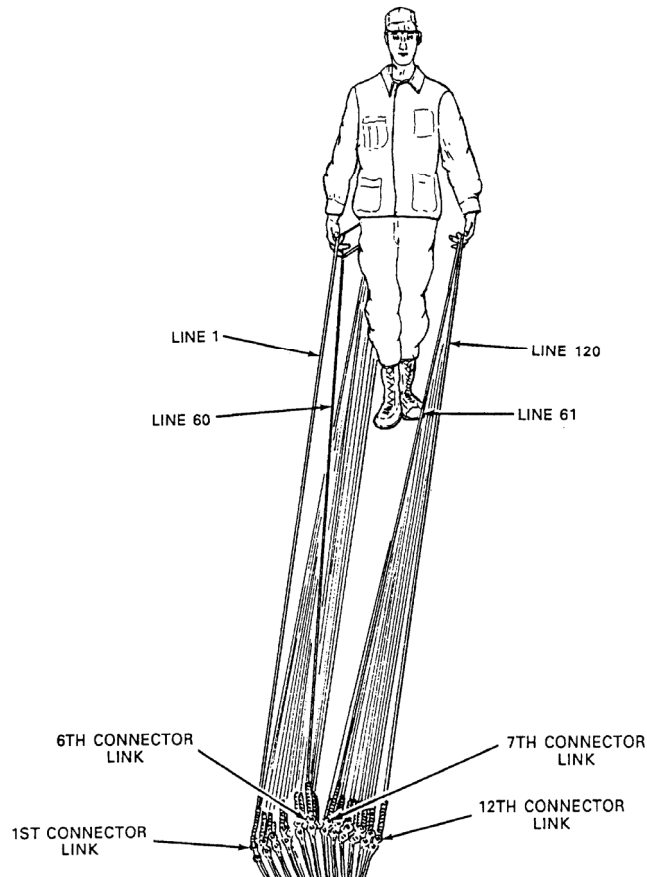
1. Group separation of suspension lines.
  - a. Beginning with the connector link assembly to which suspension line number 1 is attached, count six connector link assemblies.
  - b. Grasp all suspension lines attached to the six (6) connector link assemblies and working to the canopy skirt, separate these lines from the remaining suspension lines.

- c. Position a large separator between the two groups of lines at the canopy skirt to maintain group separation.

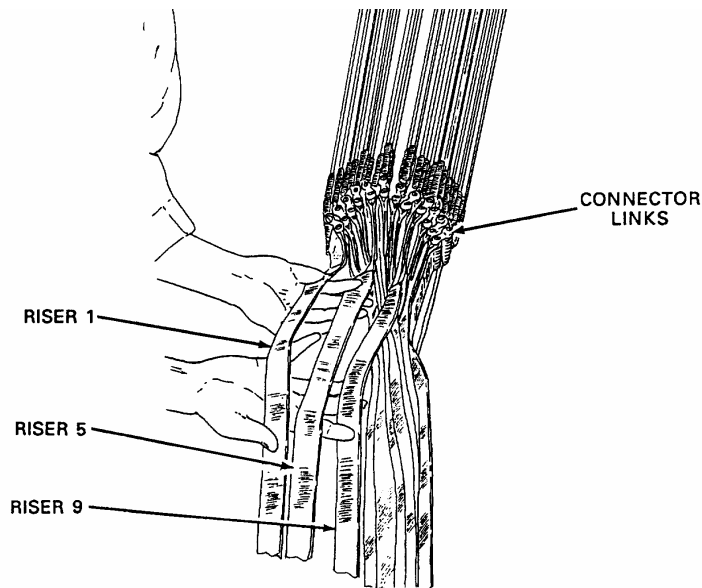


2. Confirming proper layout. Perform a four-line check to confirm that the suspension lines are in proper layout and a three-line check to confirm that the suspension risers are in proper layout. Proceed as follows:
  - a. One packer will take a position between the separated suspension lines near the skirt of the canopy, facing the suspension risers.
  - b. Place lines 1 and 60 in the right hand and lines 61 and 120 in the left hand. Hold these suspension lines in a manner that will keep the lines separated and identifiable in each hand.

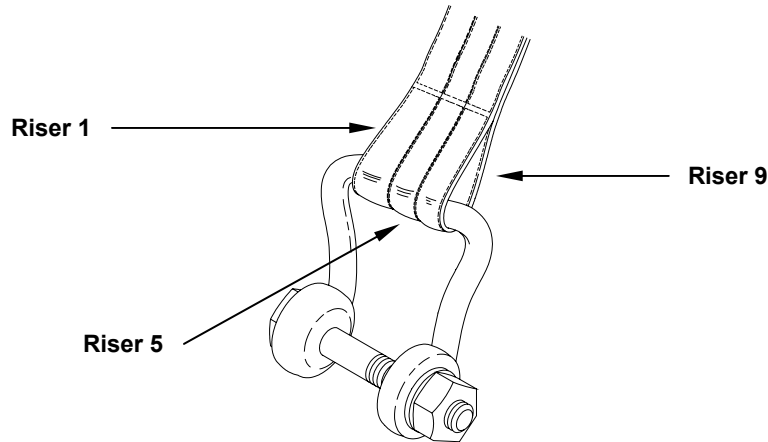
- c. Walking slowly, trace the 4 lines to the connector link assemblies. Line 1 should be at the top of the first connector link on the left (rigger view), line 60 should be at the bottom of the sixth connector link, line 61 should be at the top of the seventh connector link and line 120 should be on the bottom of the twelfth connector link.



- d. Below the connector link assemblies, pick up the first suspension riser on the left (rigger view) attached to the first connector link, the fifth suspension riser and the ninth suspension riser.



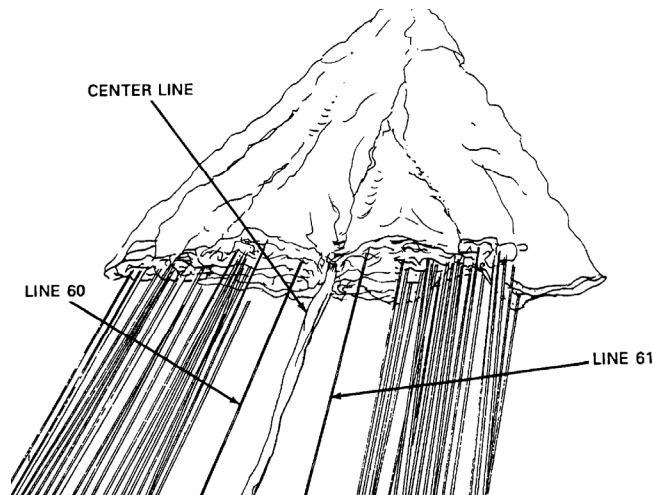
- e. Slowly trace these suspension risers toward the attaching loop end of the suspension risers. The three suspension risers should be on top of each riser group.



**NOTE**

Dress the vent reinforcement (upper lateral band) to center the canopy vent lines.

3. Attaching the center line.
  - a. Position a large pedestal fan about 10-feet below and 6-feet to the left of the canopy skirt. Adjust the fan so the canopy will be partially inflated.
  - b. Walk up through the inside of the canopy and pull the center line to the canopy vent.
  - c. Pass the center line to another packer on the outside of the canopy.
  - d. Secure the center line temporarily to the bridle loop with a length of ¼-inch wide cotton webbing.
  - e. Attach the bridle loop to the stationary post.
  - f. Place the free end of the center line between lines 60 and 61 at the canopy skirt.

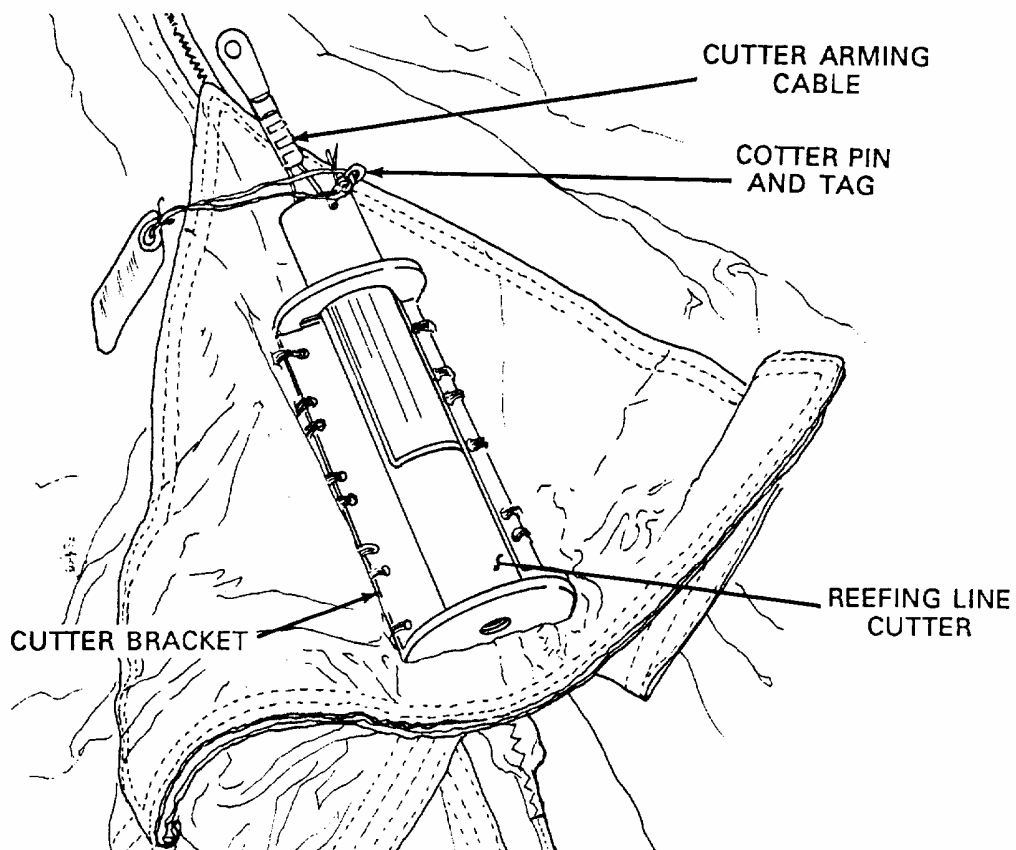




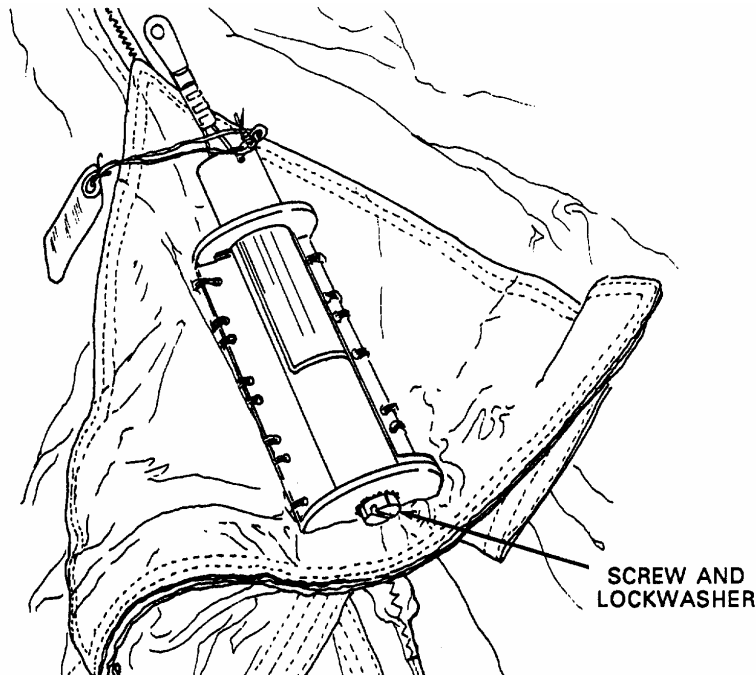
4. Installing M-21 reefing line cutter. Install an M-21 reefing line cutter at lines 1, 31, 61 and 91 as follows:
  - a. Remove ¼-inch screw and insert the cutter into the upper end of the cutter bracket. Ensure the cutter arming cable is pointed toward the canopy vent.
  - b. Align the screw that protrudes from the side of the cutter with the slot in the upper end of the cutter bracket.
  - c. Slide the cutter into the cutter bracket until the cutter lower end is flush against the inside bottom end of the bracket.
  - d. Turn the cutter one-quarter turn to allow the screw, which protrudes from the cutter side, to fit into the indentation located in the center of the bracket.

NOTE

Do not use any type of tool to tighten the reefing line cutter bottom screw.



- e. Insert the ¼-inch screw with serrated lock-washer through the hole on the bottom of the bracket, into the threaded hole in the bottom end of the cutter and tighten the screw finger tight.



**NOTE**

A four-line check for proper layout shall be performed before applying tension.

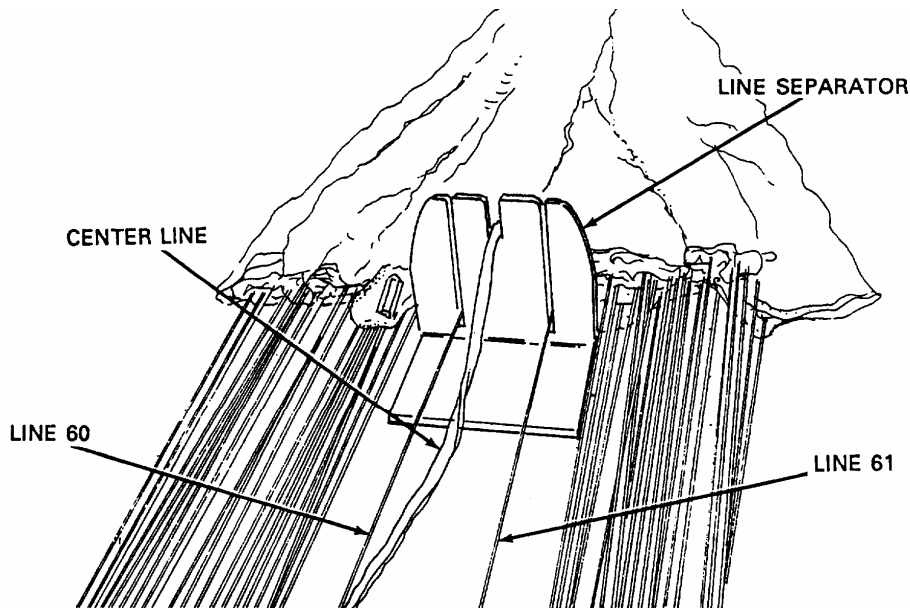
- f. Rigger check number 1.
5. Applying tension. Attach the nylon webbing strap routed through the connector links to a tension device and apply tension.

**NOTE**

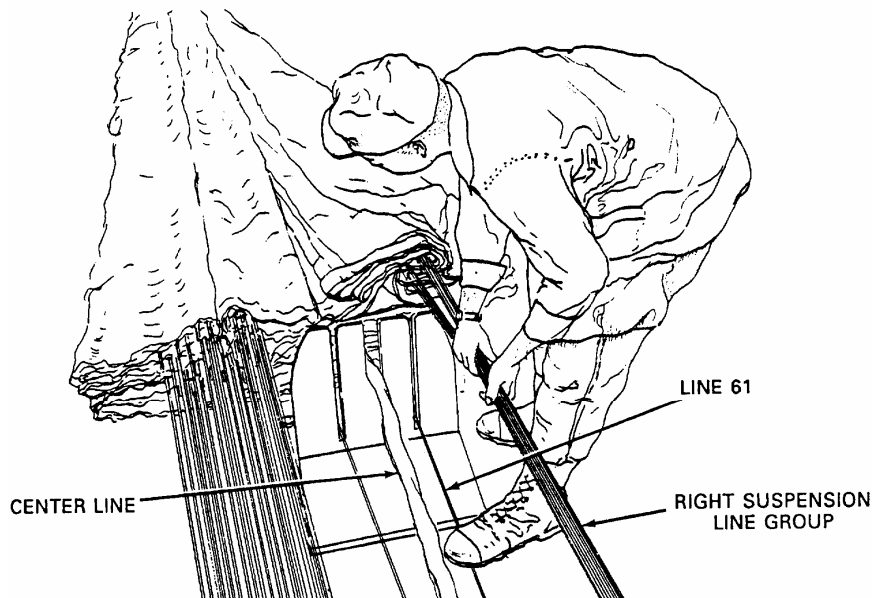
A tension jack, chain hoist, power winch, or a vehicle may be used as a tension device when applying tension to the parachute.

6. Folding the gores and reefing the canopy. Fold the canopy gores into two groups of 60 gores each and thread the reefing line through the canopy reefing rings as follows:

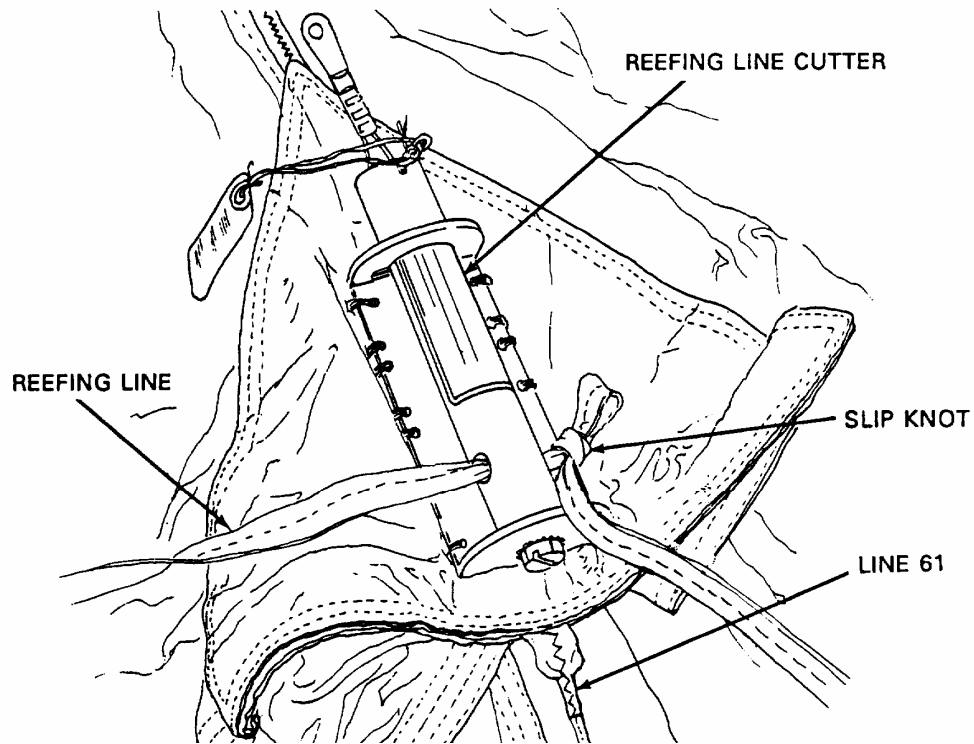
- a. At a suitable point below the canopy skirt (lower lateral band), position a large line separator between the two groups of suspension lines. Insert line 61 into the right slot.



- b. While holding line 61 in position in the line separator, pick up the right suspension line group and throw the right group of gores and lines over the left group of gores and lines.
- c. Cut four 16 1/2-foot lengths of 1/2-inch wide tubular nylon webbing and tape 2-inches of the ends of each webbing length with masking tape.
- d. Rotate the reefing line cutter at line 61 upward and pass one end of a 16 1/2-foot reefing line from left to right through the hole in the reefing line cutter. Pull 6-inches of the reefing line through cutter.



- e. Using the 6-inch length of the reefing line, make a slip-knot immediately to the right of the reefing line cutter to secure the reefing line during the reefing process.
- f. Position a large pedestal fan at a point 10-feet below the canopy skirt. Position the fan so the air stream will partially inflate the canopy.



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**CAUTION**


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Failure to evenly distribute the reefing line between each reefing ring will cause a delay in the parachute deployment, an uneven inflation of the canopy or result in a malfunction.

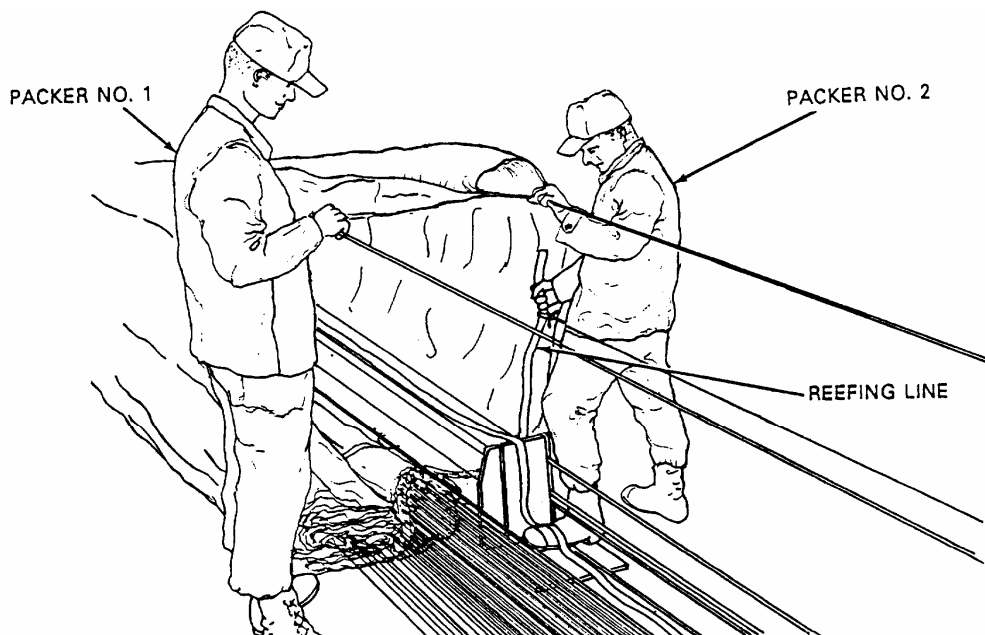
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**NOTE**

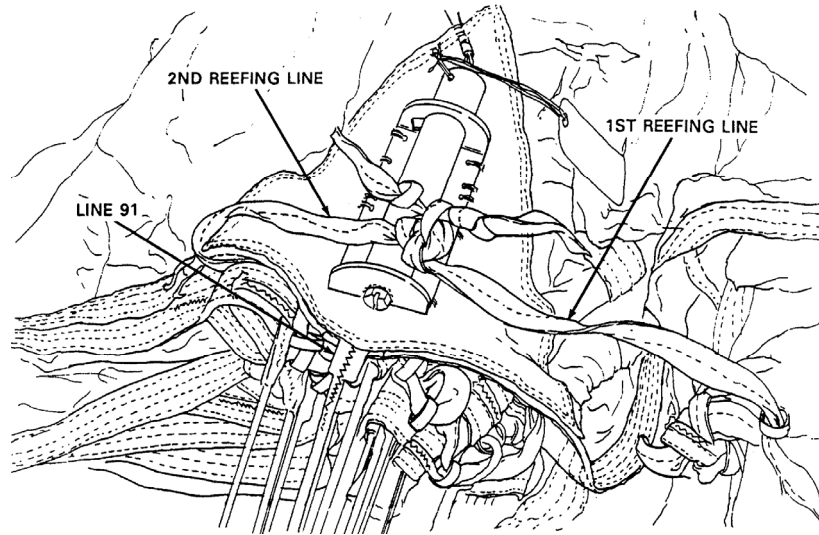

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A packer will take a position near the apex of the canopy and observe the canopy during the reefing process. If canopy damage is observed the reefing process will be stopped and the parachute will be processed for maintenance.

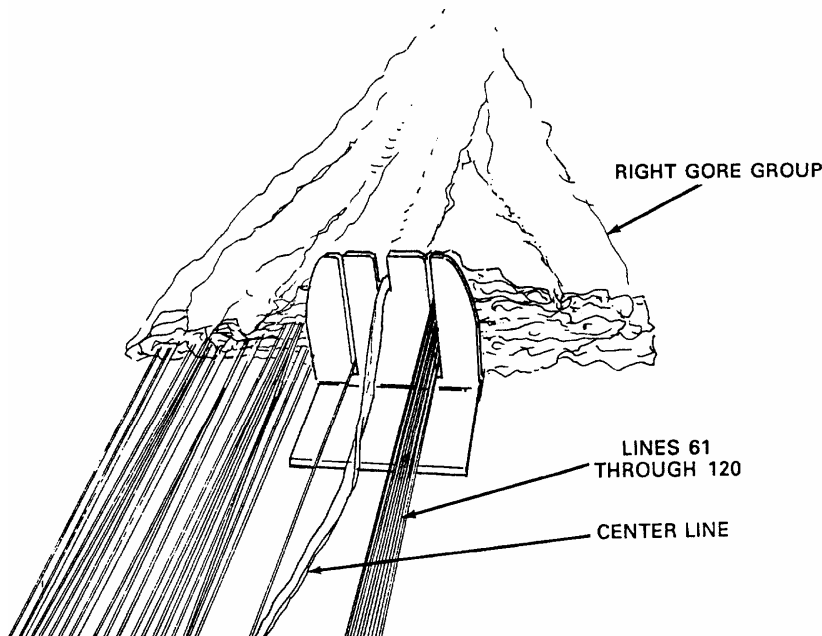
- g. Beginning with line 62, one packer passes each line in the right group to a second packer who threads the right running end of the reefing line through each reefing ring. After each reefing ring is threaded, the second packer will use a leg to guide the suspension line into the right slot of the line separator. Continue the gore folding process until lines 61 through 90 are reefed and in the right slot of the line separator and the gores between each line are folded.



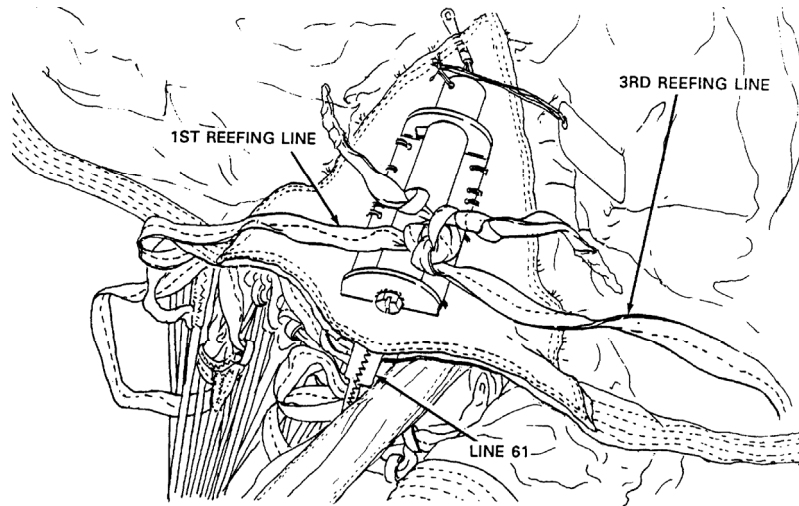
- h. Stop the gore folding and from right to left, pass the end of the reefing line through the reefing line cutter at line 91 and pull 6-inches through.
- i. Pass one end of the second reefing line, from left to right, through the hole in the reefing line cutter at line 91 and pull 6-inches through.
- j. Secure the two reefing line ends together over the reefing line cutter at line 91 with a surgeon's knot and locking knot. Make an overhand knot in each running end. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



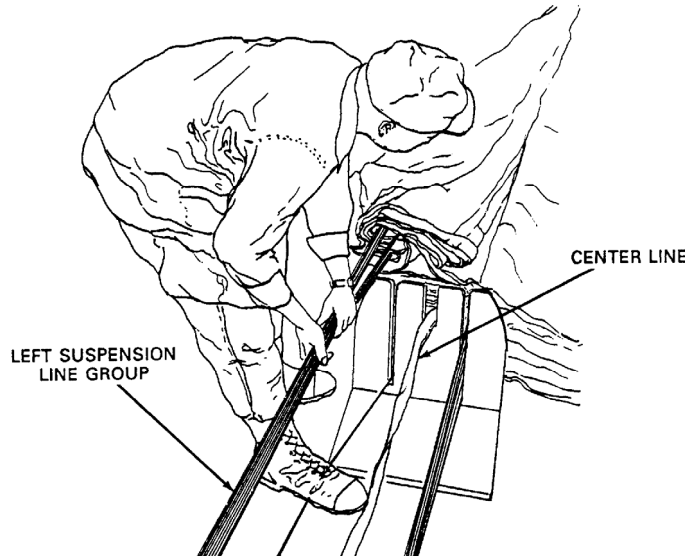
- k. Using the gore folding procedures in (g), fold the gores and reef the canopy skirt between lines 91 and 120 until the right group of gores are folded and lines 61 through 120 are in the right slot of the line separator.
- l. Rotate the reefing line cutter at line 61 upward again and from right to left, pass one end of the third reefing line through the hole in the reefing line cutter.
- m. Pull 6-inches of the third reefing line through the reefing line cutter. Release the slip knot on the first reefing line.



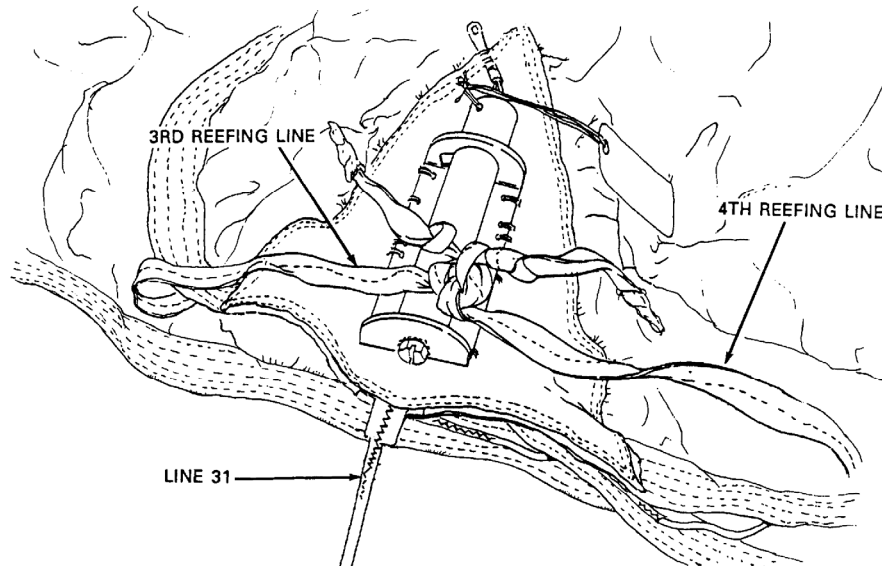
- n. Secure the ends of the first and third reefing lines together over the reefing line cutter at line 61 with a surgeon's knot and locking knot. Make an overhand knot in each running end. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



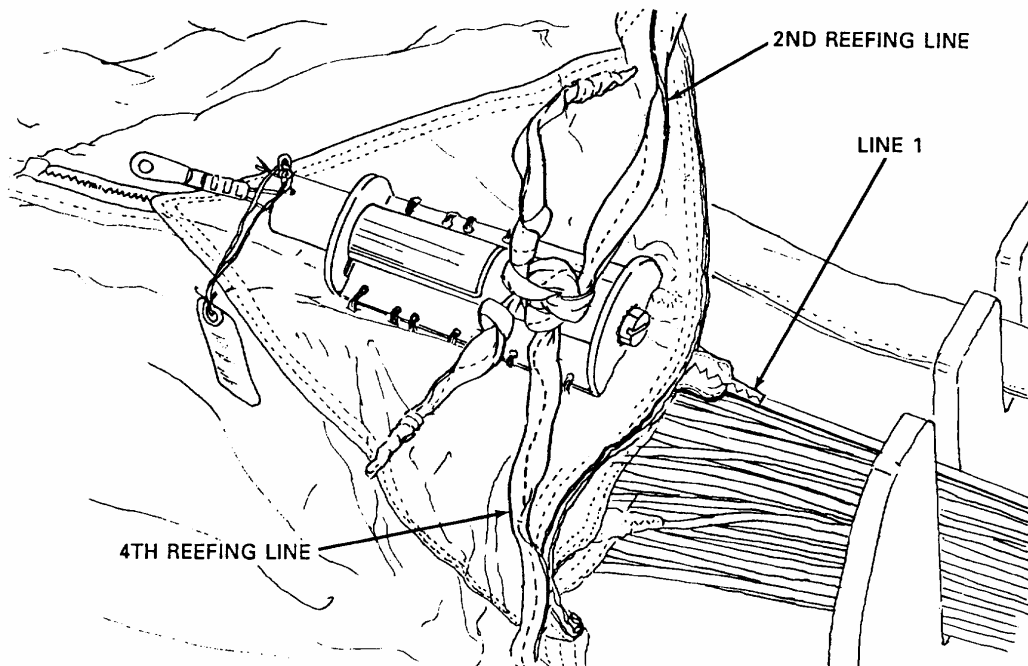
- o. While holding line 60 in position in the line separator, pick up the left suspension line group and throw the left group of gores and lines over the folded right group of gores and lines.



- p. Beginning with line 59, one packer passes each line in the left group to a second packer who threads the left running end of the reefing line through each reefing ring. After each reefing ring is threaded, the second packer will use a leg to guide the suspension line into the left slot of the line separator. Continue the gore folding process until lines 60 through 31 are reefed and in the left slot of the line separator and the gores between each line are folded.
- q. Stop the gore folding process and from left to right, pass the end of the third reefing line through the reefing line at line 31 and pull 6-inches through.
- r. Pass one end of the fourth reefing line, from right to left, through the hole in the reefing line cutter at line 31 and pull 6-inches through.
- s. Secure the two reefing line ends together over the reefing line cutter at line 31 with a surgeon's knot and locking knot. Make an overhand knot in each running end. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



- t. Using the gore folding procedures in (o), fold the gores and reef the canopy skirt between lines 31 and 1 until the left group of gores are folded and lines 60 through 1 are in the left slot of the suspension line separator.
- u. From left to right, pass the end of the fourth reefing line through the hole in the reefing line cutter at line 1 and pull 6-inches through.
- v. From right to left, pass the end of the second reefing line through the hole in the reefing line cutter at line 1 and pull 6-inches through.
- w. Secure the two reefing line ends together over the reefing line cutter at line 1 with a surgeon's knot and locking knot. Make an overhand knot in each running end. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



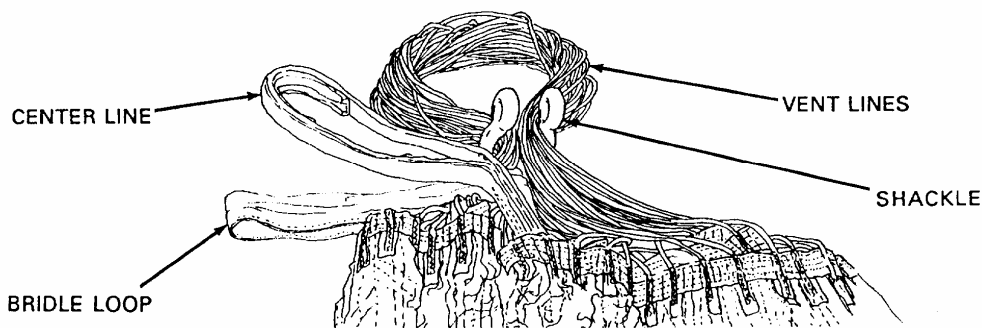


**CAUTION**

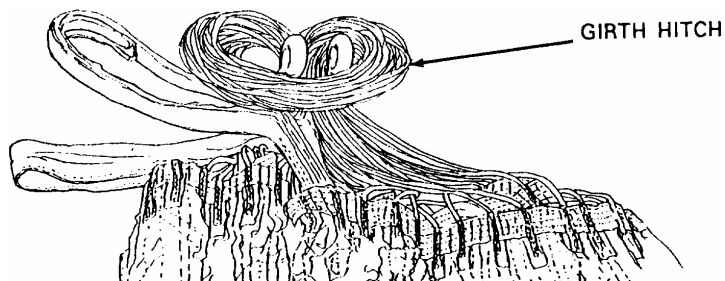
When installing the center line, ensure that it is not entangled or wrapped around the suspension lines or suspension risers.

7. Completing center line installation.

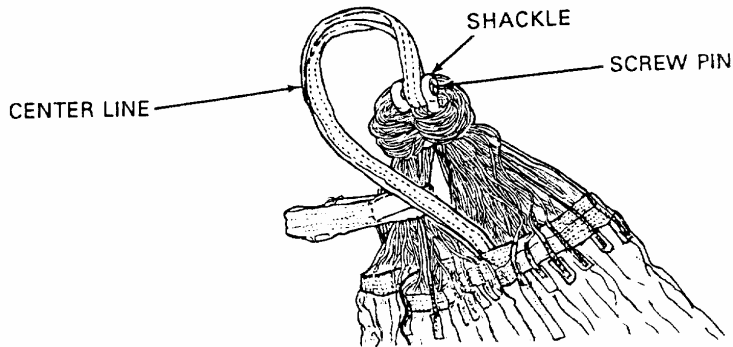
- a. Disconnect the bridle loop from the stationary post and dress the upper lateral band making sure the vent lines are centered and separated.
- b. Grasp the vent lines, with the bridle loop positioned to one side, and place the screw pin shackle over the vent lines.



- c. Rotate the vent lines down over the shackle legs to form a girth hitch.



- d. Disconnect the center line from the bridle loop. While installing the screw pin, place the end loop of the center line on the screw pin.
- e. Tighten the screw pin and pull the girth hitch until tight.

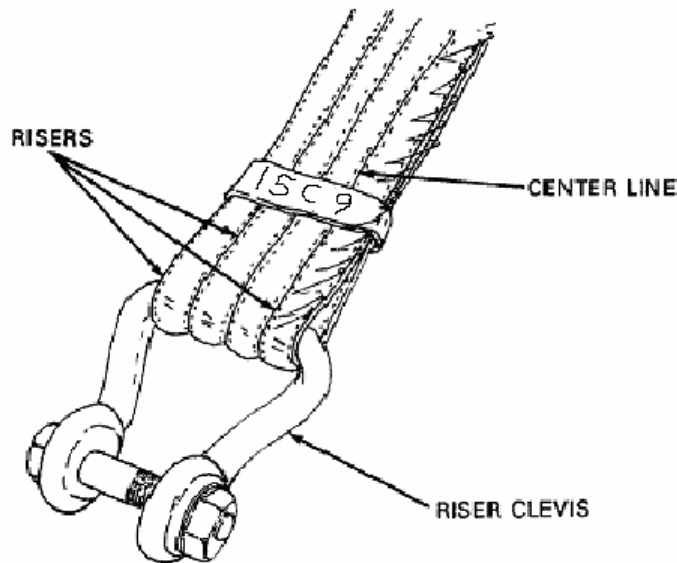


- f. Using 2-inch pressure sensitive adhesive tape, tape the shackle, vent line loop and center line loop so that no metal parts, splice ends or rough webbing ends are exposed.

**CAUTION**

If any portion of the center line attachment at the screw pin clevis and vent line apex falls at, or below, the lower lateral band of the canopy, then the center line is too short. The center line must be replaced with a center line having a minimum length of 97-feet, 0-inches.

- g. One packer will pull the center line free end toward the risers, one of the other packers will guide the canopy vent, keeping it in the air channel between lines 1 and 120, ensuring that the canopy material does not become disarranged while the canopy vent is being pulled toward the canopy skirt.
- h. Remove the right suspension riser from the large suspension clevis and place the center line free end on the clevis. Using masking tape, secure the risers and center line together at a point immediately above the attaching loops.
- i. Using a suitable marking aid, mark each riser (riser 1, 5, 9) and center line for identification purposes.



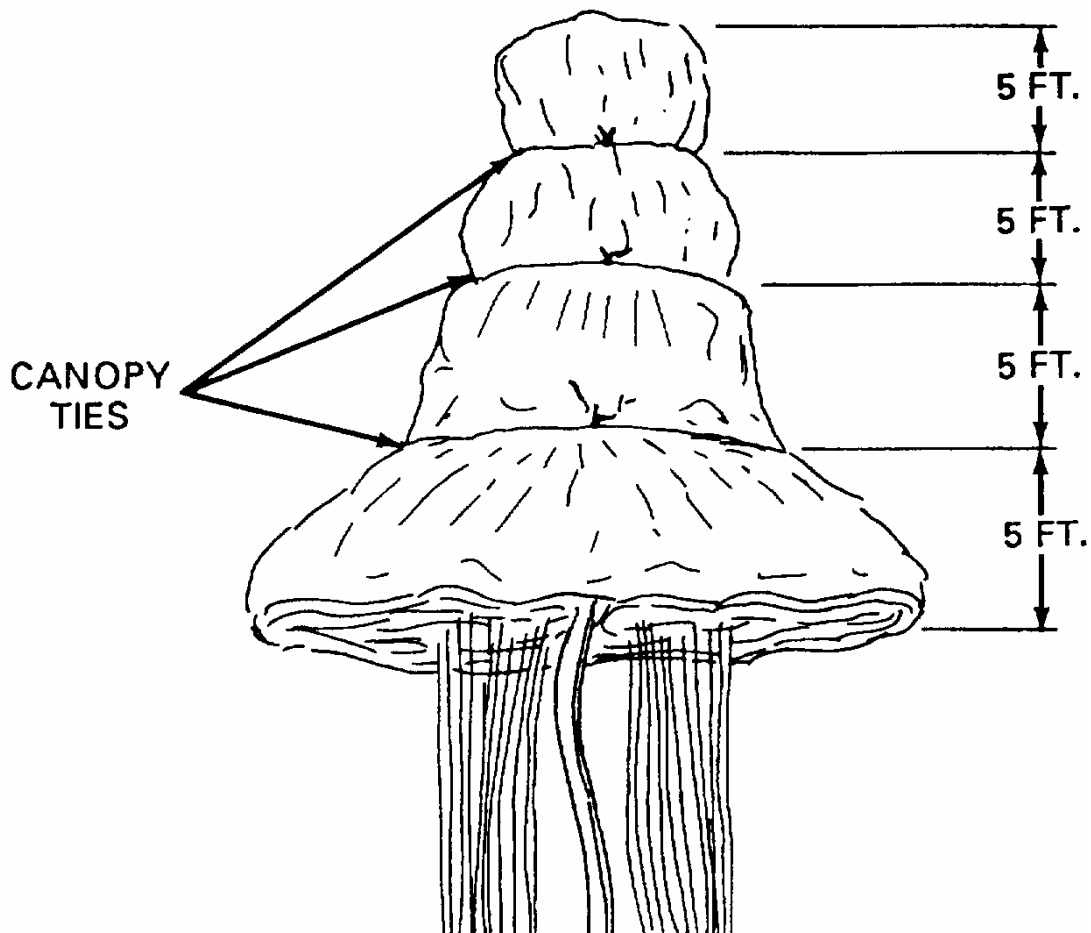
j. Rigger check number 2.

NOTE

Ensure all ties are tight.

8. Tying the canopy assembly. To tie the canopy assembly, release tension, remove the tension device and tie the canopy assembly as follows:

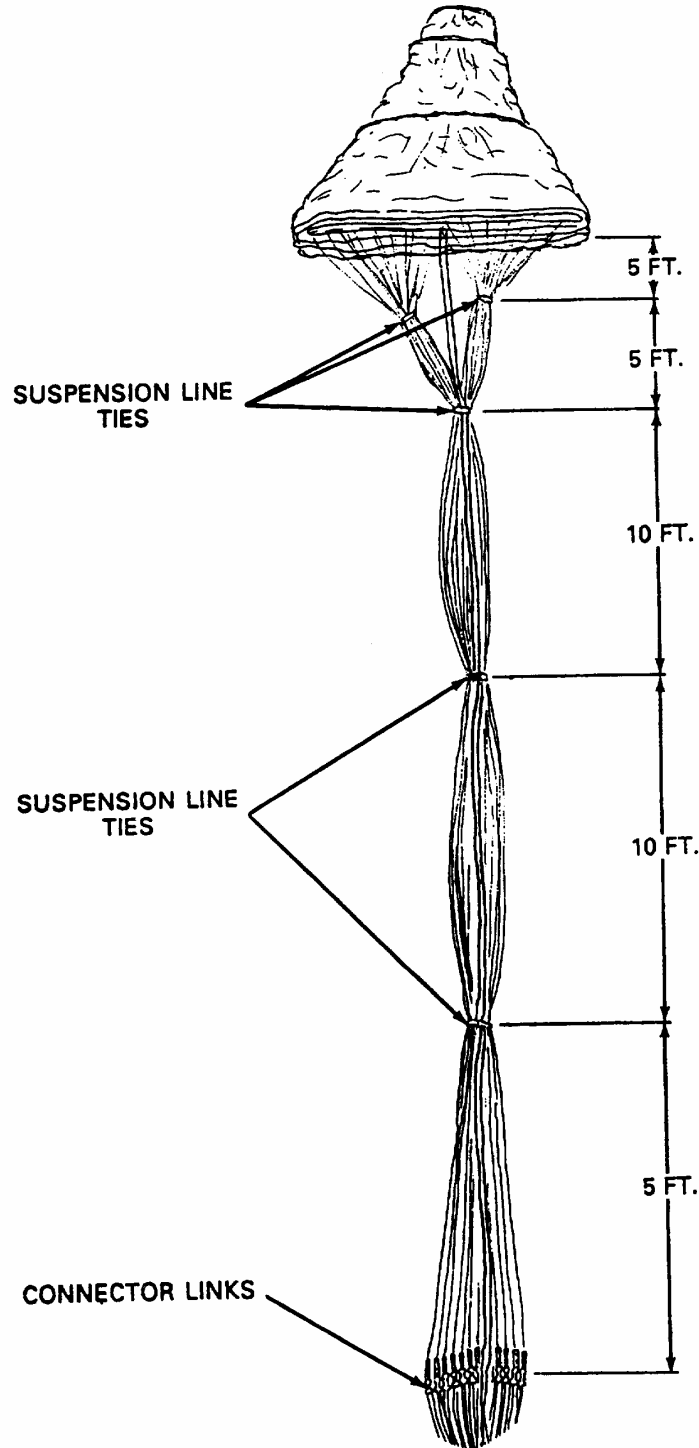
- a. **Folded canopy.** Beginning at a point 5-foot above the skirt band (lower lateral band) and at 5-foot intervals thereafter, install the canopy ties. Tie the canopy folds using one turn single, ticket No. 8/4 cotton orange thread at each point. Secure each tie with a surgeon's knot and locking knot. Trim tie ends to 2-inches.



b. **Suspension lines.**

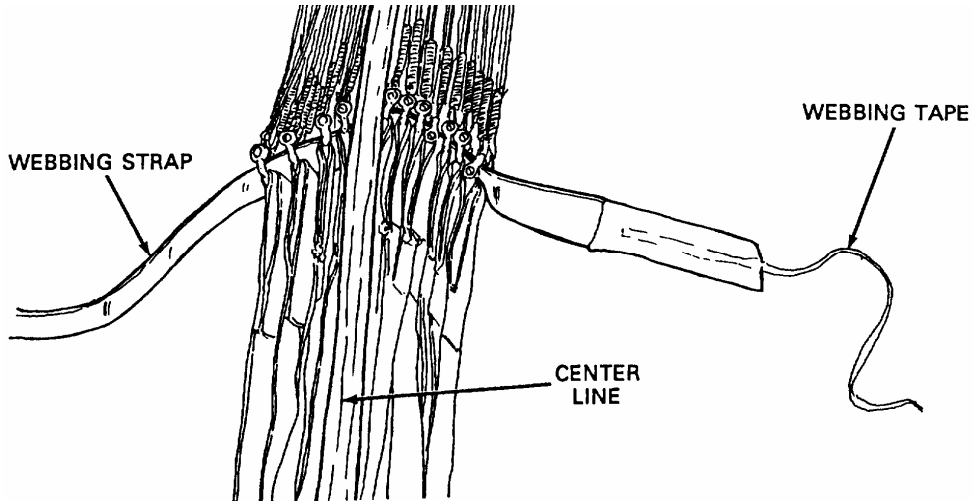
- (1) At a point 5-feet below the skirt band (lower lateral band), tie each group of suspension lines separately using one turn single, ticket No. 8/4 cotton orange thread.
- (2) Secure each tie with a surgeon's knot and locking knot.
- (3) Trim tie ends to 2-inches.
- (4) Remove the large line separator.

- (5) Beginning at a point 10-feet below the skirt band (lower lateral band) and at 10-foot intervals thereafter, tie both suspension line groups and center line together using one turn single, ticket No. 8/4 cotton orange thread at each point. Secure each tie with a surgeon's knot and locking knot. Make the last tie 5-feet above the connector link assemblies. Trim all tie ends to 2-inches.

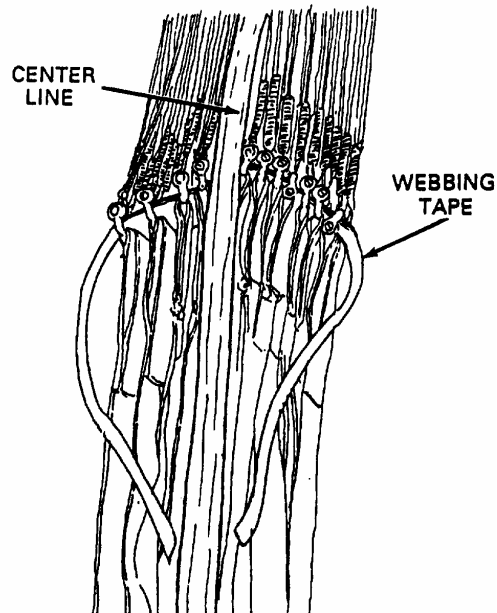


c. Connector link assemblies.

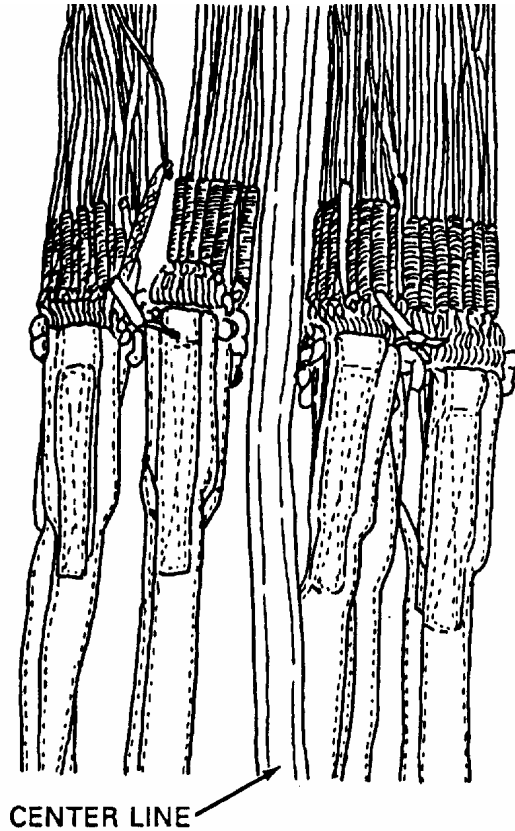
- (1) Release the strap fastener on the webbing strap threaded through the connector link assemblies and tape a 24-inch length of 1/4-inch wide, type I cotton webbing to the running end of the strap.



- (2) Remove the webbing strap from the connector link assemblies that, in turn, will pull the taped webbing through the connector link assemblies.

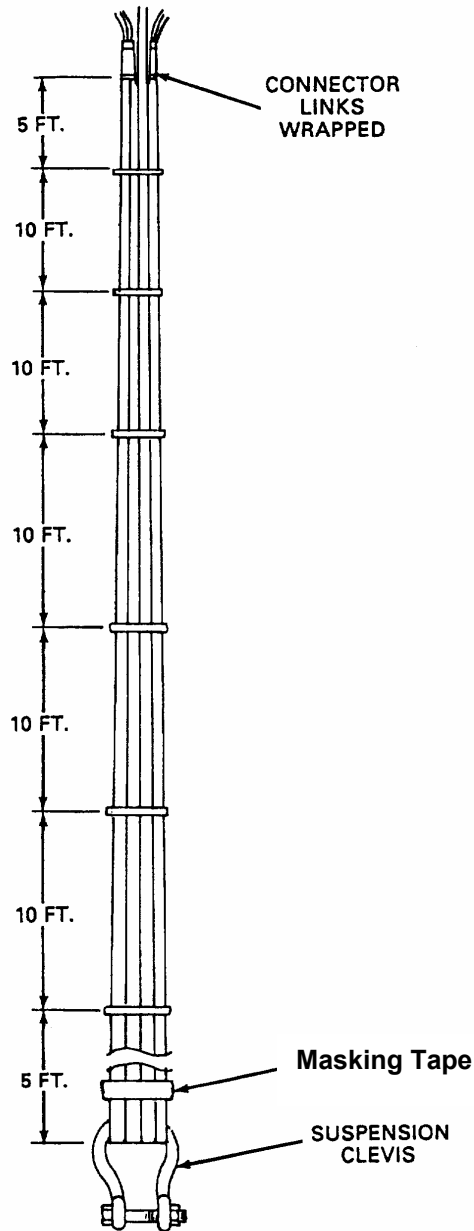


- (3) Remove the taped webbing length from the webbing strap and cut the webbing into two equal lengths with 6 connector links on each length.
- (4) Rotate connector links inboard and tie the connector link assemblies together with the webbing lengths.
- (5) Secure the ties with a surgeon's knot and a locking knot.
- (6) Trim tie ends to 2-inches.



- (7) Cut two lengths of kraft paper, 14-inches by 28-inches.
- (8) Wrap each group of connector links with two turns single of the kraft paper.
- (9) Secure the kraft paper with one turn single of ticket No. 8/4 cotton orange thread on each side of the connector links.
- (10) Secure ties with a surgeon's knot and locking knot.
- (11) Trim tie ends to two-inches.

- d. Suspension riser. Beginning at a point 5-feet below the connector link assemblies and at 10-foot intervals thereafter, tie the suspension risers and center line together using one turn single, ticket No. 8/4 cotton orange thread at each point. Make the last tie at a point 5-feet above the suspension clevis attaching loops. Secure each tie with a surgeon's knot and a locking knot. Trim tie ends to two-inches.

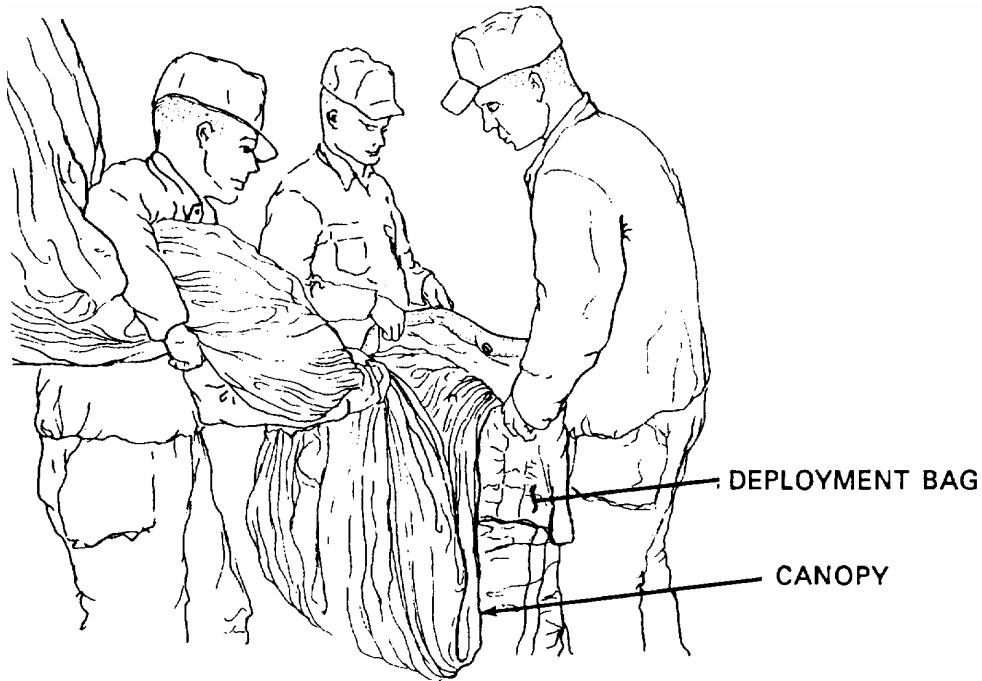


- e. Rigger check number 3.

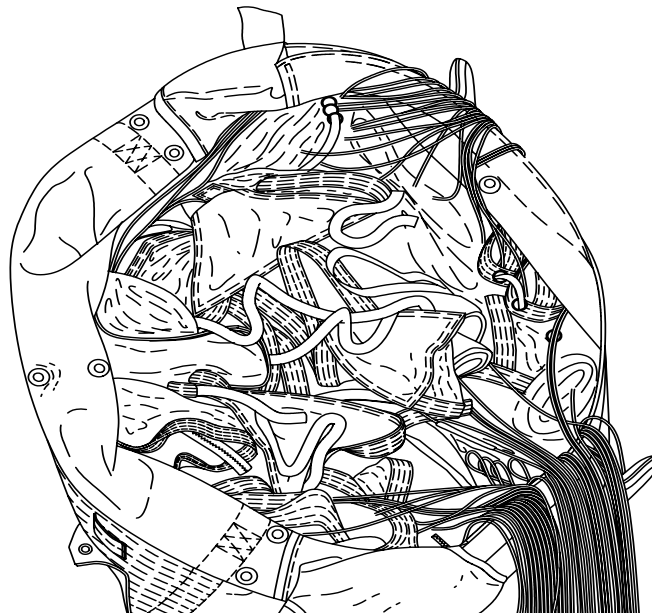
9. Stowing the canopy.

- a. Two packers, positioned at the top of the canopy, will raise the open end of the deployment bag up and hold the bag erect. In addition, one or both persons should hold the canopy material to the bag while the canopy is being picked up from the packing surface.

- b. A third packer shall move to a point located a reasonable distance below the top of the canopy, pick up the canopy from the packing surface and S-fold the canopy material into the deployment bag.



- c. Continue stowing the canopy until only 2-feet of the canopy remains out of the deployment bag.
- d. At a point immediately below the skirt reinforcement, grasp both groups of suspension lines with the right hand, and two-feet below the right hand, grasp both groups with the left hand.
- e. While holding both groups of suspension lines, pick up the canopy skirt and push the canopy skirt, and 18-inches of suspension, lines into the deployment bag.



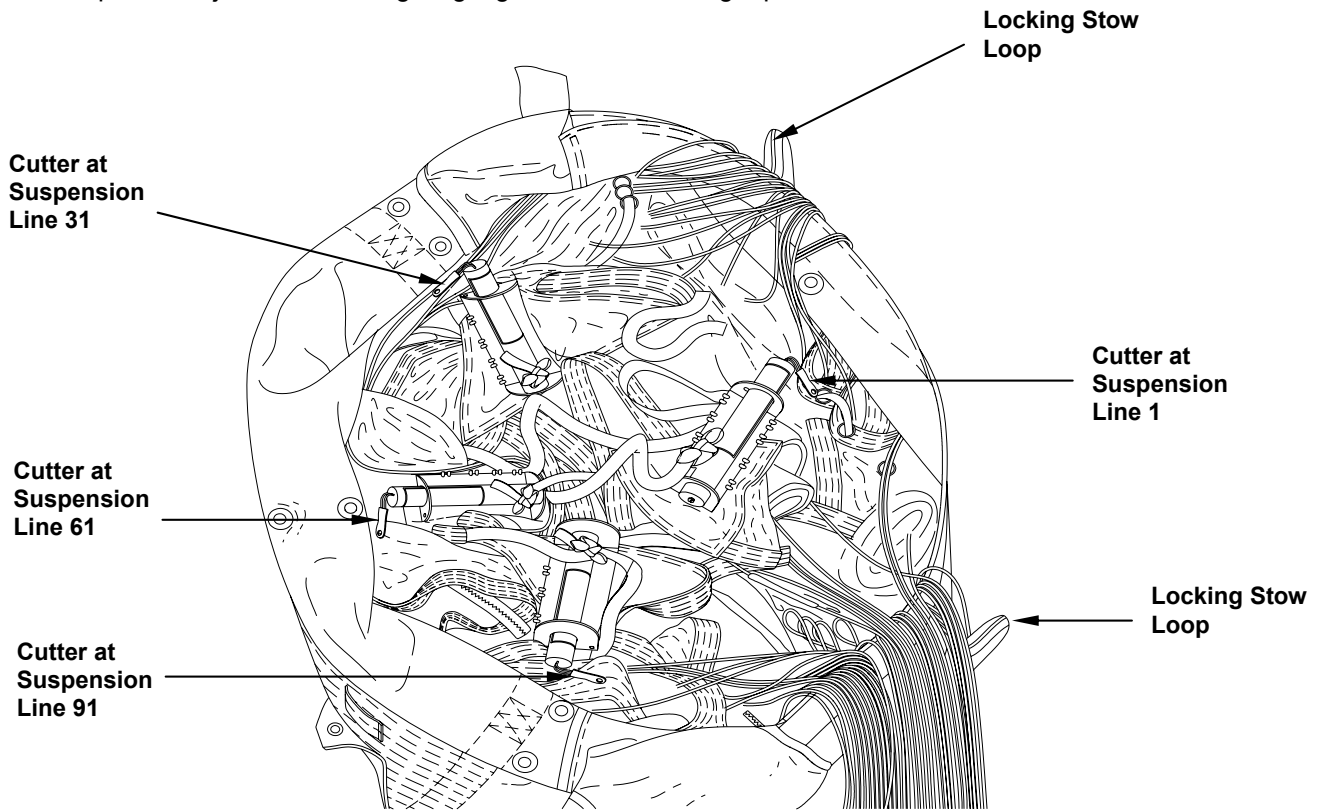


10. Arming the reefing line cutters.

**NOTE**

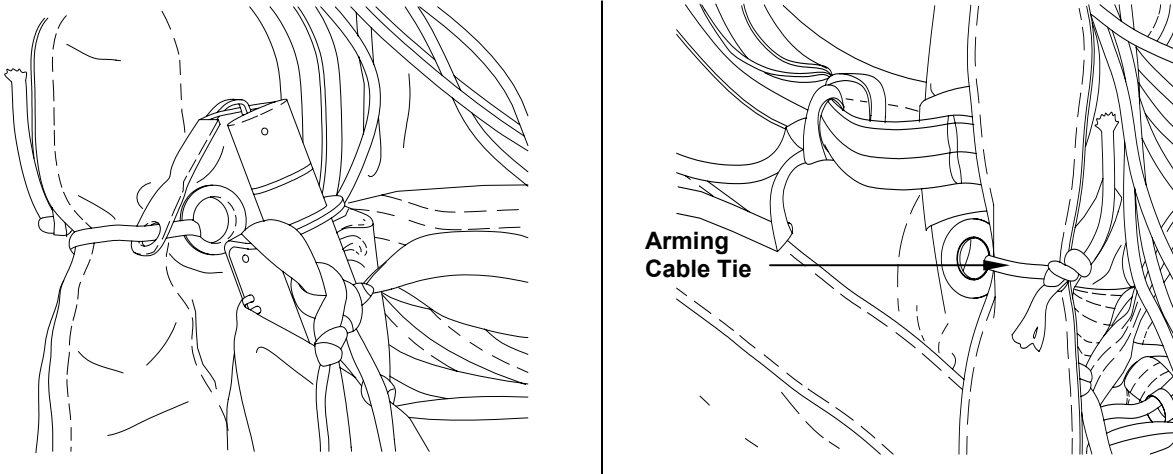
The following procedures are for using a G-11 Cotton Deployment Bag. If using a nylon deployment bag, proceed to the ARMING THE REEFING LINE CUTTERS paragraph below.

- a. Position the four reefing line cutters on top of the stowed canopy with the cutter at suspension line 61 placed adjacent to the bag double grommet on the bag bottom, the cutter at suspension line 31 placed adjacent to the grommet on the left side of the deployment bag, the cutter at suspension line 91 adjacent to the grommet on the right side of the deployment bag and the cutter at suspension line 1 placed adjacent to the bag single grommet on the bag top.

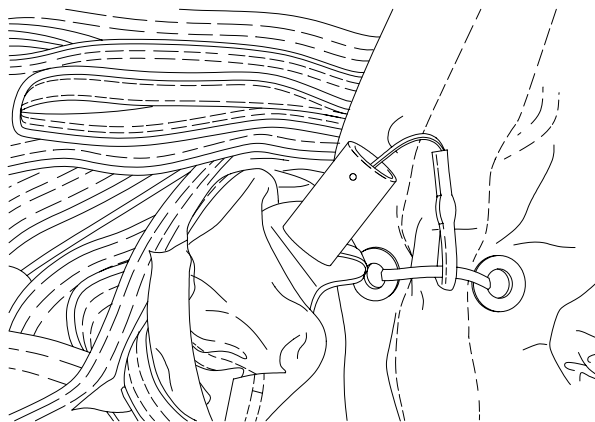


- b. Cut four 12-inch lengths of type III nylon cord for use as arming cable ties.
- c. Beginning with the reefing line cutter at line 1 near the bag top, pass the end of one cord through the hole in the top of the reefing line cutter arming cable and through the bag single grommet to the outside.
- d. Pass the other end of the cord over the top of the bag edge and draw the cord ends tight.
- e. Secure the cord ends on the bag outside with a surgeon's knot and locking knot.
- f. Make an overhand knot in each running end.

- g. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.

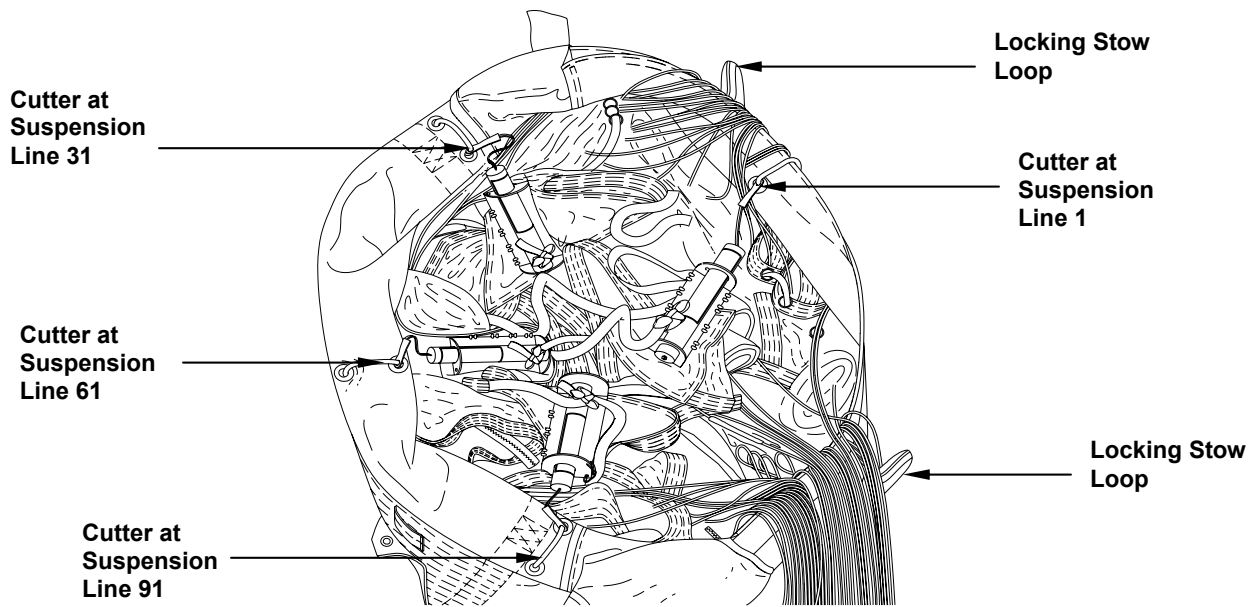


- h. On the left side of the deployment bag, arm the reefing line cutter at line 31, pass the end of one of the cords through the hole in the top of the reefing line arming cable and through the lower grommet located on the left side of the deployment bag.
- i. Pass the other end of the cord through the top grommet and draw the cord ends tight.
- j. Secure the cord ends on the bag outside with a surgeon's knot and locking knot.
- k. Make an overhand knot in each running end.
- l. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.

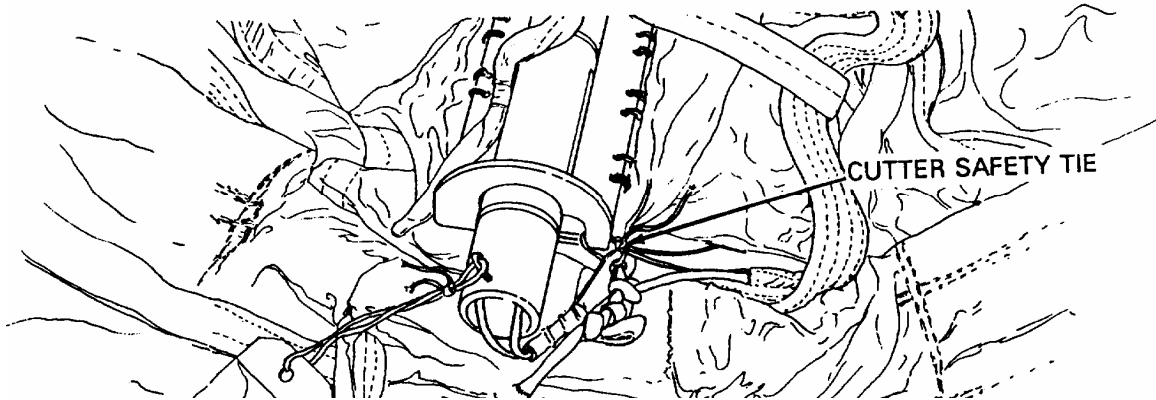


- m. On the right side of the deployment bag, arm the reefing line cutter at line 91, pass the end of one of the cords through the hole in top of the reefing line arming cable and through the lower grommet located on the right side of the deployment bag.
- n. Pass the other end of the cord through the top grommet and draw the cord ends tight.
- o. Secure the cord ends on the bag outside with a surgeon's knot and locking knot.

- p. Make an overhand knot in each running end.
- q. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.
- r. Using the remaining cord length on the reefing line cutter at line 61 near the bag bottom, pass one end of the cord through the hole in the top of the reefing line cutter arming cable and through the lower bag grommet to the bag outside.
- s. Pass the opposite cord end through the upper bag grommet to the bag outside and draw the cord ends tight.
- t. Secure the cord ends together on the outside of the bag with a surgeon's knot and locking knot.
- u. Make an overhand knot in each running end.
- v. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



- w. Rigger check number 4.
11. Installing reefing line cutter safety ties. To prevent premature firing of a reefing line cutter while stowing the suspension lines, install a safety tie on each of the reefing line cutters and remove the safety cotter pins as follows:
- a. Using a length of one turn double, ticket No. 8/7 cotton thread, pass one end of the doubled thread lengths through the slot in a reefing line cutter bracket, through the hole in top of the reefing line arming cable, and draw the tie ends tight.
  - b. Secure the safety ties with a surgeon's knot and locking knot.
  - c. Trim tie ends to 2-inches.



- d. The senior packer will annotate each cutter tag with the reefing line cutter lot number/serial number and parachute pack date. After these entries have been made, the senior packer will sign each tag.

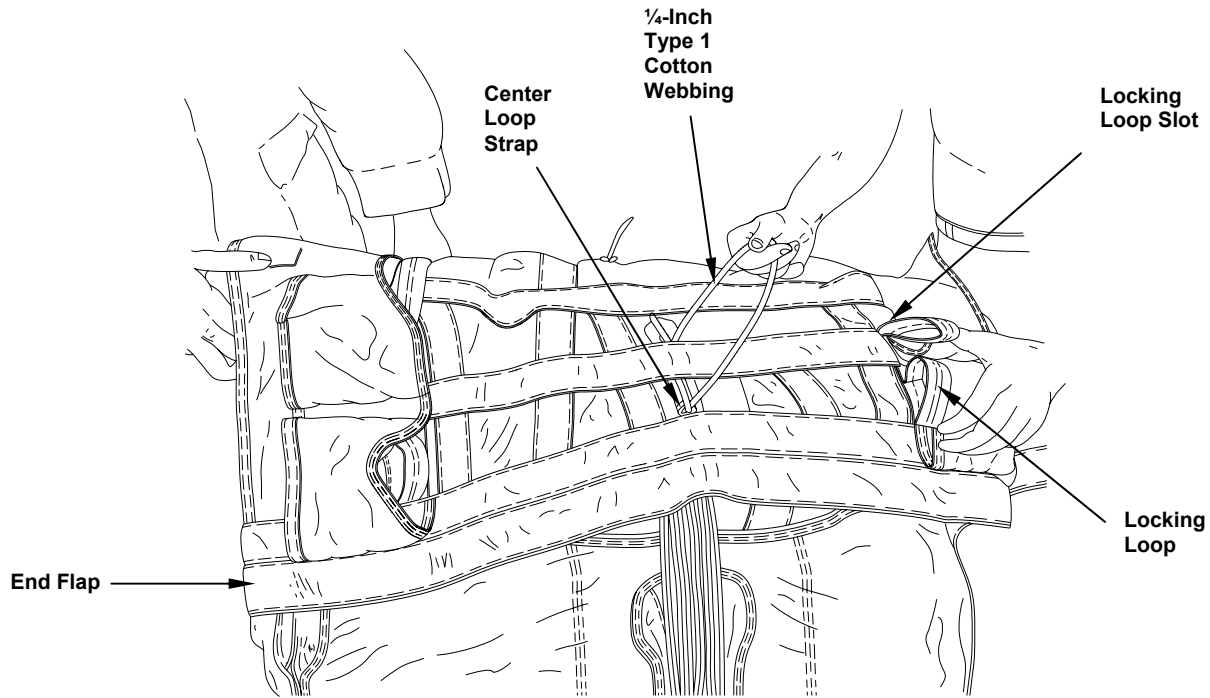
**CAUTION**

Failure to remove the cutter cotter pins will cause a malfunction of the parachute.

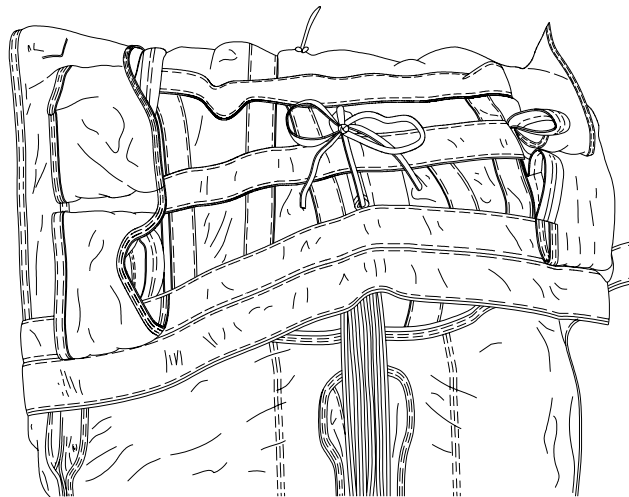
- e. Remove the safety cotter pin and tag from each reefing line cutter, fold the tags lengthwise and stow safety pins and tags in the parachute inspection data pocket within the log record book.

12. Closing the cotton deployment bag.

- a. Bring the suspension lines and center line up over the top of the deployment bag and close the side flaps.
- b. Cut an 18-inch length of  $\frac{1}{4}$ -inch type I cotton webbing and girth hitch the webbing length in the deployment bag top center loop strap.



- c. Bring the large end flap of the bag over the bag end and pull the locking loops up through the locking slots.
- d. Pull the 1/4-inch wide cotton webbing ends on the center loop strap through the top center opening on the end flap.
- e. Secure with a temporary bow knot.

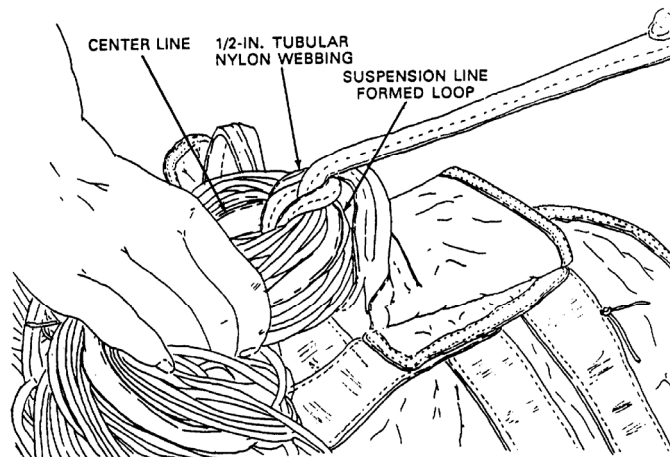


13. Making locking stows.

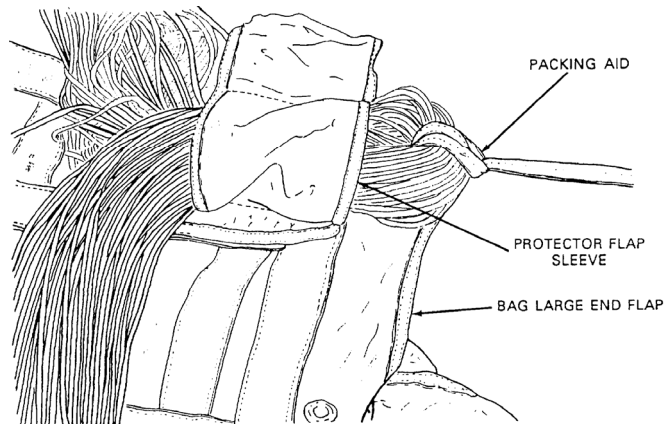
### CAUTION

Failure to remove the packing aid will cause total malfunction of the parachute.

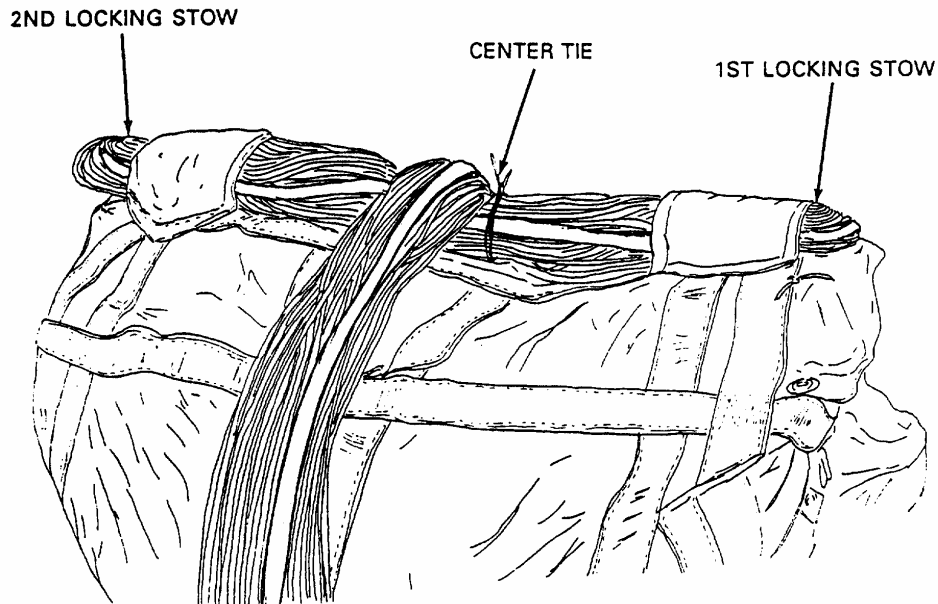
- a. Cut a 36-inch length of ½-inch wide tubular nylon webbing, or equivalent, for use as packing aid in making the locking stows. Double the webbing length and make an overhand knot in the aligned ends.
- b. Fold the suspension lines and center line back over the large end flap. Measure and form a loop in the lines that will extend to the right edge of the bag large flap.
- c. Using the packing aid, encircle the formed loop in the suspension lines and make girth hitch in the packing aid.



- d. Thread the knotted end of the packing aid through the locking stow loop located under the protector flap sleeve at the lower right corner of the deployment bag.
- e. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.

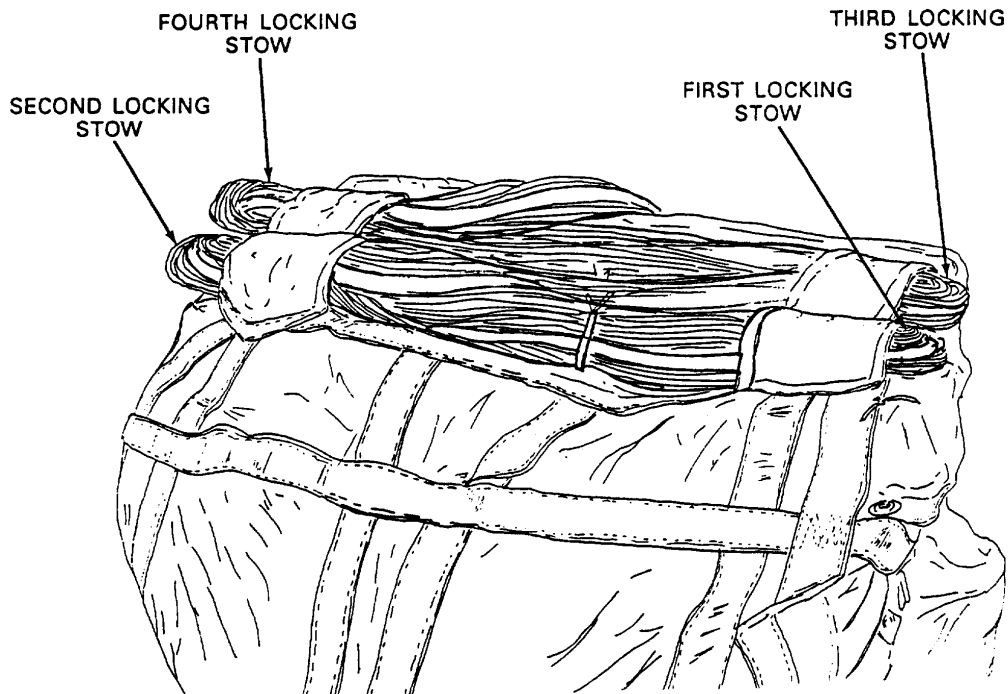


- f. Remove the packing aid.
- g. Extend the running end of the suspension lines and center line to the locking stow loop at the lower left corner of the deployment bag and measure and form a loop in the lines.
- h. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- i. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the lower left corner of the deployment bag.
- j. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large end flap.
- k. Remove the packing aid.
- l. Secure the first two locking stows by tying the suspension lines together at a point between the two stows. Use the ¼-inch wide cotton webbing previously installed.
- m. Make the tie one turn single and secure with a surgeon's knot and locking knot.
- n. Trim tie ends to 2-inches.



- o. Extend the suspension lines to the upper right corner of the large end flap and measure and form a loop in the lines.
- p. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- q. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the upper right corner of the large end flap.

- r. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.
- s. Remove the packing aid.
- t. Extend the suspension lines to the upper left corner of the large end flap and measure and form a loop that aligns with the left edge of the large end flap.
- u. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- v. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the upper left corner of the large end flap.
- w. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large end flap.
- x. Remove the packing aid.



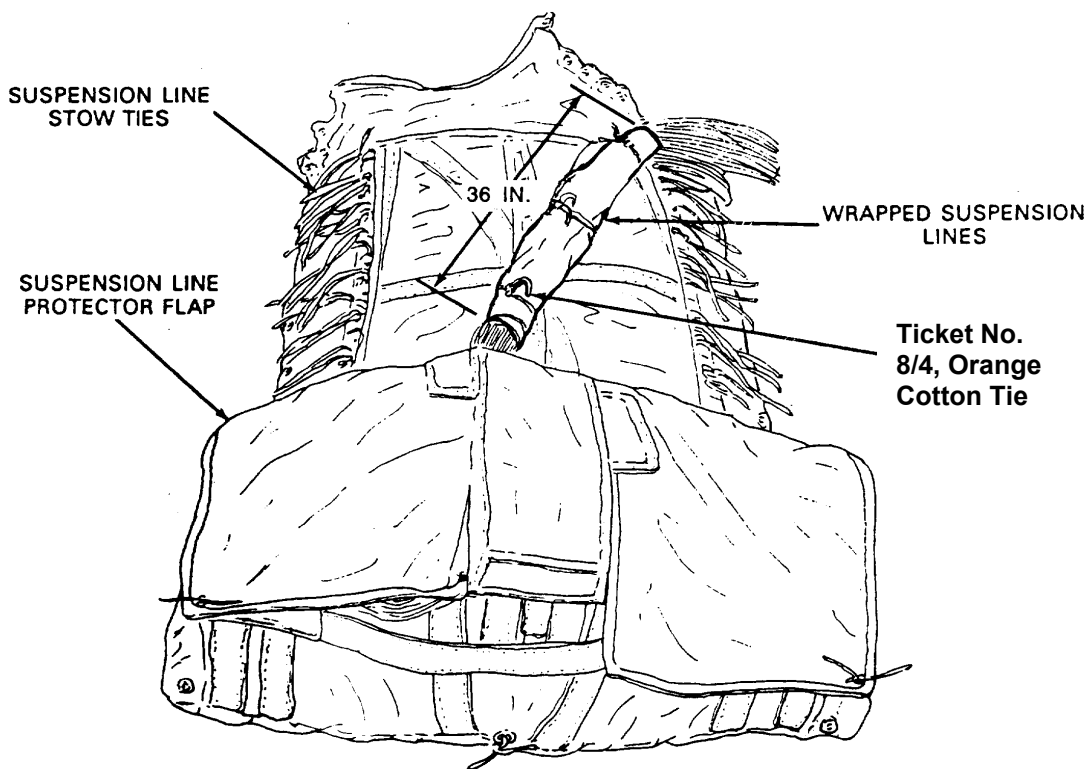
#### 14. Installing suspension line stow ties.

- a. Cut a minimum of thirty-six 18-inch lengths of  $\frac{1}{4}$ -inch wide type I cotton webbing for use as suspension line stow ties.
- b. Secure the webbing lengths at equal intervals along each row of side strap loops by making a girth hitch in each webbing length. Ensure the ends of each webbing length are aligned and positioned toward the respective outer edge of the deployment bag.



## 15. Wrapping the suspension lines.

- a. Extend the suspension lines and center line along the top center of the deployment bag toward the bridle end of the bag.
- b. Using a 12-inch wide by 36-inch long piece of kraft paper, wrap the suspension lines extended along the top center of the deployment bag.
- c. Secure each end and the middle of the suspension line wrap with one turn single ticket No. 8/4, orange cotton thread.
- d. Secure each thread end with a surgeon's knot and locking knot. Ensure the suspension lines are not inadvertently secured to the center loop strap on top of the deployment bag.
- e. Trim tie ends to 2-inches.



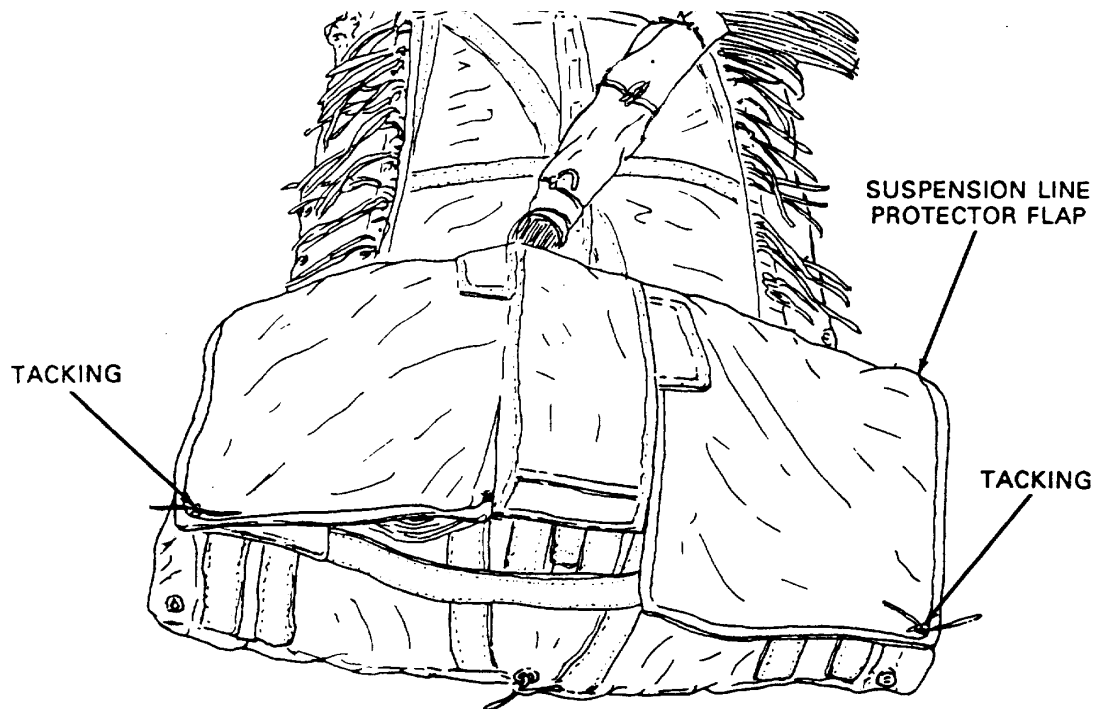
**NOTE**

If the suspension line protector flap is damaged, it may be removed from the deployment bag. Remove by cutting the flap material as close to the deployment bag body as possible.

## 16. Tacking the suspension line protector flap.

- a. Extend the deployment bag suspension line protector flap over the locking stows.

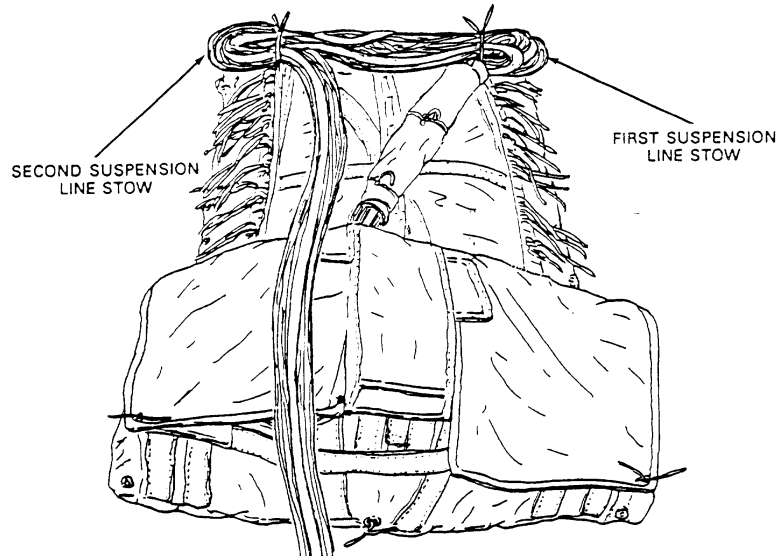
- b. Secure each lower outside corner of the suspension line protector flap to the deployment bag by hand tacking using one turn single, orange cotton thread ticket No. 8/4 at each tacking point.
- c. Pass the tacking needle through the deployment bag outside edge of the reinforcement strap and the protective flap edge reinforcement.
- d. Secure the tacking ends at each tacking point with a surgeon's knot and locking knot.
- e. Trim tie ends to 2-inches.



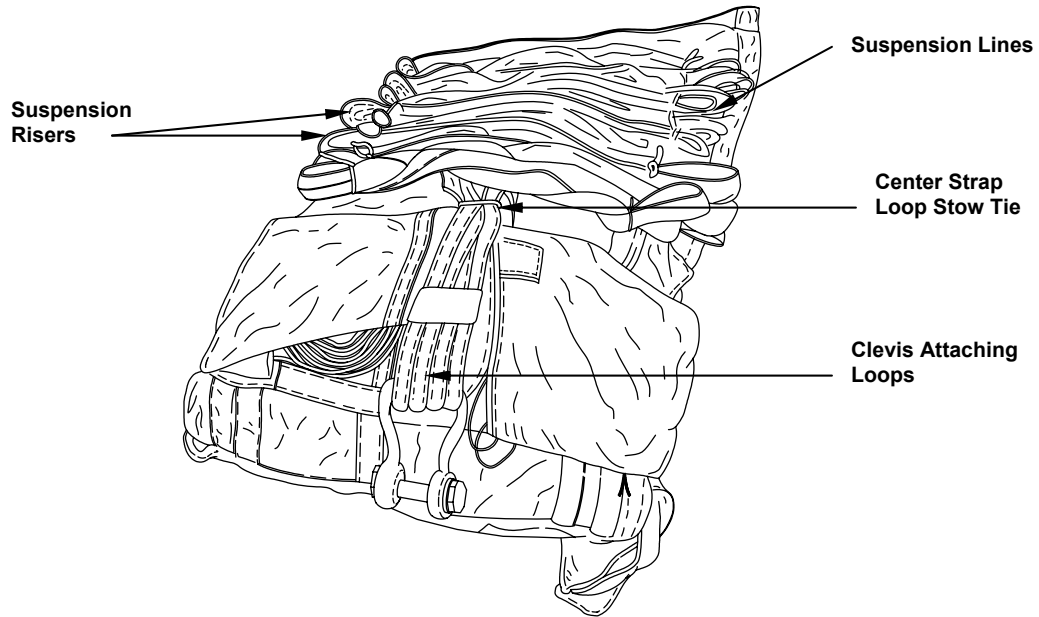
17. Stowing the suspension lines and suspension risers.

- a. Extend the running end of the suspension lines and center line to the upper right corner of the deployment bag.
- b. Measuring to the right edge of the stowage compartment, form the first suspension line stow by making a loop in the suspension lines.
- c. Secure the first suspension line stow to the upper right outside strap loop using the first stow tie.
- d. Secure the stow tie with a surgeon's knot and locking knot.
- e. Rigger check number 5.
- f. Extend the running end of the suspension lines across the deployment bag to the upper left corner of the bag.
- g. Measuring to the left edge of the stowage compartment, form the second suspension line stow by making a loop in the suspension lines.

- h. Secure the second suspension line stow to the upper left outside strap loop using the first stow tie.
- i. Secure the stow with a surgeon's knot and locking knot.

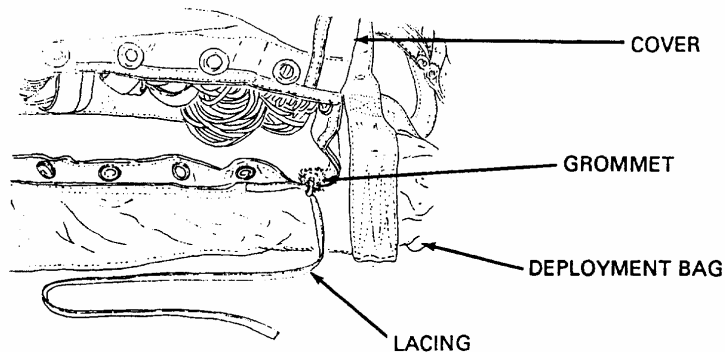


- j. Using the procedures in (a) through (i), stow the remaining length of suspension lines, center line and the suspension risers to a point 6 to 10-inches from the clevis attaching loops on the end of the suspension risers.
- k. Install an additional stow tie on the center strap loop in order to route the suspension risers from the center of the bag.
- l. Trim all ties to 2-inches.
- m. Remove excess ties.

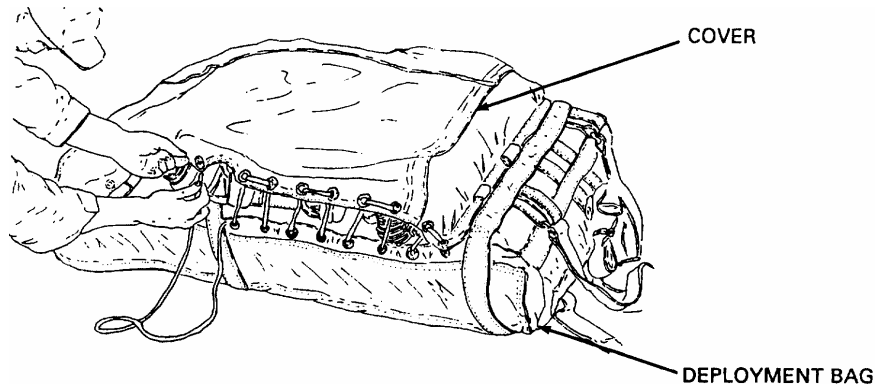


18. Lacing the deployment bag.

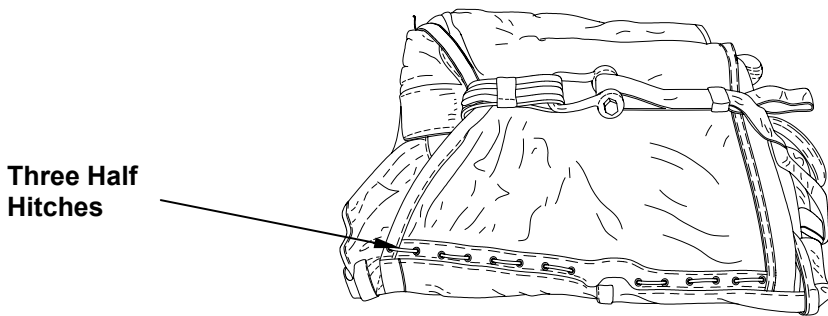
- a. Bring the suspension line protector flap down over the stowed suspension lines and suspension risers. The grommets on the flap sides should overlap the grommets on the side of the deployment bag.
- b. Cut two 60-inch lengths of ¼-inch cotton webbing for use as lacing ties.
- c. Secure an end of each webbing length to the first grommet located on the bottom corner of the deployment bag upper corners with two half-hitches.



- d. With a packer positioned on each side of the deployment bag and using the lacing tie running end, lace the flap to the deployment bag main body, grommet over grommet.



- e. Secure the lacing tie free end to the last lace with three half-hitches. Trim the tie ends to 2-inches.



- f. Rigger check number 6.

**NOTE**

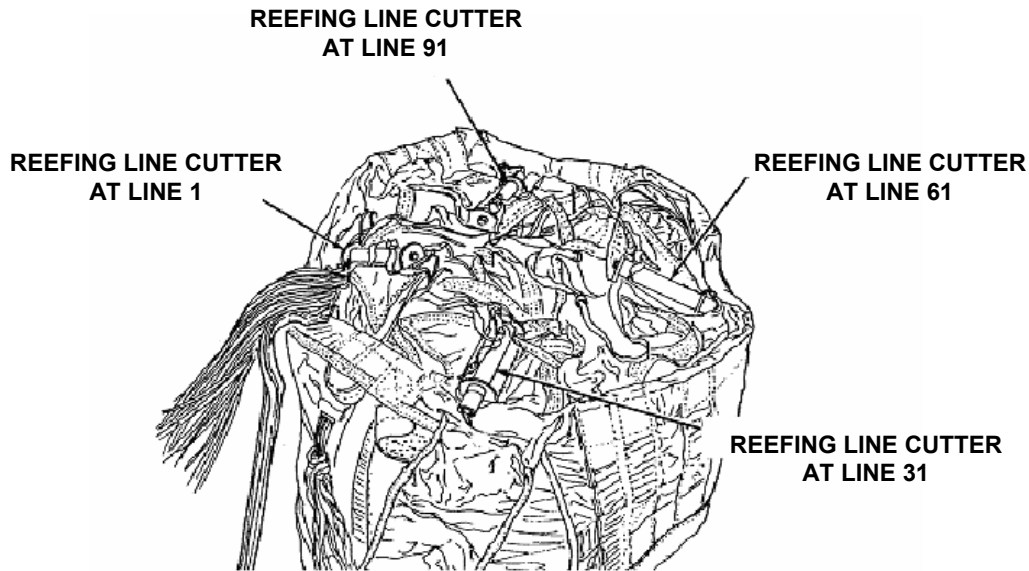
Proceed to LOG RECORD BOOK ENTRIES below for log book entries.

**NOTE**

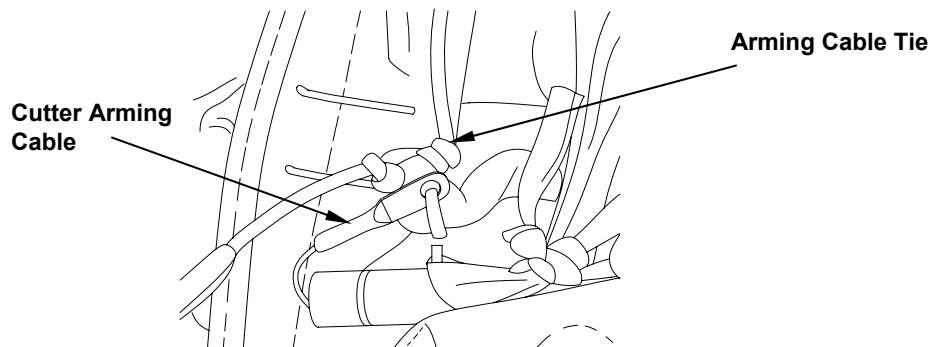
Paragraphs (19) through (26) will be used when packing the G-11B in the nylon deployment bag.

19. Arming the reefing line cutters.

- a. Position the four reefing line cutters on top of the stowed canopy with the cutter at suspension line 61 placed adjacent to the arming loop on the bag bottom, the cutter at suspension line 31 placed adjacent to the arming loop on the left side of the deployment bag, the cutter at suspension line 91 placed adjacent to the arming loop on the right side of the deployment bag and the cutter at suspension line 1 placed adjacent to the arming loop on the bag top.

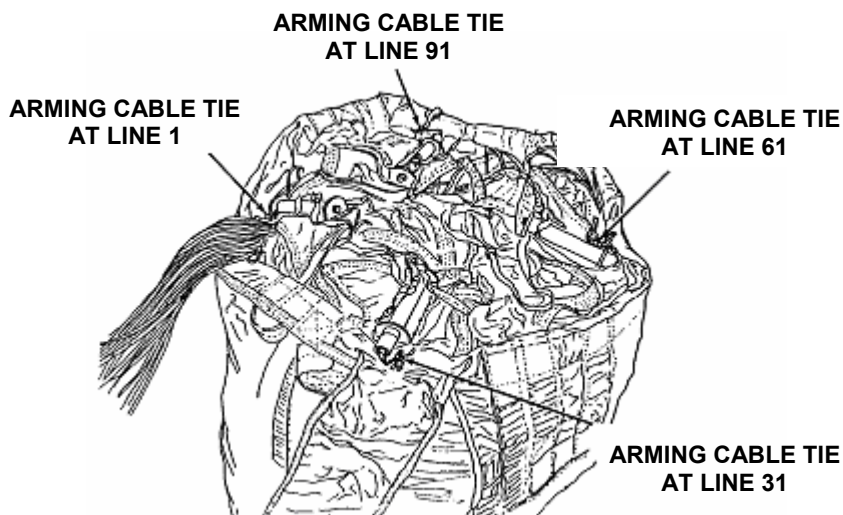


- b. Cut four 12-inch lengths of type III nylon cord for use as arming cable ties.
- c. Beginning with the reefing line cutter at line 1 near the bag top, pass the end of one cord through the reefing line cutter arming cable and through the arming loop on the bag top.
- d. Draw the cord tight and secure the cord ends with a surgeon's knot and locking knot.
- e. Trim the tie ends at a point 2-inches from the surgeon's knot and locking knot.

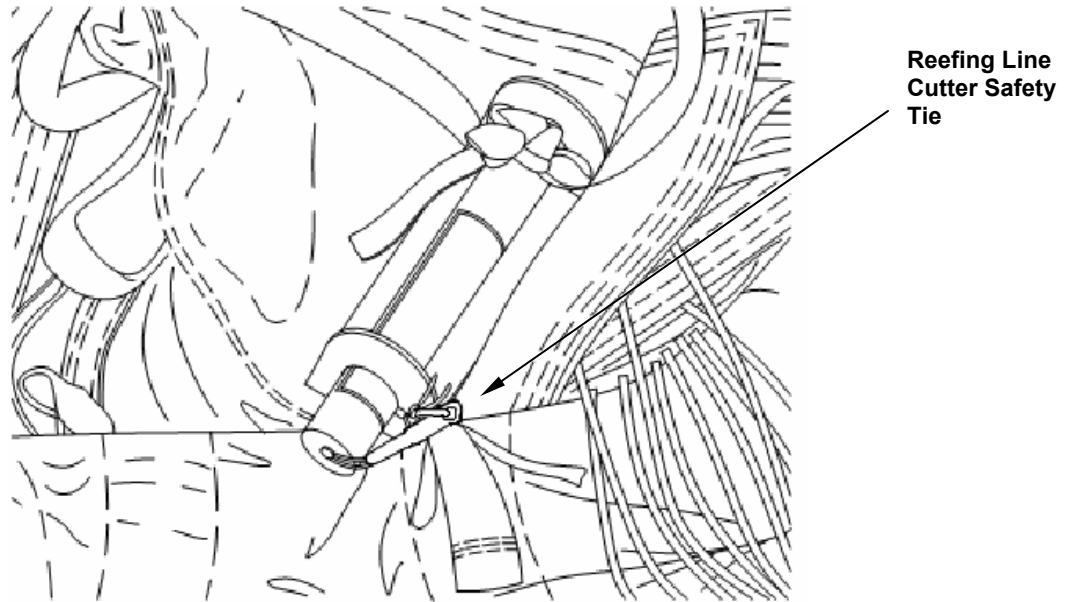


- f. On the left side of the deployment bag, arm the reefing line cutter at line 31, pass the end of one of the cords through the hole in the top of the reefing line arming cable and through the arming loop located on the left side of the deployment bag.
- g. Draw the cord tight and secure the cord ends with a surgeon's knot and locking knot.
- h. Trim the tie ends at a point 2-inches from the surgeon's knot and locking knot.
- i. On the right side of the deployment bag, arm the reefing line cutter at line 91, pass the end of one of the cords through the hole in the top of the reefing line arming cable and through the arming loop located on the right side of the deployment bag.

- j. Draw the cord tight and secure the cord ends with a surgeon's knot and locking knot.
- k. Trim the tie ends at a point 2-inches from the surgeon's knot and locking knot.
- l. Using the remaining cord length on the reefing line cutter at line 61 near the bag bottom, pass one end of the cord through the hole in top of the reefing line arming cable and through the arming loop.
- m. Draw the ends of the tie tight and secure the ends with a surgeon's knot and locking knot.
- n. Trim tie ends 2-inches from the surgeon's knot and locking knot.
- o. Rigger check number 4.



20. Installing reefing line cutter safety ties. To prevent premature firing of a reefing line cutter while stowing the suspension lines, install a safety tie on each of the reefing line cutters and remove the safety cotter pins as follows:
- a. Using a length of one turn double, ticket No. 8/7 cotton thread, pass one end of the doubled thread through the slot in each reefing line cutter bracket, through the hole in the top of the reefing line arming cable, and draw the tie ends tight.
  - b. Secure the safety tie with a surgeon's knot and locking knot.
  - c. Trim tie ends to 2-inches.



- d. The senior packer will annotate each cutter tag with the reefing line cutter lot number/serial number and parachute pack date. After these entries have been made, the senior packer will sign each tag.

**CAUTION**

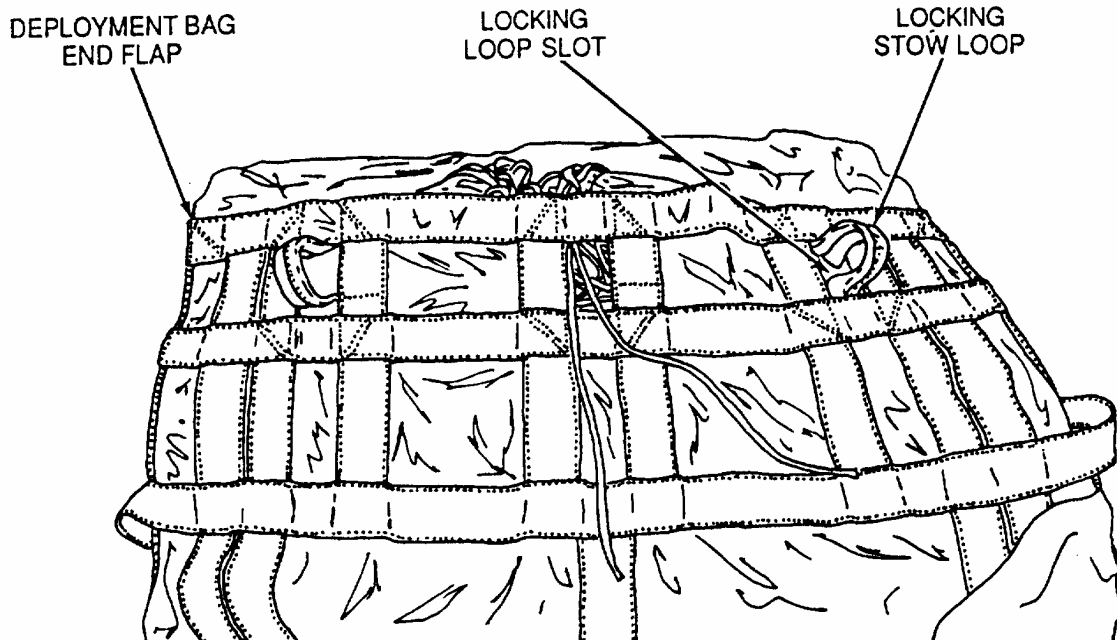
Failure to remove the cutter cotter pins will cause malfunction of the parachute.

- e. Remove the safety cotter pin and tag from each reefing line cutter. Fold the tags lengthwise and stow safety pins and tags in the parachute inspection data pocket within the log record book.

21. Closing the nylon deployment bag.

- a. Bring the suspension lines and center line up over the top of the deployment bag and close the side flaps.
- b. Cut an 18-inch length of ¼-inch type I cotton webbing and girth hitch the webbing length in the deployment bag top center loop strap.
- c. Bring the large end flap of the deployment bag over the bag end and pull the locking loops up through the locking loop slots.
- d. Pull the ¼-inch wide cotton webbing ends on the center loop strap through the top center opening on the end flap.

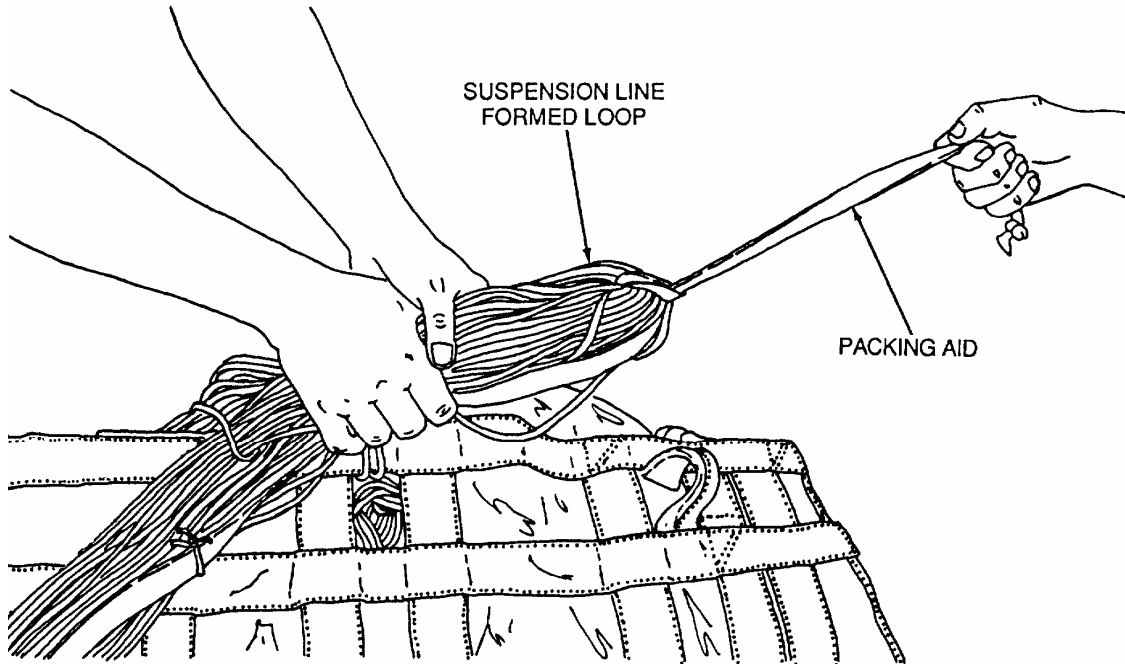




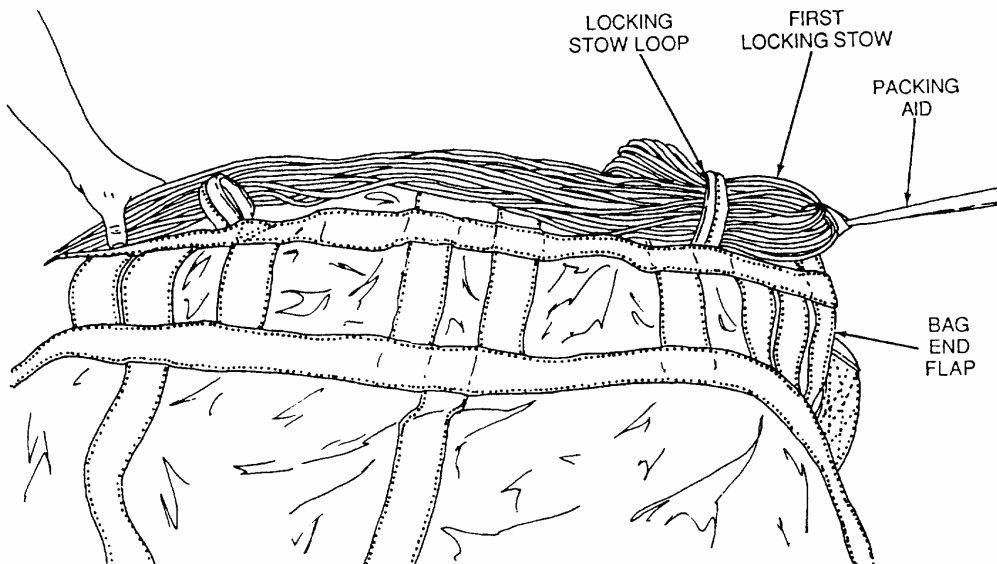
e. Secure with a temporary bow knot.

## 22. Making locking stows.

- a. Cut a 36-inch length of  $\frac{1}{2}$ -inch wide tubular nylon webbing or equivalent for use as packing aid in making the locking stows.
- b. Double the webbing length and make an overhand knot in the aligned ends.
- c. Fold the suspension lines and center line back over the large end flap and measure and form a loop in the lines that will extend to the right edge of the bag large flap.
- d. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.

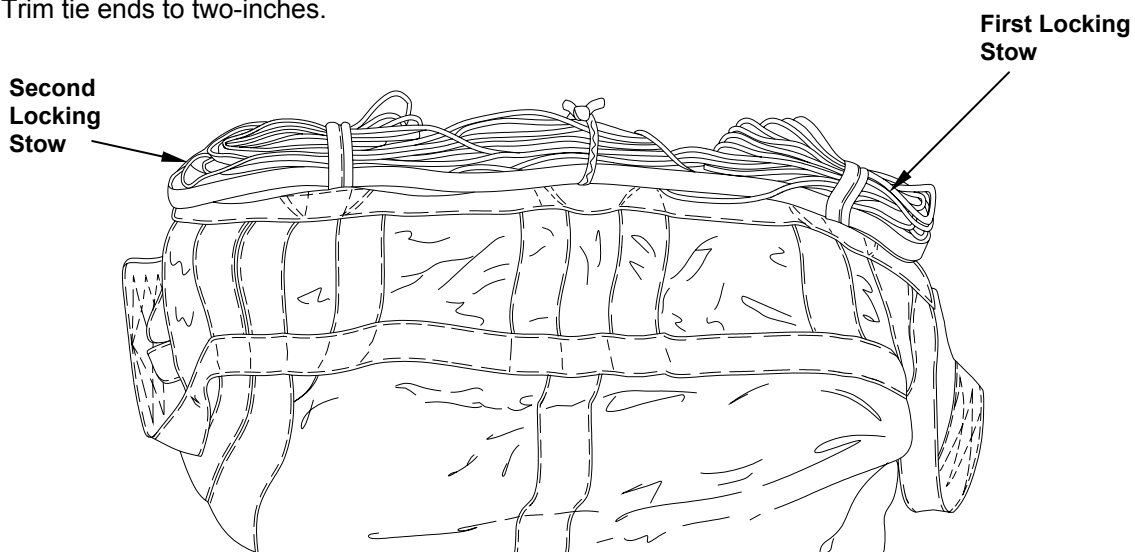


- e. Thread the knotted end of the packing aid through the locking stow loop located at the lower right corner of the deployment bag.
- f. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.



- g. Remove the packing aid.
- h. Extend the running end of the suspension lines and center line to the locking stow loop at the lower left corner of the deployment bag and measure and form a loop in the lines.

- i. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- j. Thread the knotted end of the packing aid through the locking stow loop located at the lower left corner of the deployment bag.
- k. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large flap.
- l. Remove the packing aid.
- m. Secure the first two locking stows by tying the suspension lines together at a point between the two stows. Use the  $\frac{1}{4}$ -inch wide cotton webbing previously installed.
- n. Make the tie one turn single and secure with a surgeon's knot and locking knot.
- o. Trim tie ends to two-inches.



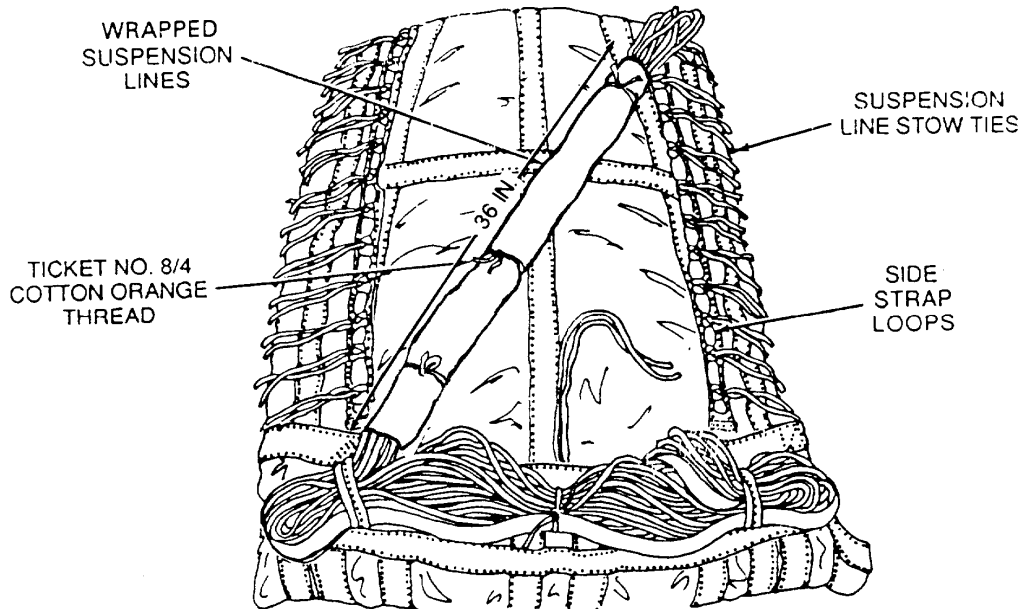
### 23. Installing suspension line stow ties.

- a. Cut a minimum of thirty-two 18-inch lengths of  $\frac{1}{4}$ -inch wide type I cotton webbing for use as suspension line stow ties.
- b. Secure the webbing lengths two per loop along each row of side strap loops by making a girth hitch in each webbing length. Ensure the ends of each webbing length are aligned and positioned toward the respective outer edge of the deployment bag.

### 24. Wrapping the suspension lines.

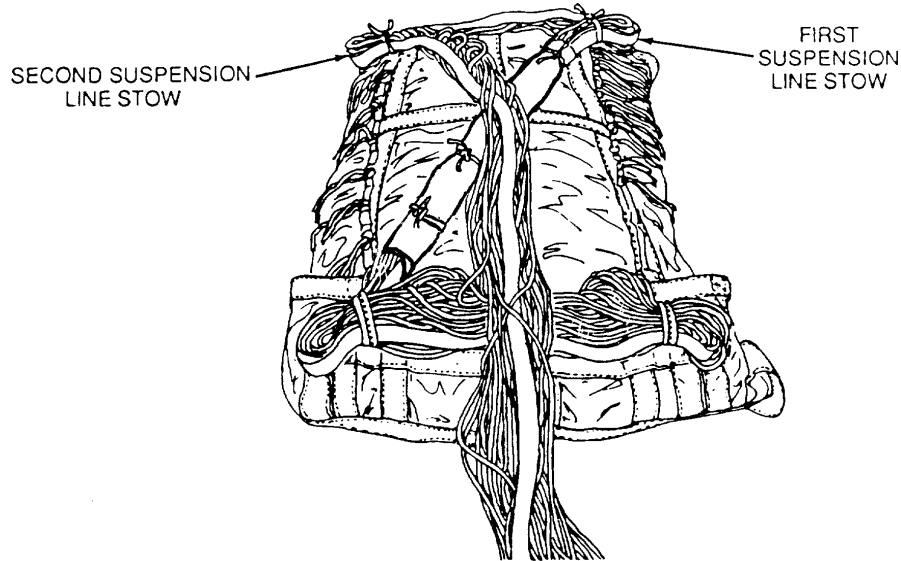
- a. Extend the suspension lines and center line along the top center of the deployment bag toward the bridle end of the bag.
- b. Using a 12-inch wide by 36-inch long piece of kraft paper, wrap the suspension lines and center line extended along the top center of the deployment bag.

- c. Secure each end and the middle of the suspension line wrap with one turn single ticket No. 8/4 cotton orange thread.
- d. Secure each thread end with a surgeon's knot and locking knot.
- e. Trim tie ends to 2-inches.

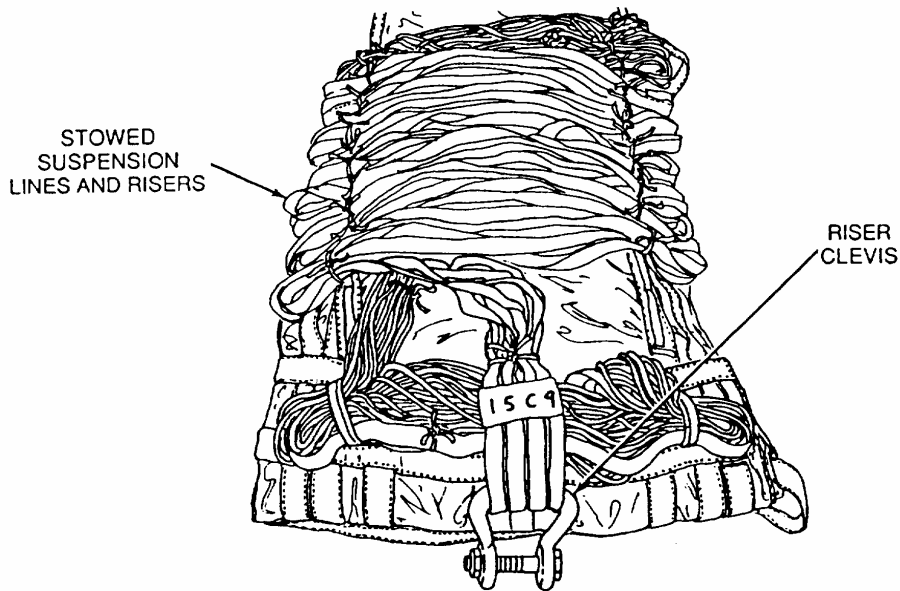


25. Stowing the suspension lines and suspension risers.

- a. Extend the running end of the suspension lines and center line to the upper right corner of the deployment bag.
- b. Measuring to the right edge of the stowage compartment, form the first suspension line stow by making a loop in the lines.
- c. Secure the first suspension line stow to the upper right outside strap loop using the first stow tie.
- d. Secure the stow tie with a surgeon's knot and locking knot.
- e. Rigger check number 5.
- f. Extend the running end of the suspension lines across the deployment bag to the upper left corner of the deployment bag.
- g. Measuring to the left edge of the stowage compartment, form the second suspension line stow by making a loop in the lines.
- h. Secure the second suspension line stow to the upper left outside strap loop using the first stow tie.
- i. Secure the stow tie with a surgeon's knot and locking knot.



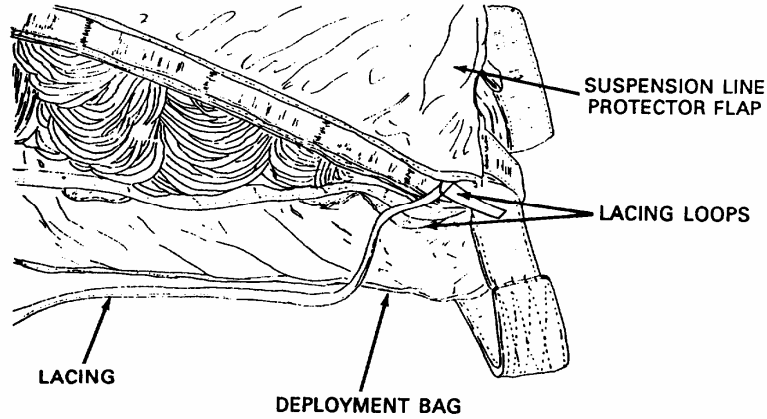
- j. Using the procedures in (a) through (i), stow the remaining lengths of suspension lines, center lines and the suspension risers to a point 6 to 10-inches from the clevis attaching loops on the end of the suspension risers.
- k. Install an additional stow tie on the center strap loop in order to route the suspension risers and center line from the center of the bag.
- l. Trim all ties to two-inches.
- m. Removed unused ties.



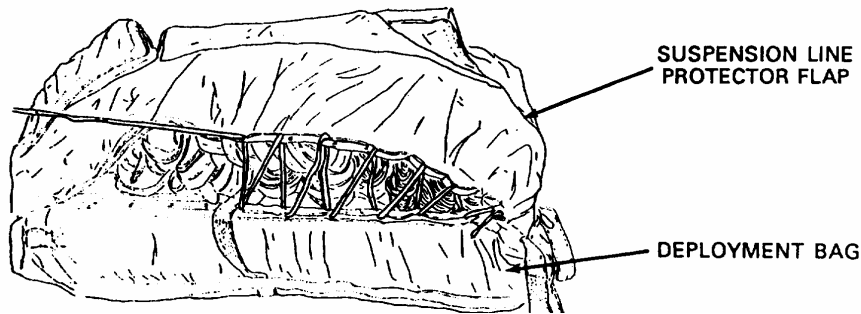
26. Lacing the nylon deployment bag.

- a. Bring the suspension line protector flap across the stowed suspension lines and suspension risers.

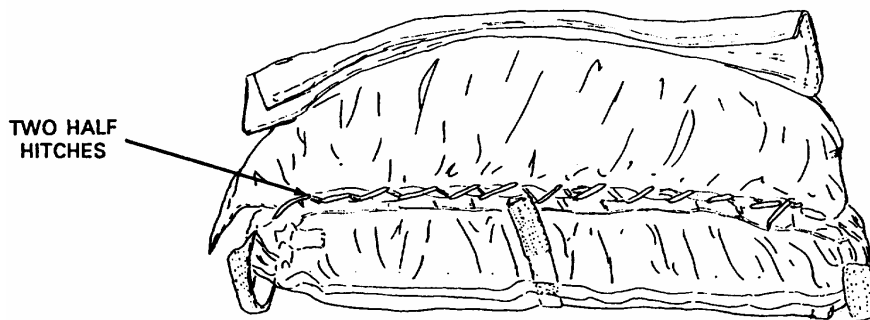
- b. Cut a 70-inch length of ¼-inch cotton webbing for use as lacing ties.
- c. Secure an end of the webbing length to the first loop located on the bottom corner of the deployment bag left upper corner with two half-hitches.



- d. Using the lacing tie running end, lace the flap to the deployment bag main body.



- e. Secure the lacing tie free end to the last lace with two half-hitches.



- f. Rigger check number 6.

## 27. Log record book entries.

**CAUTION**

The inspector **MUST** ensure that the reefing line cutter tag entries match those made in the log record book. Inspect the cutter tags for the current date and verify that the signature on the tags is that of the senior packer of the parachute.

**NOTE**

The log record book must be modified for use on the G-11B cargo parachute. On the "Jump, Inspection and Repack Data" page, change "BAG NUMBER" to "LOT/SER NUMBER". Senior packer's signature **MUST** be legible.

- a. Remove the log record (DA Form 3912, AFTO 391, and Navy WPNCEN or Navy WPNS CL 13512/11) from the parachute inspection data pocket (log record book pocket) located on the riser.
- b. Make entries on the "Jump, Inspection and Repack Data" page as follows:
  - (1) Date. Enter the pack day, month, and year.
  - (2) Lot/Ser Number. Enter the lot number or serial number of the reefing line cutters that are being used for this repack.
  - (3) Routine inspection. No entry required.
  - (4) Jumps or dropped. No entry required.
  - (5) Repack. For initial packing, enter "IN"; thereafter, enter a checkmark in the column each time the parachute is repacked.
  - (6) Packer's Name. The senior packer will place his or her signature in this column.
  - (7) Inspector's Name. The inspector who performed the pack-in-process inspection will sign this entry.
  - (8) Unit. Enter the unit designation to which the packer and/or inspector are assigned.
- c. Return the log record book with four (4) cotter pins and tags to the log record book pocket upon completion of all required entries.
- d. Route the log record pocket tie cord through the closing loops at the bottom of the pocket and secure the tie cord ends with a square knot.

**NOTE**

Stow riser extension in accordance with FM 4-20.102 (FM 10-500-2).

28. Closing the riser extension flap.

- a. Temporarily secure the riser extension flap until riser extension has been stowed. Secure the flap at each corner and at the center with ¼-inch cotton webbing.
- b. Remove the temporary ties, open riser extension flap and stow riser extension.
- c. Bring the riser extension flap across the stowed riser extension.
- d. Cut a 36-inch length of ¼-inch cotton webbing for use as a lacing tie.
- e. With two half-hitches, secure an end of the webbing length to the first loop on the deployment bag main body at the right upper corner.
- f. Using the lacing tie running end, lace the riser extension cover flap to the deployment bag main body.
- g. Secure the lacing tie free end to the last lace with two half-hitches.

**END OF WORK PACKAGE**



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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**G-11C PACKING PROCEDURES**


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**THIS TASK COVERS:**

- Inspection
  - Orientation
  - Preparing Parachute for Proper Layout
  - Removing Inversions
  - Locating Suspension Lines
  - Packing the G-11C Parachute Assembly
- 

**Materials/Parts**

Center Line, 100-Foot (Item 18, WP 0059 00)  
 Cord, Nylon, Type III (Item 12, WP 0059 00)  
 Cutter, M-21, 2-Second (Item 15, WP 0059 00)  
 Marking Aid (Item 21/22, WP 0059 00)  
 Paper, Kraft (Item 23, WP 0059 00)  
 Tape, Adhesive, Pressure Sensitive (Item 27, WP 0059 00)  
 Tape, Lacing & Tying (Item 31, WP 0059 00)  
 Tape, Masking (Item 32, WP 0059 00)  
 Thread, Cotton, Size 8/4, Orange (Item 35, WP 0059 00)  
 Thread, Cotton, Ticket 8/7 (Item 36, WP 0059 00)  
 Type IV, Coreless, Braided Nylon (Item 14, WP 0059 00)  
 Webbing, Cotton, Type I, ¼-IN. (Item 44, WP 0059 00)  
 Webbing, Textile, Nylon, Tubular, ½-IN. (Item 46, WP 0059 00)

**Tools**

Knife (Item 7, WP 0050 00)  
 Line Separator (Item 10, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Equipment Condition**

Parachute cleaned (WP 0008 00) and given a shakeout (WP 0007 00).

**References**

DA PAM 738-750 and DA PAM 738-751;  
 TB 43-0002-43; WP 0008 00, WP 0009 00

**Personnel Required**

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

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**WARNING**


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

**INSPECTION**

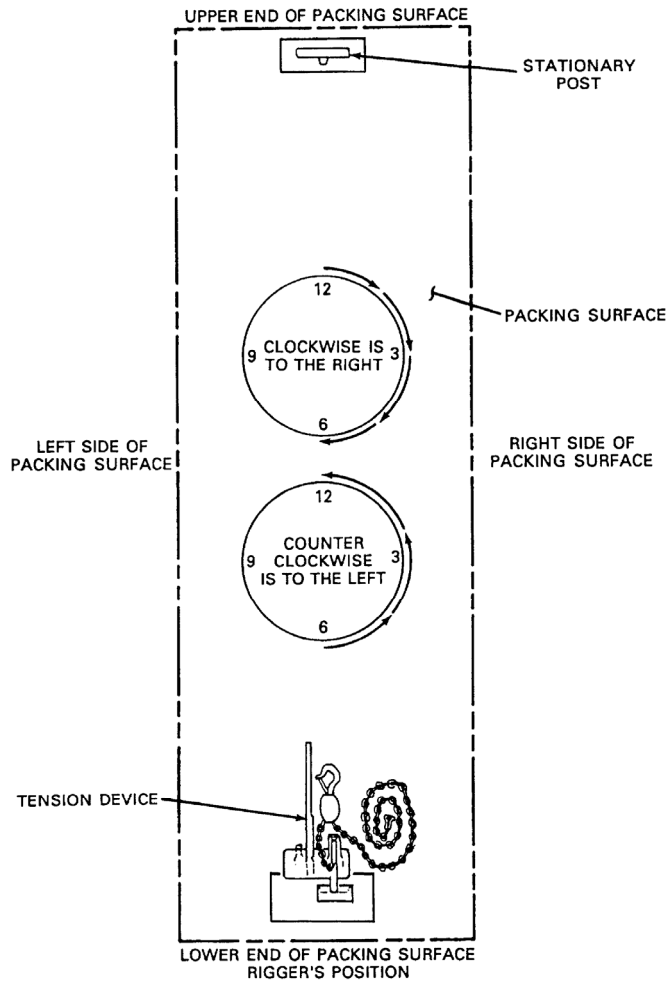
If defects or damages are discovered during inspection of a parachute, the parachute must be rigger-rolled and processed for maintenance in accordance with TM 10-1670-201-23 and DA PAM 738-751. A detailed inspection and a pack-in-process inspection must be performed in conjunction with the packing of each parachute (refer to WP 0009 00, INSPECTION).

1. **Detailed Inspection.** During the packing of the parachute, it must be given a detailed inspection by the packer in accordance with WP 0009 00, INSPECTION.
2. **Pack-In-Process Inspection.** A designated supervisory parachute rigger, other than the packer, must perform a pack-in process inspection at six intervals during the packing procedure. The inspection is performed to ensure the parachute is packed according to authorized packing procedures (refer to WP 0009 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 looking from the parachute riser (tension device) toward the canopy vent (stationary post).

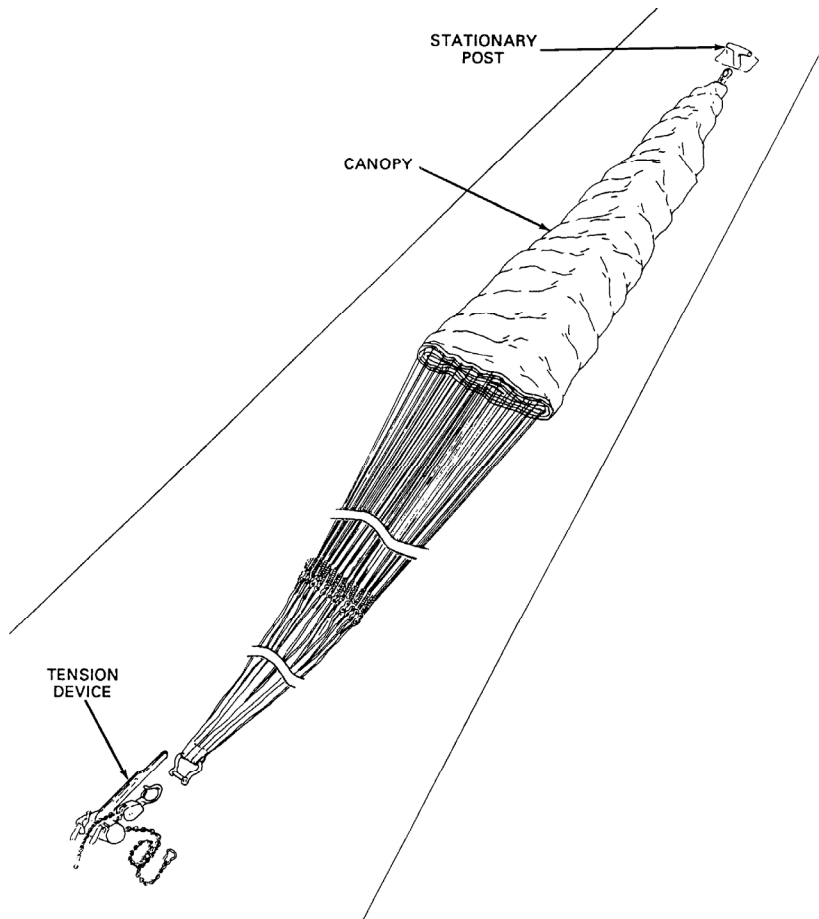
1. Top. That portion of the equipment that is farthest from the packing surface.
2. Bottom. That portion of the equipment that is nearest to the packing surface.



## PREPARING PARACHUTE FOR PROPER LAYOUT

Prepare the parachute as follows:

1. Prepare the parachute for proper layout by positioning the canopy in an elongated manner on a suitable packing surface, with the vent lines located next to a stationary post and the suspension risers near a tension device.
2. Remove the reefing line cutter tags and cotter pins from the log record book pocket.
3. Remove the center line for Before Use inspection.
4. To complete proper layout, ensure canopy inversions are removed, suspension lines are in proper layout, and turn, tangles and twists are removed.



## REMOVING CANOPY INVERSION

To remove an inversion, proceed as follows:

1. Inspect the canopy vent lines to determine if the canopy is inverted. (If the vent lines are located on the inside of the upper lateral band, the canopy is inverted.)
2. To remove the inversion, lift the canopy skirt and walk up through the canopy to the vent area.

3. Grasp the bridle loop and pull the canopy vent down through the canopy skirt between two adjacent suspension lines.



4. On the outside of the canopy, pull the canopy vent back to the stationary post. Attach the bridle loop to the stationary post.

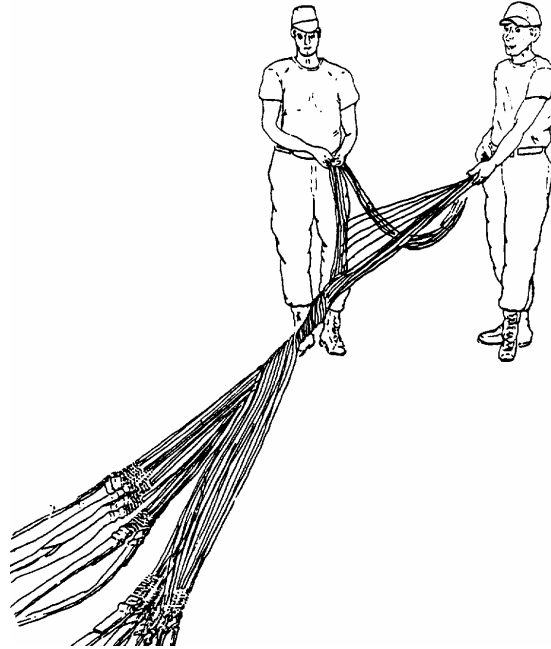
#### **LOCATING SUSPENSION LINES IN PROPER LAYOUT**

To properly locate suspension lines, proceed as follows:

1. Locate the top center gore of the canopy and divide the suspension lines into two groups, lines 1 through 60 in the left group and lines 61 through 120 in the right group.
2. Maintain group separation by moving from the skirt of the canopy towards the suspension risers, removing turns, tangles and twists from the two groups.

**REMOVING TURNS, TANGLES AND TWISTS FROM SUSPENSION LINES**

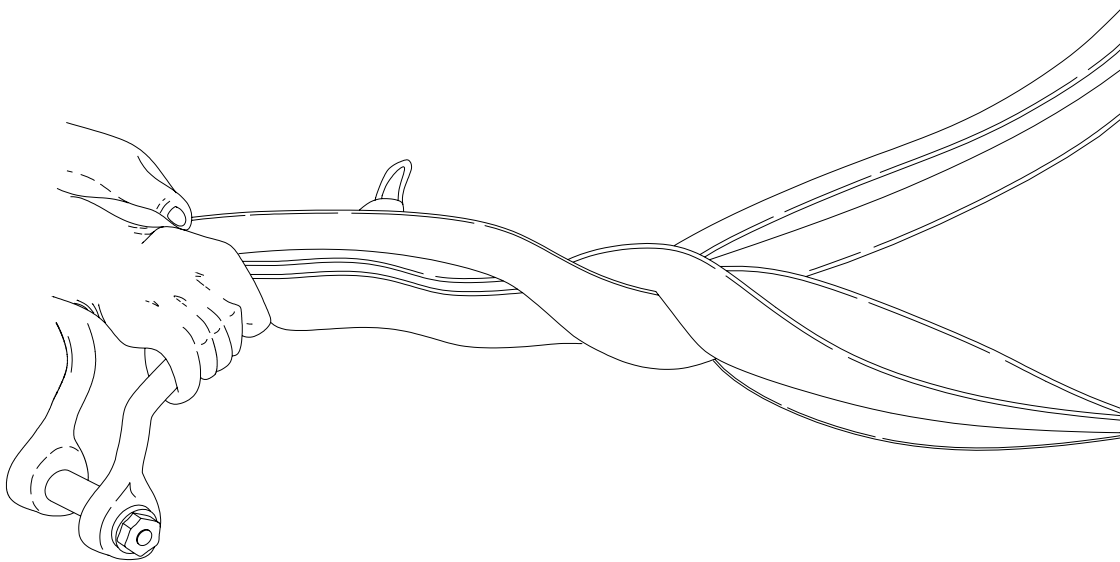
1. Turns. A turn occurs when one group of suspension lines rotates around the opposite group of suspension lines. Remove the turn by rotating the suspension lines in a direction opposite to that of the turn.



2. Tangles. Remove tangles as follows:
  - a. To remove tangle(s) in the suspension lines, begin by separating lines 1 through 40 from the canopy skirt to the connector link assemblies.
  - b. While separating the lines, place all lines that pass over the top of the group over one forearm.
  - c. Grasp the four connector link assemblies which have lines 1 through 40 attached and pull the connector link assemblies and the suspension risers through the remaining suspension lines.



- d. At line 41, count 40 more lines. Separate the lines from the canopy skirt to the connector link assemblies.
  - e. While separating the lines, place all lines that pass over the top of the group over one forearm.
  - f. Grasp the four connector link assemblies that have lines 41 through 80 attached and pull the connector link assemblies and the suspension risers through the remaining suspension lines. This will give you three groups of 40 lines each.
3. Twists. Remove twists as follows:
- a. A twist occurs when the suspension lines in one group become improperly crossed. To remove the twists in the suspension lines, each group of ten suspension lines must be traced from the skirt of the canopy to the connector links.



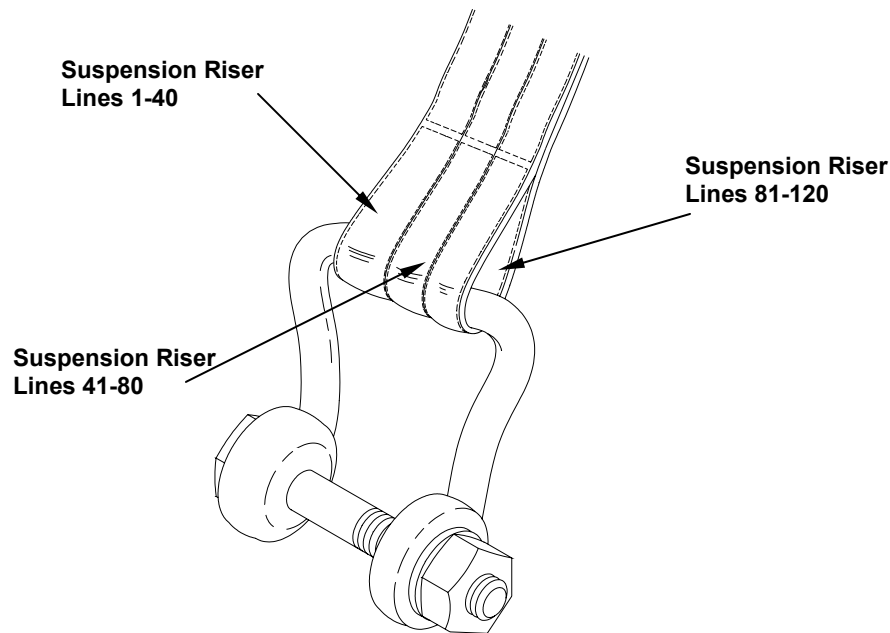
- b. As the lines are being traced they must be threaded onto a nylon strap, such as an A-7A or 60-inch shear strap. To trace the suspension lines and thread the connector link assemblies, three persons shall be required to perform the following:
  - (1) One person grasps the suspension risers at a point just below the connector link assemblies and holds the suspension lines taut.
  - (2) A second person, positioned at the canopy skirt, begins with line 1 and picks up the first line in each line group.
  - (3) As each line is picked up, it will be held in such a manner as to allow the line to be visually traced to the respective connector link assembly.
  - (4) After tracing the first line of each line group, the first person passes the respective connector link assembly containing the line to another person who threads the nylon strap through the connector link assembly.

- (5) As the strap is being threaded through the connector link assembly, the person positioned at the canopy skirt grasps all suspension lines that are attached to the connector link assembly and throws the line group over his/her shoulder. (This procedure shall be repeated for each succeeding line group.) Ensure the connector link assemblies are threaded on the strap in a manner which positions the odd numbered suspension lines to the left side of the strap.
- (6) Secure the ends of the strap.

### RISER LAYOUT

To properly layout the risers, proceed as follows:

1. Adapting the procedures above for locating the suspension lines in the proper layout, remove all turns, tangles, and twists from the suspension risers.
2. Arrange the three suspension clevis attaching loops at the ends of the suspension risers in order, with suspension riser of lines 1 through 40 to the left, suspension riser of lines 41 through 80 in the center and suspension riser of lines 81 through 120 to the right.
3. Install a large suspension clevis through the riser attaching loops to maintain proper layout of the risers.

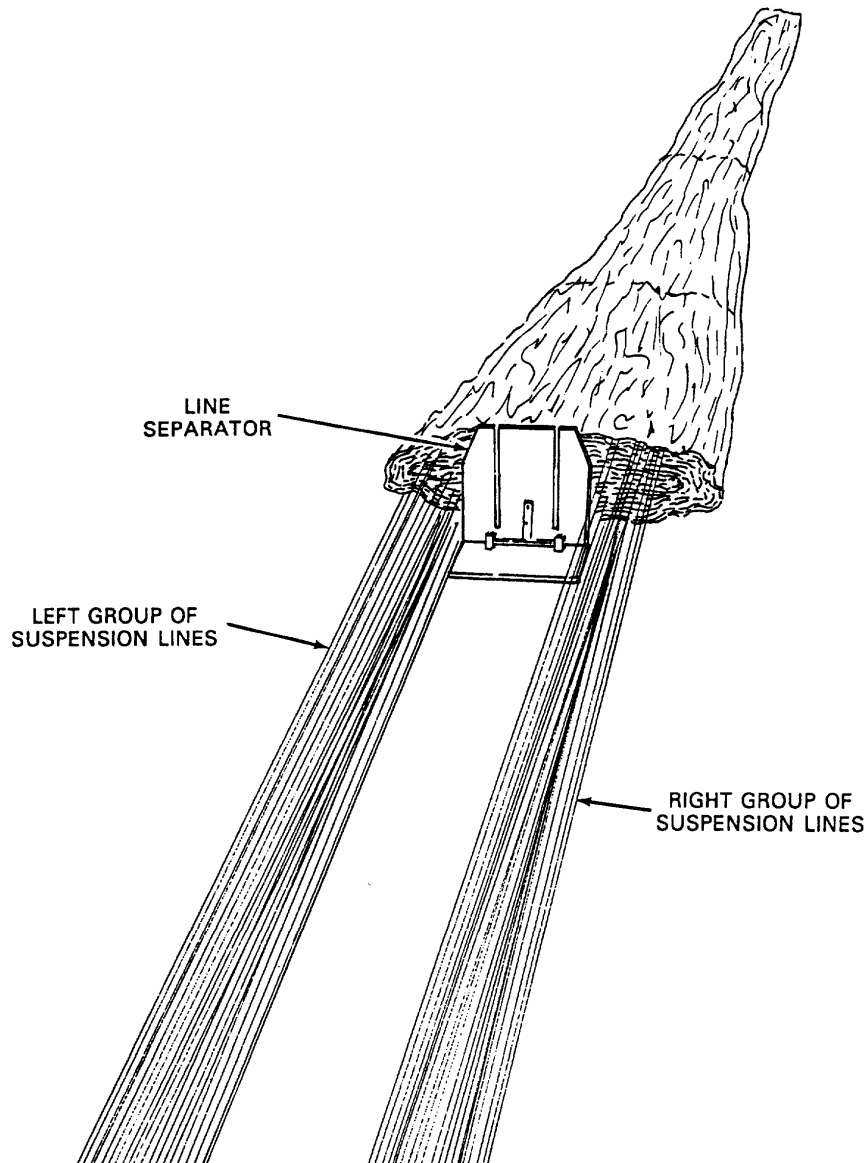


### PACKING THE G-11C PARACHUTE

After preparing the parachute for proper layout, continue packing the G-11C parachute as follows:

1. Group separation of suspension lines.
  - a. Beginning with the connector link assembly to which suspension line number 1 is attached, count six connector link assemblies.

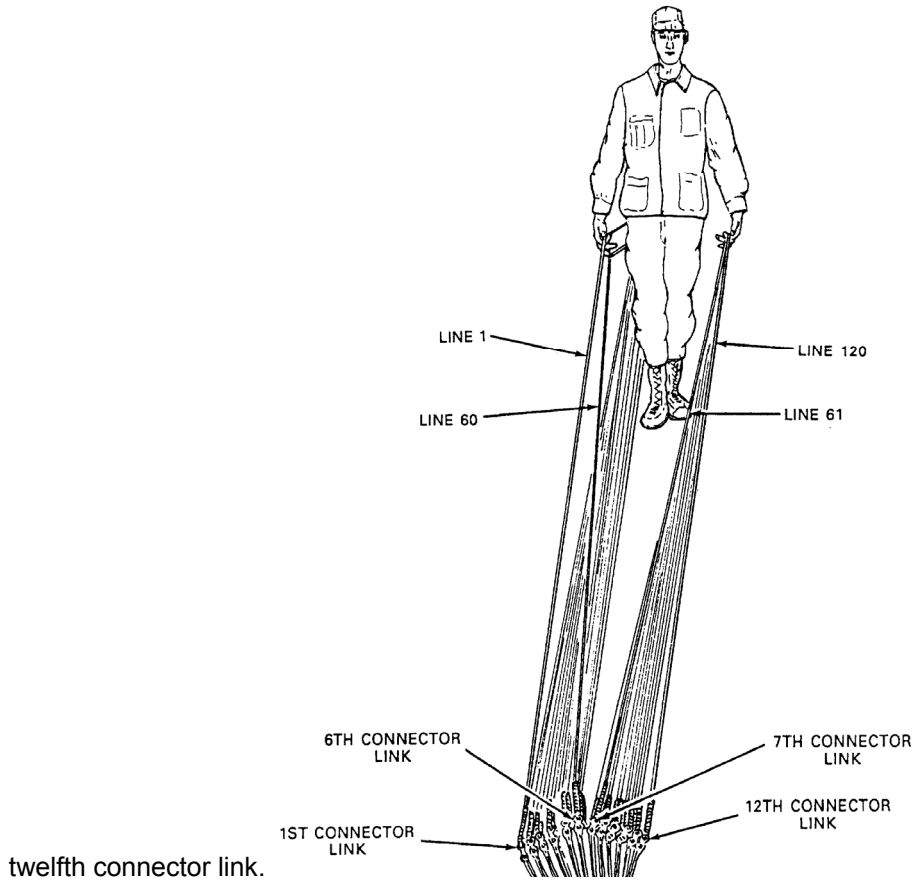
- b. Grasp all suspension lines attached to the six connector link assemblies and working to the canopy skirt, separate these lines from the remaining suspension lines.
- c. Position a large separator between the two groups of lines at the canopy skirt to maintain group separation.



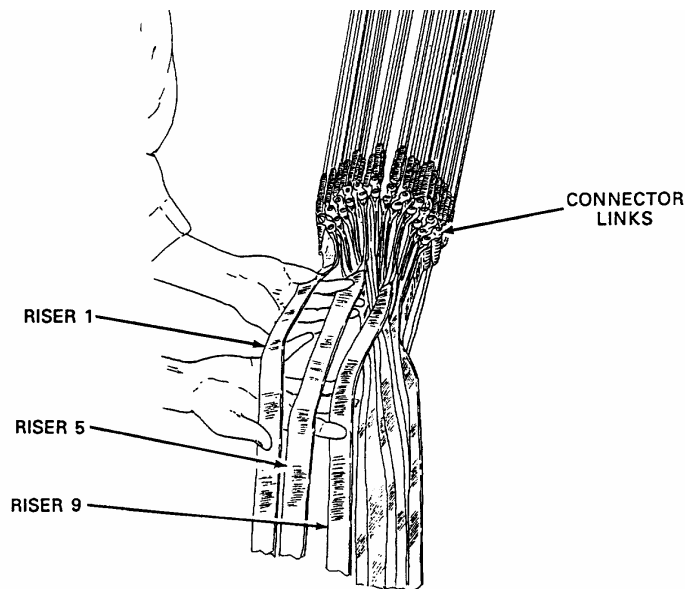
2. Confirming proper layout. Perform a four-line check to confirm that the suspension lines are in proper layout and a three-line check to confirm that the suspension risers are in proper layout. Proceed as follows:
  - a. One packer will take a position between the separated suspension lines near the skirt of the canopy, facing the suspension risers.
  - b. Place lines 1 and 60 in the right hand and lines 61 and 120 in the left hand. Hold these suspension lines in a manner that will keep the lines separated and identifiable in each hand.



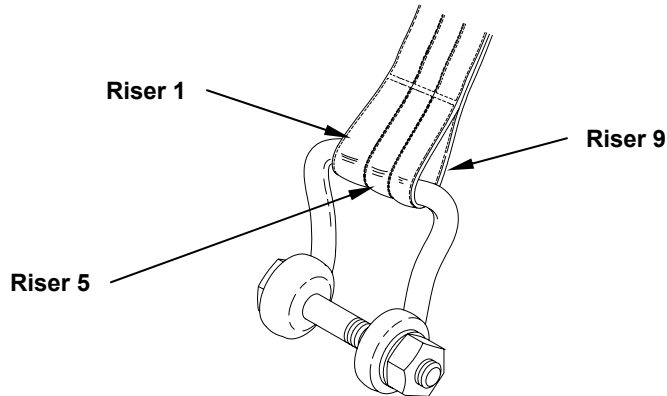
- c. Walking slowly, trace the 4 lines to the connector link assemblies. Line 1 should be at the top of the first connector link on the left (rigger view), line 60 should be at the bottom of the sixth connector link, line 61 should be at the top of the seventh connector link and line 120 should be on the bottom of the



- d. Below the connector link assemblies, pick up the first suspension riser on the left (rigger view) attached to the first connector link, the fifth suspension riser and the ninth suspension riser.



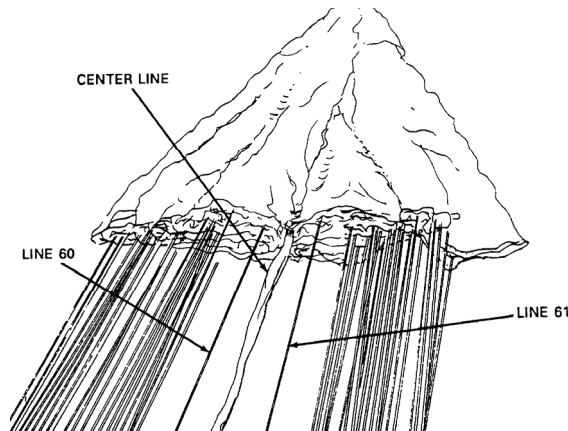
- e. Slowly trace these suspension risers toward the attaching loop end of the suspension risers.
- f. The three suspension risers should be on top of each riser group.



**NOTE**

Dress the vent reinforcement (upper lateral band) to center the canopy vent lines.

3. Attaching the center line.
  - a. Position a large pedestal fan about 10-feet below and 6-feet to the left of the canopy skirt. Adjust the fan so the canopy will be partially inflated.
  - b. Walk up through the inside of the canopy and pull the center line to the canopy vent.
  - c. Pass the center line to another packer on the outside of the canopy.
  - d. Secure the center line temporarily to the bridle loop with a length of ¼-inch wide cotton webbing.
  - e. Attach the bridle loop to the stationary post.
  - f. Place the free end of the center line between lines 60 and 61 at the canopy skirt.

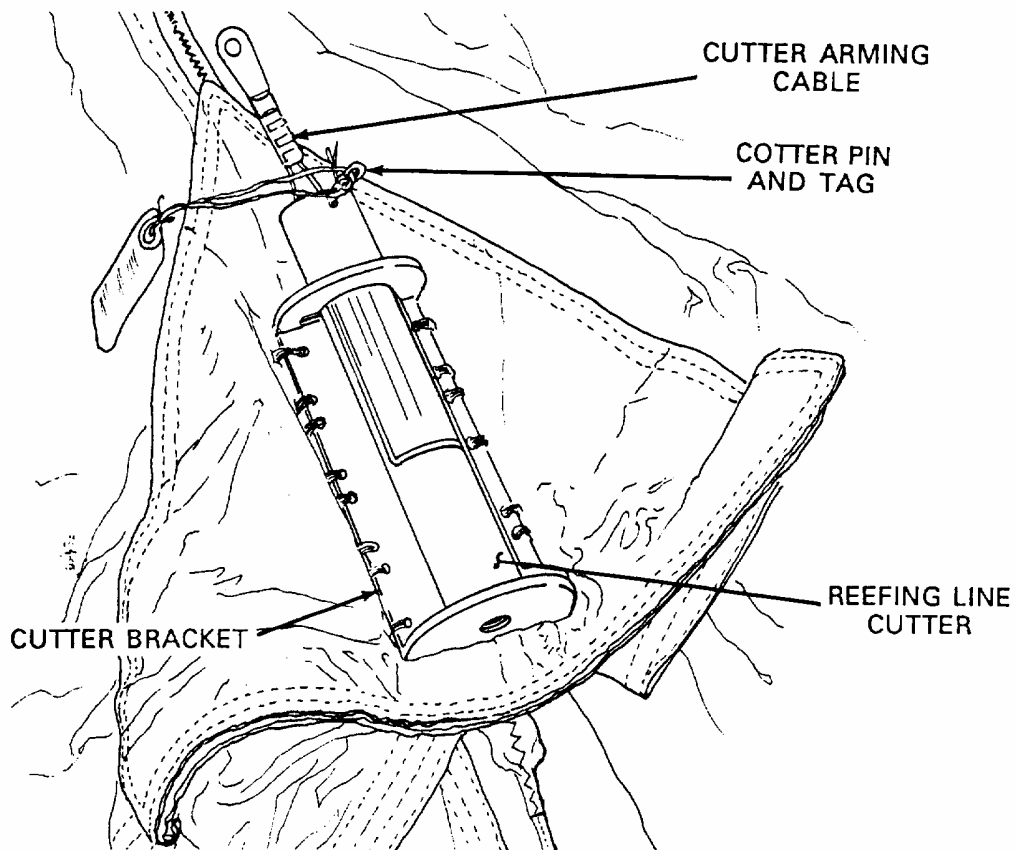


4. Installing M-21 reefing line cutter. Install an M-21 reefing line cutter at lines 61 and 1 as follows:

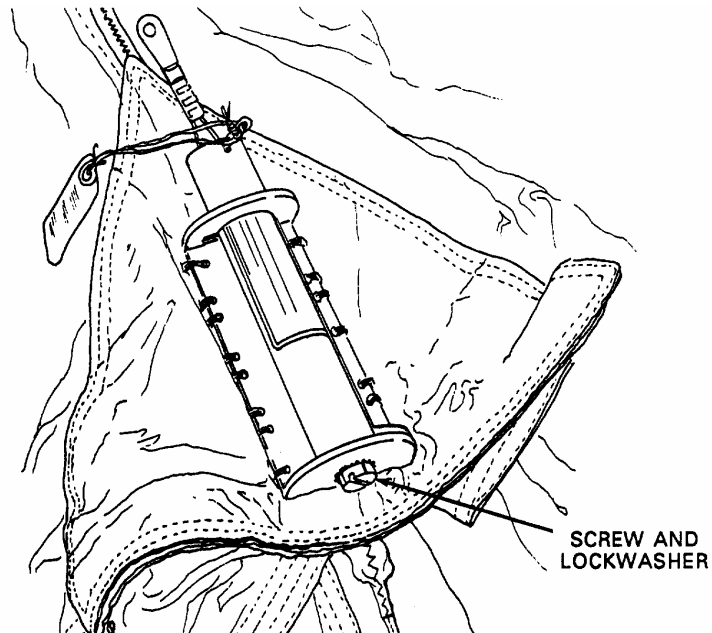
- a. Remove ¼-inch screw and insert the cutter into the upper end of the cutter bracket. Ensure the cutter arming cable is pointed toward the canopy vent.
- b. Align the screw that protrudes from the side of the cutter with the slot in the upper end of the cutter bracket.
- c. Slide the cutter into the cutter bracket until the cutter lower end is flush against the inside bottom end of the bracket.
- d. Turn the cutter one-quarter turn to allow the screw, which protrudes from the cutter side, to fit into the indentation located in the center of the bracket.

NOTE

Do not use any type of tool to tighten the reefing line cutter bottom screw.



- e. Insert the 1/4-inch screw with serrated lock washer through the hole on the bottom of the bracket, into the threaded hole in the bottom end of the cutter and tighten the screw finger tight.



**NOTE**

A four-line check for proper layout shall be performed before applying tension.

- f. Rigger check number 1.
5. Applying tension. Attach the nylon webbing strap routed through the connector links to a tension device and apply tension.

**NOTE**

A tension jack, chain hoist, power winch, or a vehicle may be used as a tension device when applying tension to the parachute.

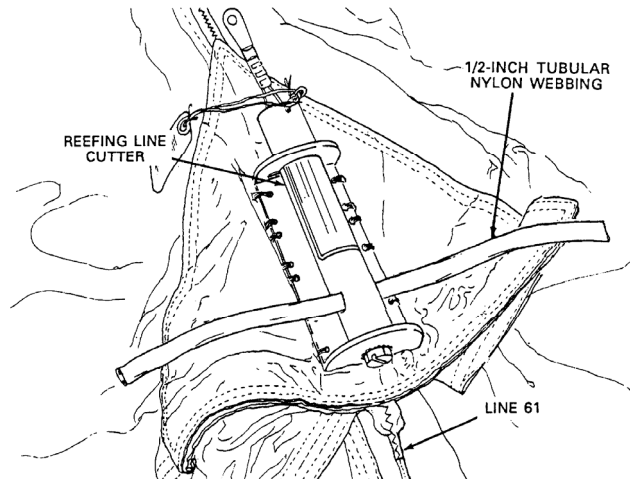
6. Threading the reefing line cutter at line 61.

**NOTE**

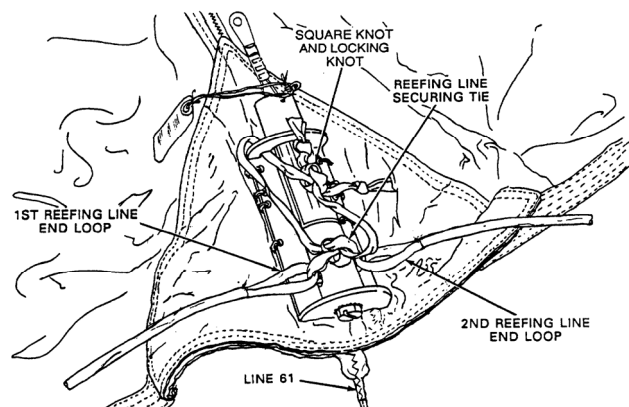
The G-11C uses two 10-foot type IV reefing lines. The reefing lines will be fabricated IAW the instructions in WP 0060 00, ILLUSTRATED LIST OF MANUFACTURED ITEMS, of this manual.

- a. Cut two 18-inch lengths of 1/2-inch tubular nylon webbing to be used as reefing line securing ties.

- b. Rotate the reefing line cutter at line 61 upward and pass one end of a securing tie from left to right through the reefing line cutter hole.
- c. Center the tie with an equal amount of webbing on each side of the reefing line cutter.

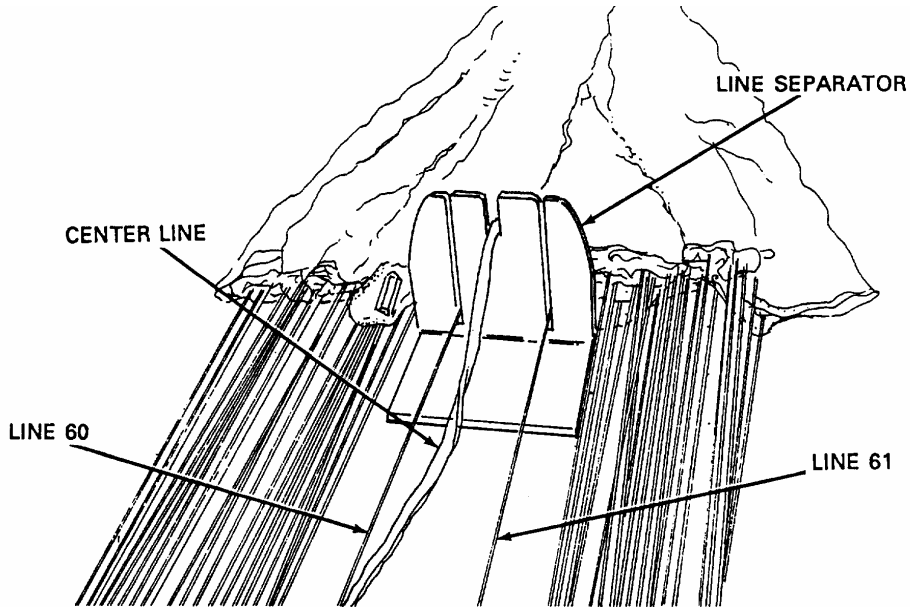


- d. Pass the running end of the webbing on the left side of the cutter through the end loop of one of the 10-foot reefing lines.
- e. Pass the running end of the webbing on the right side of the cutter through the second reefing line end loop.
- f. Secure the ends of the reefing line securing tie together over the reefing line cutter with a square knot.
- g. Route one running end of the tie up through the side screw slot of the reefing line cutter bracket.
- h. Secure the running ends together with a square knot and locking knot with an overhand knot in each running end.
- i. Trim ends to two-inches.

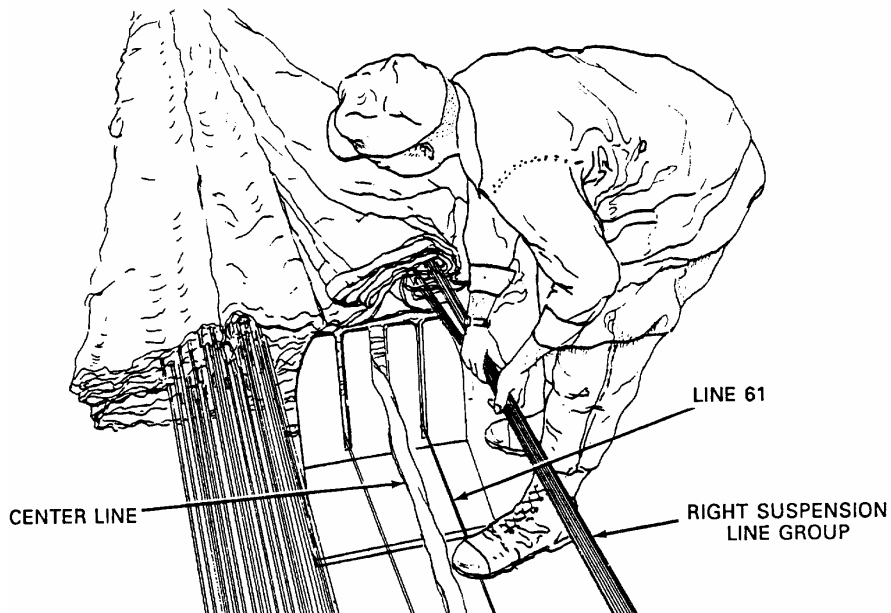


7. Folding the gores and reefing the canopy. Fold the canopy gores into two groups of 60 gores each and thread the reefing line through the canopy reefing rings as follows:

- a. At a suitable point below the canopy skirt (lower lateral band), position a large line separator between the two groups of suspension lines. Insert line 60 into the left slot of the line separator and line 61 into the right slot.



- b. While holding line 61 in position in the line separator, pick up the right suspension line group and throw the right group of gores and lines over the left group of gores and lines.



- c. Position a large pedestal fan at a point of 10-feet below the canopy skirt. Position the fan so the air-stream will partially inflate the canopy.

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**CAUTION**

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Failure to evenly distribute the reefing line between each reefing ring will cause a delay in the parachute deployment, an uneven inflation of the canopy or result in a malfunction.

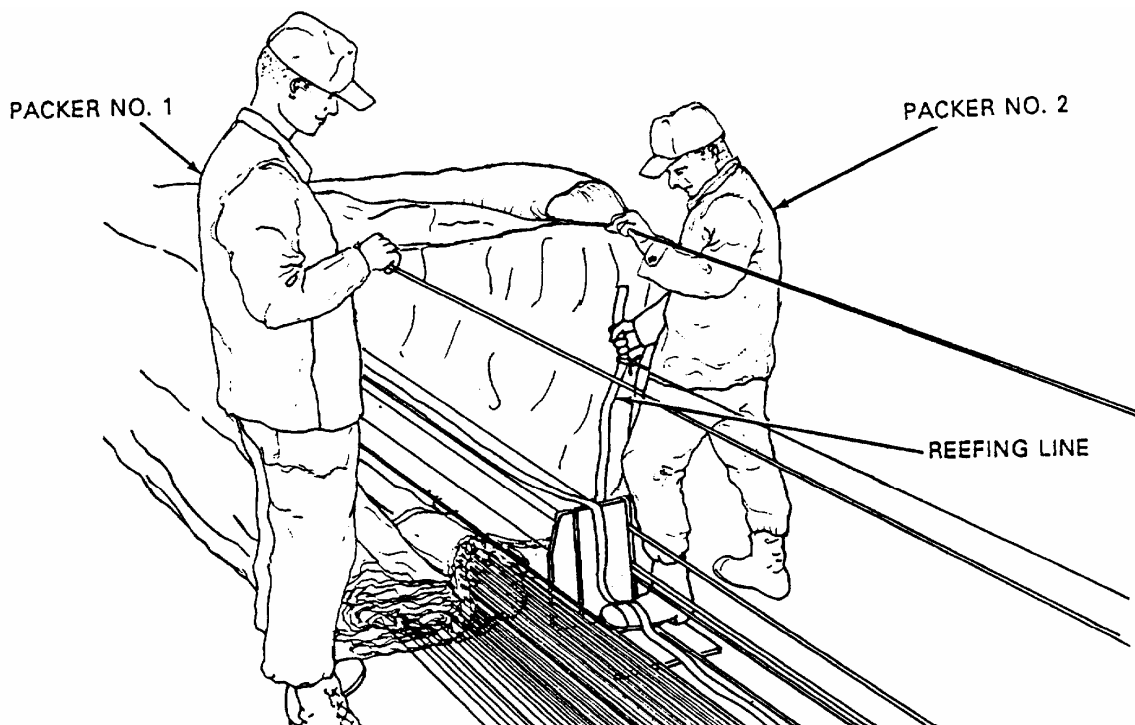
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**NOTE**

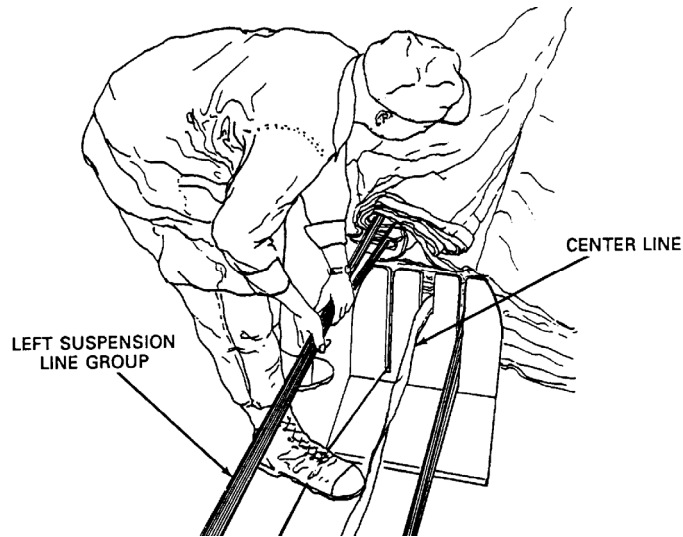
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A packer will take a position near the apex of the canopy and observe the canopy during the reefing process. If canopy damage is observed, the reefing process will be stopped and the parachute will be processed for maintenance.

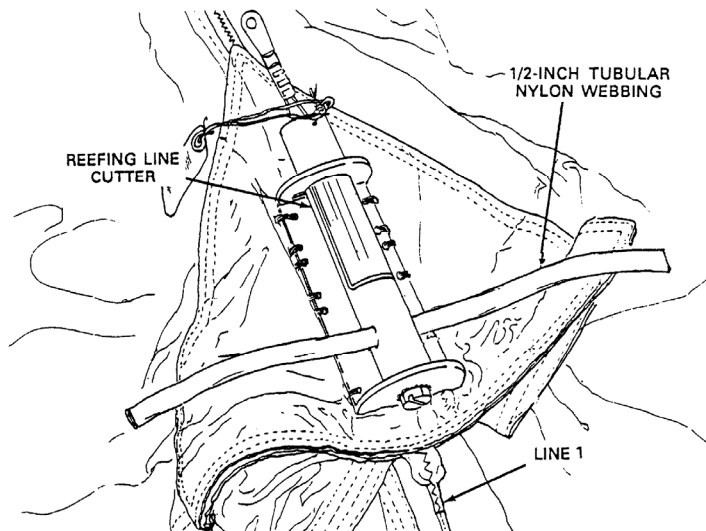
- d. Beginning with line 62, one packer passes each line in the right group to a second packer who threads the right running end of the reefing line through each reefing ring. After each reefing ring is threaded, the second packer will use a leg to guide the suspension line into the right slot of the line separator. Continue the gore folding process until lines 61 through 120 are reefed and in the right slot of the line separator and the gores between each line are folded.



- e. While holding line 60 in position in the line separator, pick up the left suspension line group and throw the left group of gores and lines over the folded right group of gores and lines.

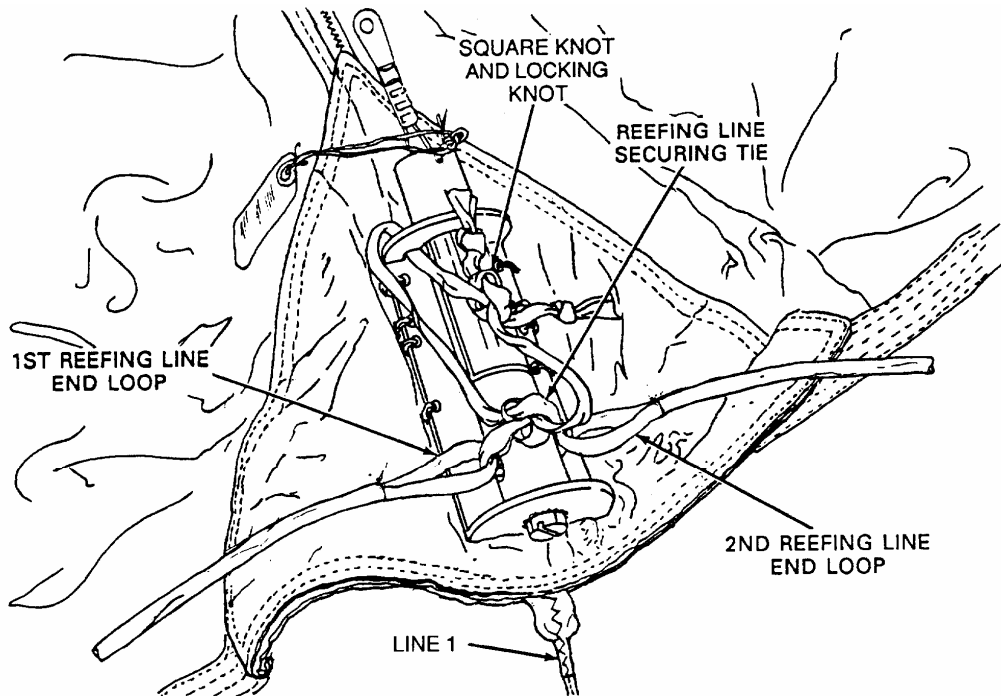


- f. Beginning with line 59, one packer passes each line in the left group to a second packer who feeds the line and reefing ring to a third packer. The third packer threads the left running end of the reefing line through each reefing ring.
- g. After each reefing ring is threaded, the second packer will use a leg to guide the suspension line into the left slot of the line separator.
- h. Continue the gore folding process until lines 60 through 1 are reefed and in the left slot of the line separator and the gores between each line are folded.
- i. From left to right, pass one end of the second reefing line securing tie through the hole in the reefing line cutter at line 1 and center the webbing length.





- j. Route the running end of the webbing on the left side of the reefing line cutter through the end loop of the reefing line of the left gore group.
- k. Route the running end of the webbing on the right side of the reefing line cutter through the end loop of the reefing line of the right gore group.
- l. Secure the ends of the securing tie together over the reefing line cutter with a square knot. Route one running end of the tie up through the side screw slot of the cutter bracket.
- m. Secure the running ends together with a square knot and a locking knot with an overhand knot in each running end.
- n. Trim ends to two-inches.

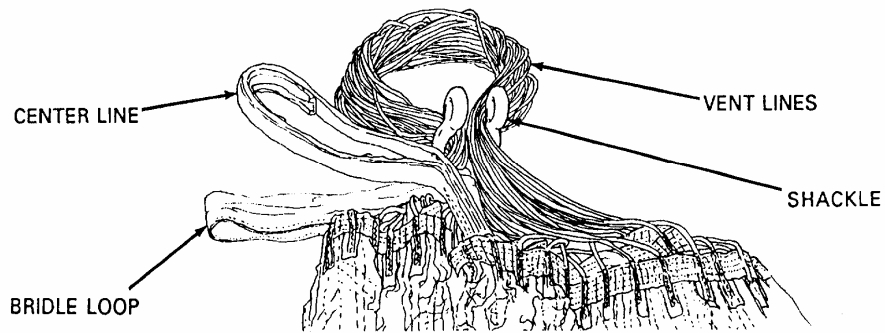


**CAUTION**

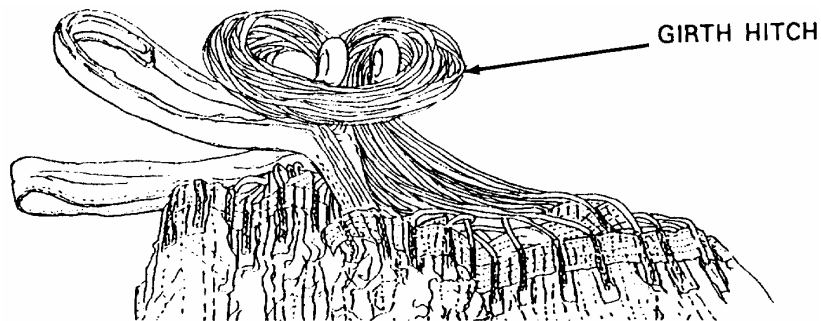
When installing the center line, ensure that it is not entangled or wrapped around the suspension lines or suspension risers.

8. Completing center line installation.
  - a. Disconnect the bridle loop from the stationary post and dress the upper lateral band making sure the vent lines are centered and separated.

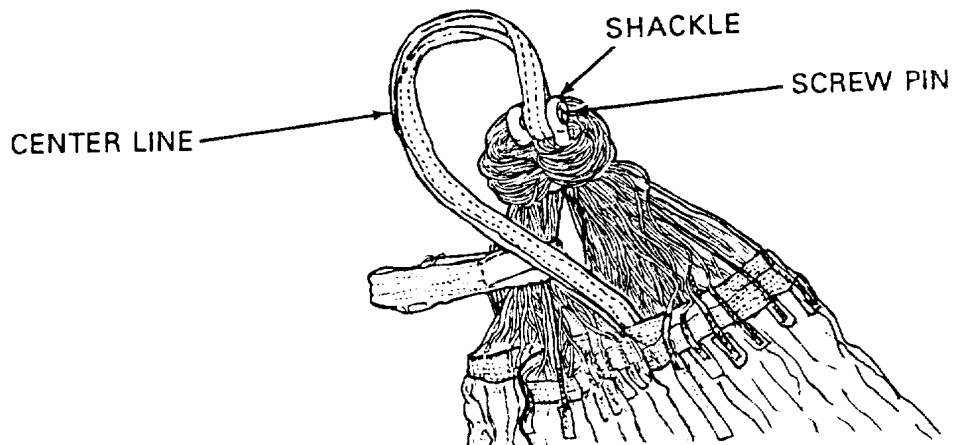
- b. Grasp the vent lines, with the bridle loop positioned to one side, and place the screw pin shackle over the vent lines.



- c. Rotate the vent lines down over the shackle legs to form a girth hitch.



- d. Disconnect the center line from the bridle loop.
- e. While installing the screw pin, place the end loop of the center line on the screw pin.
- f. Tighten the screw pin and pull the girth hitch until tight.

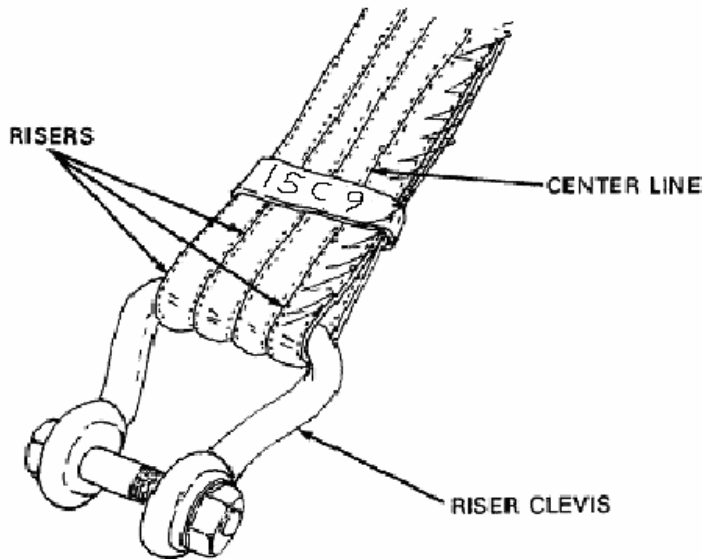


- g. Using 2-inch pressure sensitive adhesive tape, tape the shackle, vent line loop and center line loop so that no metal parts, splice ends or rough webbing ends are exposed.

**CAUTION**

If any portion of the center line attachment at the screw pin clevis and vent line apex falls at, or below, the lower lateral band of the canopy, then the center line is too short. The center line must be replaced with a center line having a minimum length of 97-feet, 0-inches.

- h. One packer will pull the center line free end toward the risers, one of the other packers will guide the canopy vent, keeping it in the air channel between lines 1 and 120, ensuring that the canopy material does not become disarranged while the canopy vent is being pulled toward the canopy skirt.
- i. Remove the right suspension riser from the large suspension clevis and place the center line free end on the clevis.
- j. Using masking tape, secure the risers together at a point immediately above the attaching loop.
- k. Using a suitable marking aid, mark each riser (riser 1, 5, 9) and centerline for identification purposes



- l. Rigger check number 2.

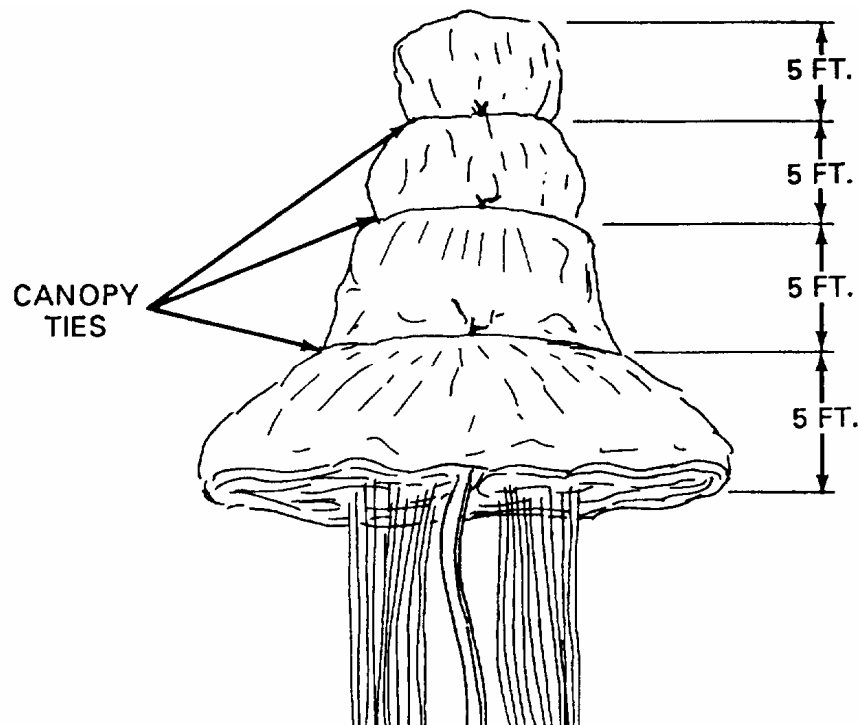
NOTE

Ensure all ties are tight.

9. Tying the canopy assembly. To tie the canopy assembly, release tension, remove the tension device and tie the canopy assembly as follows:

a. Folded canopy.

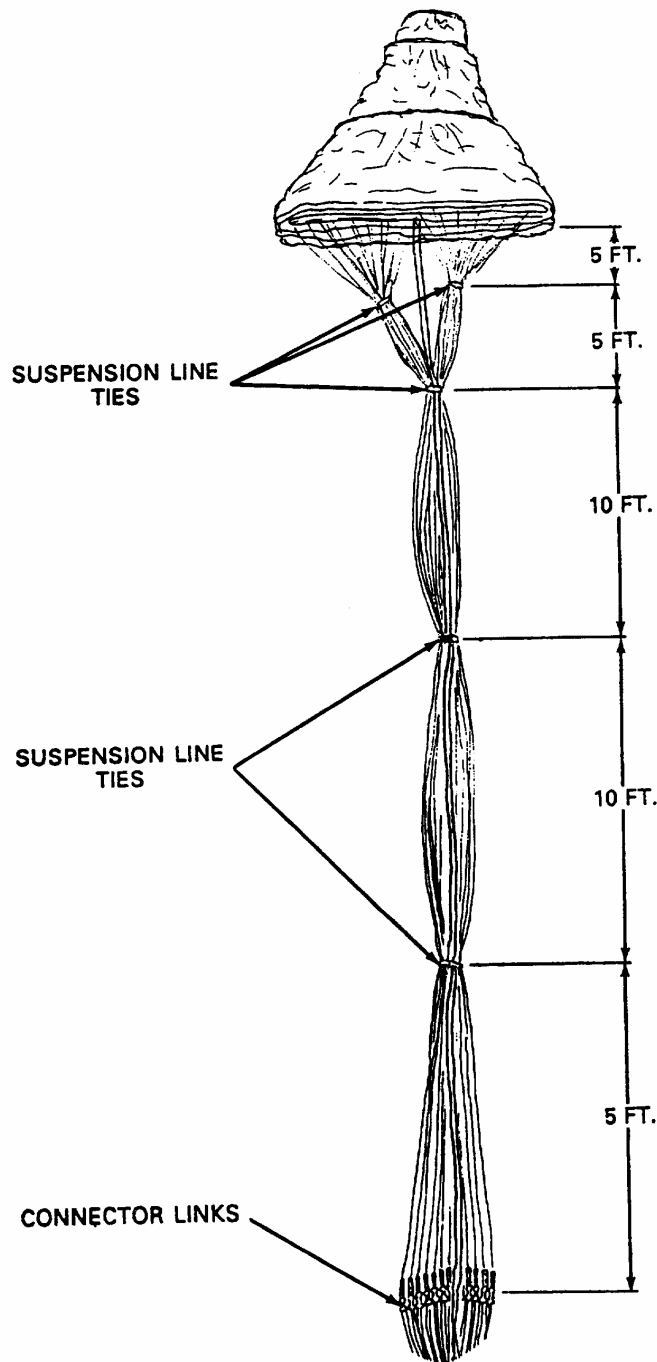
- (1) Beginning at a point 5-feet above the skirt band (lower lateral band) and at 5-foot intervals thereafter, install the canopy ties.
- (2) Tie the canopy folds using one turn single, ticket No. 8/4 cotton orange thread at each point.
- (3) Secure each tie with a surgeon's knot and locking knot.
- (4) Trim tie ends to 2-inches.



b. Suspension lines.

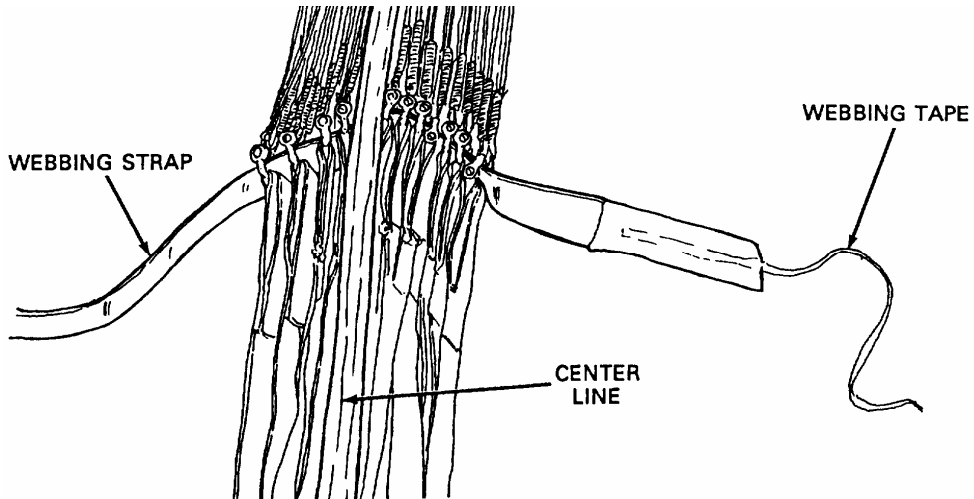
- (1) At a point 5-feet below the skirt band (lower lateral band), tie each group of suspension lines separately using one turn single, ticket No. 8/4 cotton orange thread.
- (2) Secure each tie with a surgeon's knot and locking knot.
- (3) Trim tie ends to 2-inches.

- (4) Remove the large line separator.
- (5) Beginning at a point 10-feet below the skirt band (lower lateral band) and at 10-foot intervals thereafter, tie both suspension line groups and center line together using one turn single, ticket No. 8/4 cotton orange thread at each point.
- (6) Secure each tie with a surgeon's knot and locking knot. Make the last tie 5-feet above the connector link assemblies.
- (7) Trim all tie ends to 2-inches.

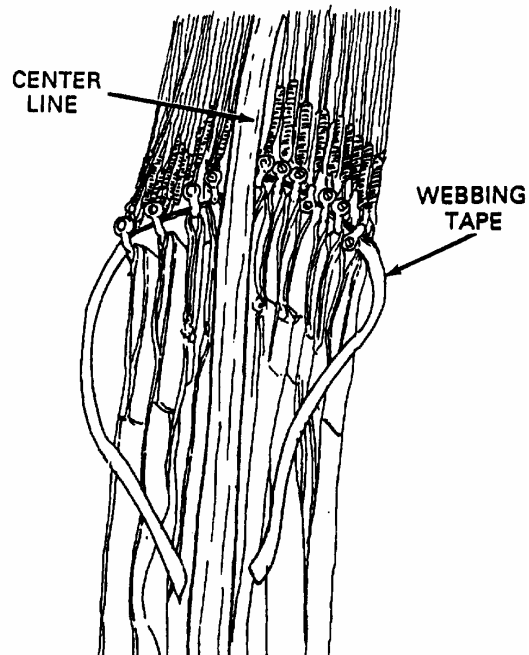


c. Connector link assemblies.

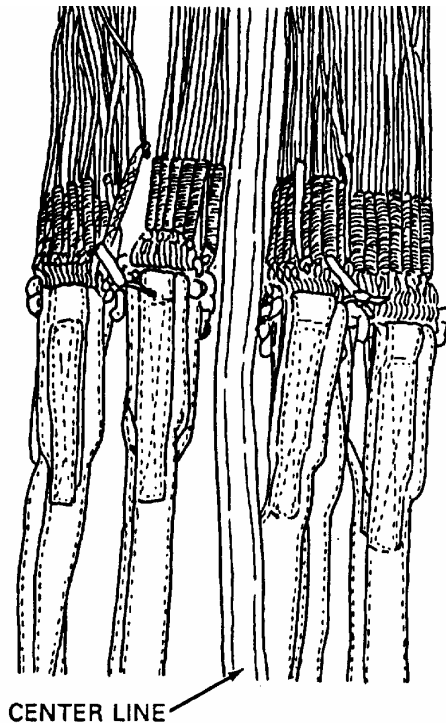
- (1) Release the strap fastener on the webbing strap threaded through the connector link assemblies and tape a 24-inch length of ¼-inch wide, type I cotton webbing to the running end of the strap.



- (2) Remove the webbing strap from the connector link assemblies that, in turn, will pull the taped webbing through the connector link assemblies.

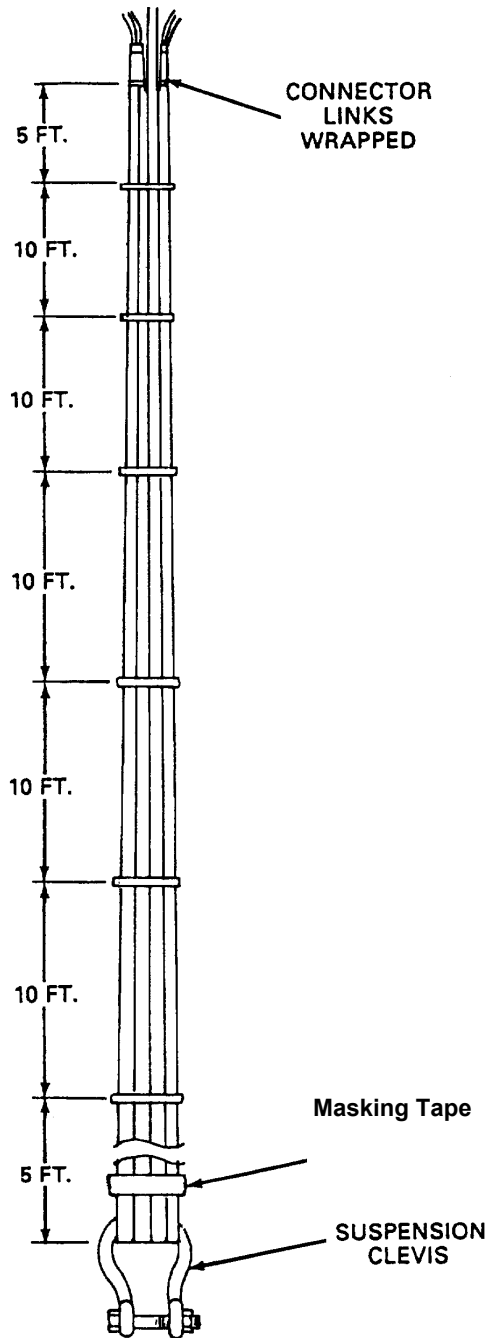


- (3) Remove the taped webbing length from the webbing strap and cut the webbing into two equal lengths with 6 connector links on each length.
- (4) Rotate connector links inboard and tie the connector link assemblies together with the webbing lengths.
- (5) Secure the ties with a surgeon's knot and a locking knot.
- (6) Trim tie ends to 2-inches.



- (7) Cut two lengths of kraft paper, 14-inches by 28-inches.
  - (8) Wrap each group of connector links with two turns single of the kraft paper.
  - (9) Secure the kraft paper with one turn single of thread ticket No. 8/4, cotton orange on each side of the connector links.
  - (10) Secure ties with a surgeon's knot and locking knot.
  - (11) Trim tie ends to two-inches.
- d. Suspension riser.
- (1) Beginning at a point 5-feet below the connector link assemblies and at 10-foot intervals thereafter, tie the suspension risers and center line together using one turn single, ticket No. 8/4 cotton orange thread at each point. Make the last tie at a point 5-feet above the suspension clevis attaching loops.

- (2) Secure each tie with a surgeon's knot and a locking knot.
- (3) Trim tie ends to two-inches.



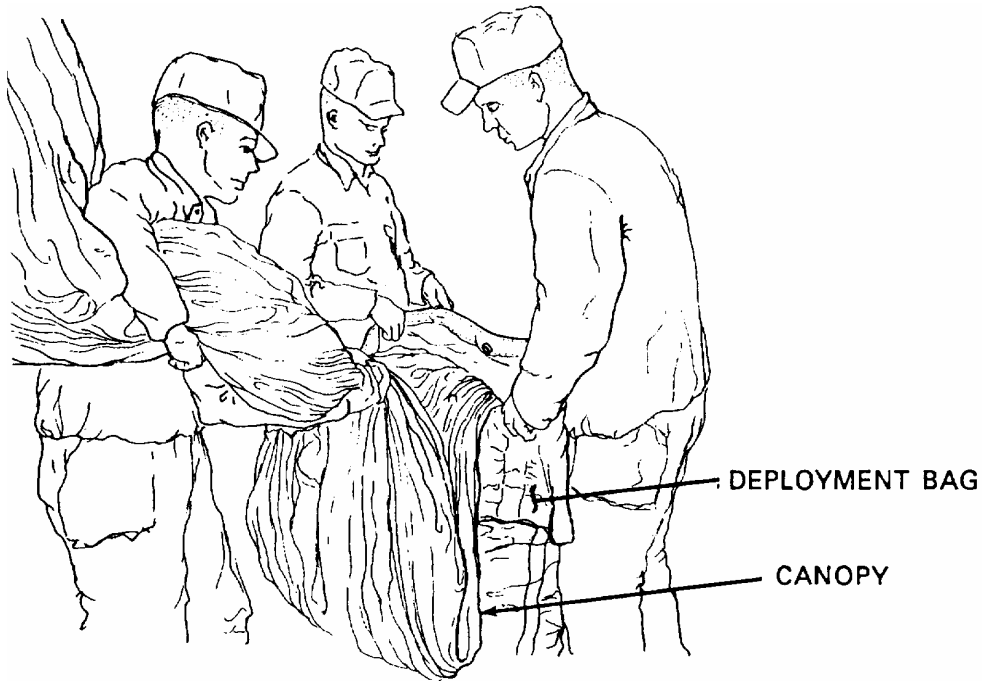
e. Rigger check number 3.

10. Stowing the canopy.

- a. Two packers, positioned at the top of the canopy, will raise the open end of the deployment bag up and hold the bag erect. In addition, one or both persons should hold the canopy material to the bag while the canopy is being picked up from the packing surface.



- b. A third packer shall move to a point located a reasonable distance below the top of the canopy, pick up the canopy from the packing surface and S-fold the canopy material into the deployment bag.



- c. Continue stowing the canopy until only 2-feet of the canopy remains out of the deployment bag.
- d. At a point immediately below the skirt reinforcement, grasp both groups of suspension lines with the right hand, and two-feet below the right hand, grasp both groups with the left hand.
- e. While holding both groups of suspension lines, pick up the canopy skirt and push the canopy skirt, and 18-inches of suspension, lines into the deployment bag.

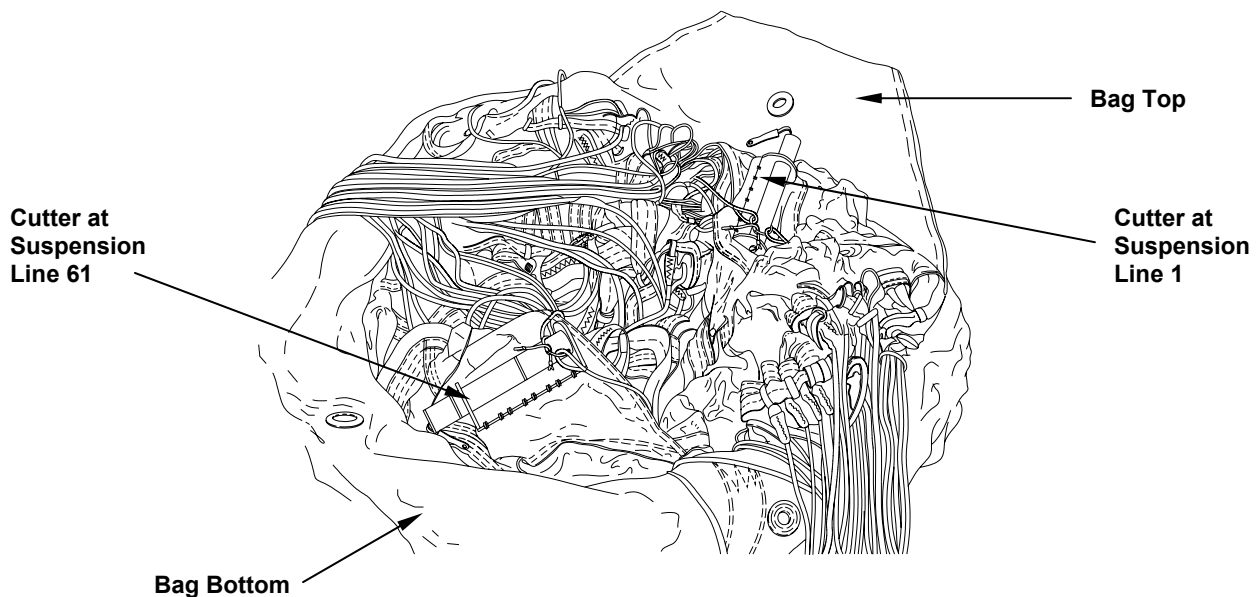


## 11. Arming the reefing line cutters.

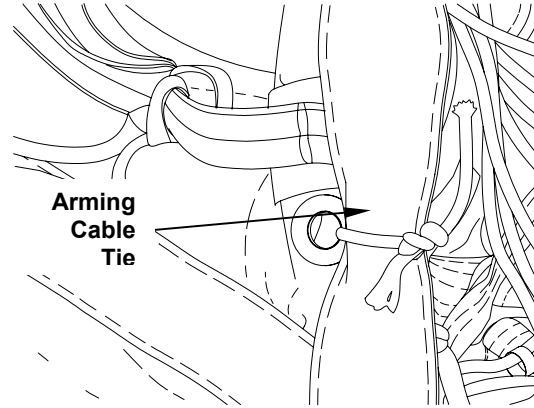
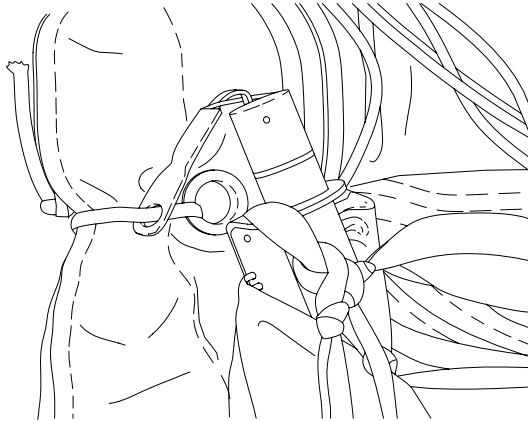
**NOTE**

The following procedures are for using a G-11 Cotton Deployment Bag. If using a nylon deployment bag, proceed to the ARMING THE REEFING LINE CUTTERS paragraph, paragraph 20.

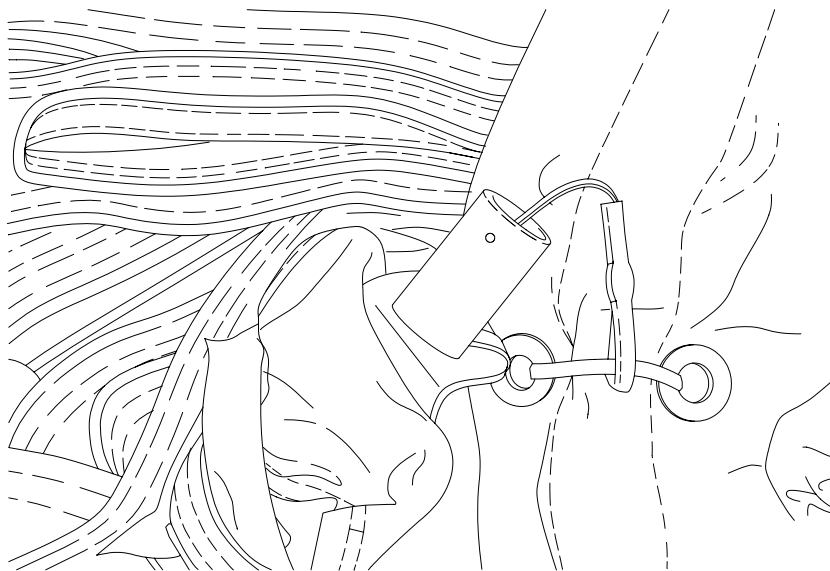
- a. Position the two reefing line cutters on top of the stowed canopy with the cutter at suspension line 61 placed adjacent to the bag double grommet on the bag bottom and the cutter at suspension line 1 placed adjacent to the bag single grommet on the bag top.



- b. Cut two 12-inch lengths of type III nylon cord for use as arming cable ties.
- c. Beginning with the reefing line cutter at line 1 near the bag top, pass the end of one cord through the hole in the top of the reefing line cutter arming cable and through the bag single grommet to the outside.
- d. Pass the other end of the cord over the top of the bag edge and draw the cord ends tight.
- e. Secure the cord ends on the bag outside with a surgeon's knot and locking knot.
- f. Make an overhand knot in each running end.
- g. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.

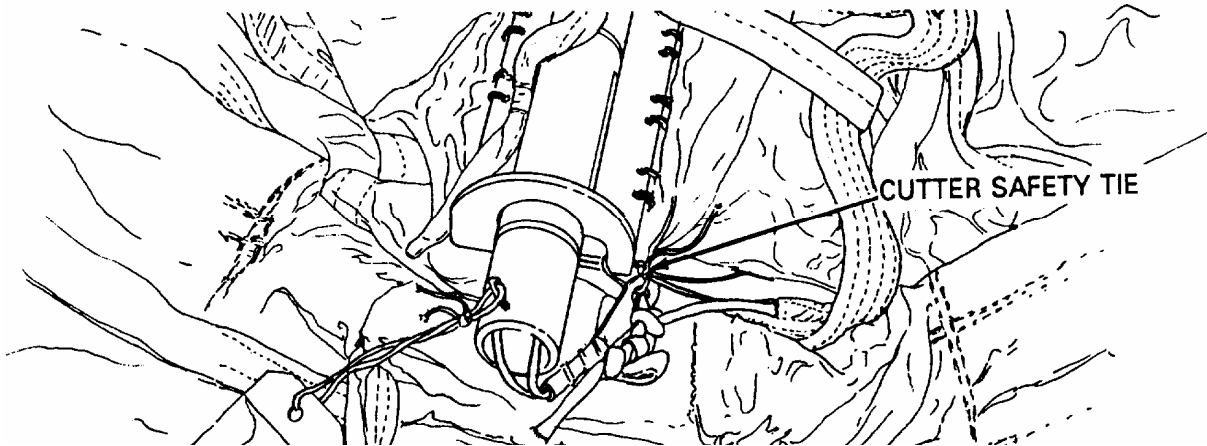


- h. Using the remaining cord length on the reefing line cutter at line 61 near the bag bottom, pass one end of the cord through the hole in the top of the reefing line cutter arming cable and through the lower bag grommet to the bag outside.
- i. Pass the opposite cord end through the upper bag grommet to the bag outside and draw the cord ends tight.
- j. Secure the cord ends on the bag outside with a surgeon's knot and locking knot.
- k. Make an overhand knot in each running end.
- l. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



- m. Rigger check number 4.

12. Installing reefing line cutter safety ties. To prevent premature firing of a reefing line cutter while stowing the suspension lines, install a safety tie on each of the reefing line cutters and remove the safety cotter pins as follows:
- Using a length of one turn double, ticket No. 8/7 cotton thread, pass one end of the doubled thread lengths through the slot in a reefing line cutter bracket, through the hole in top of the reefing line arming cable, and draw the tie ends tight.
  - Secure the safety ties with a surgeon's knot and locking knot.
  - Trim tie ends to 2-inches.

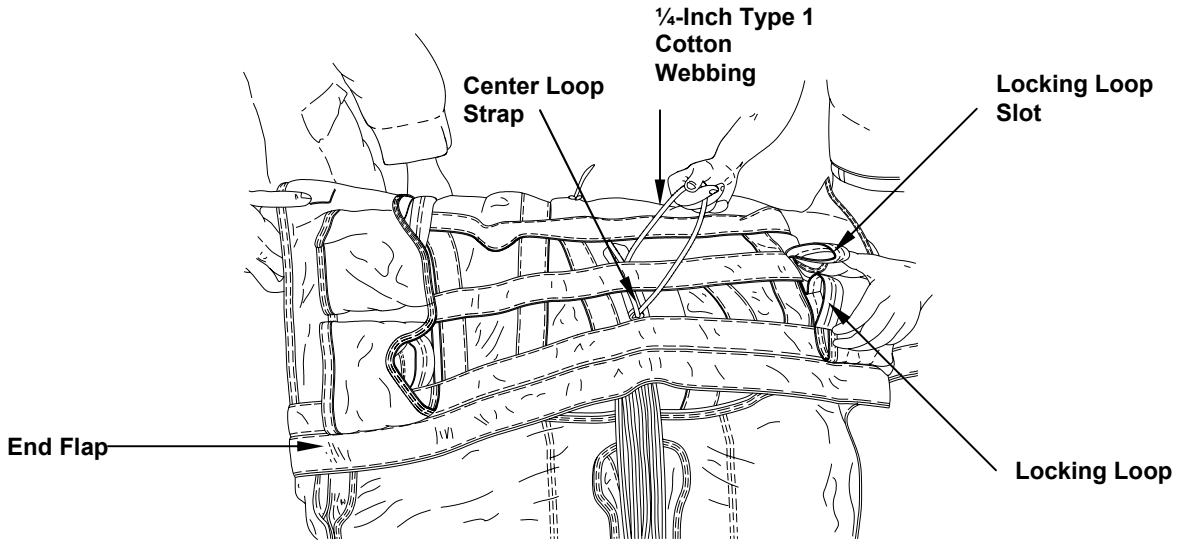


- The senior packer will annotate each cutter tag with the reefing line cutter lot number/serial number and parachute pack date. After these entries have been made, the senior packer will sign each tag.

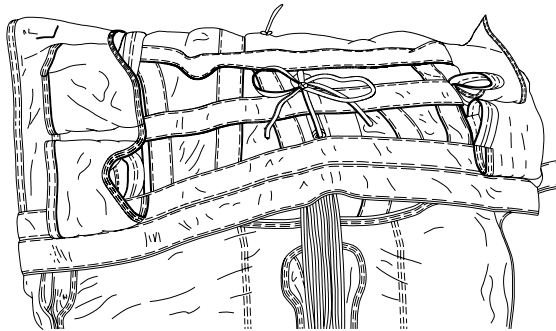
**CAUTION**

Failure to remove the cutter cotter pins will cause a malfunction of the parachute.

- Remove the safety cotter pin and tag from each reefing line cutter, fold the tags lengthwise and stow safety pins and tags in the parachute inspection data pocket within the log record book.
13. Closing the cotton deployment bag.
- Bring the suspension lines and center line up over the top of the deployment bag and close the side flaps.
  - Cut an 18-inch length of ¼-inch type I cotton webbing and girth hitch the webbing length in the deployment bag top center loop strap.



- c. Bring the large end flap of the bag over the bag end and pull the locking loops up through the locking slots.
- d. Pull the 1/4-inch wide cotton webbing ends on the center loop strap through the top center opening on the end flap.
- e. Secure with a temporary bow knot.

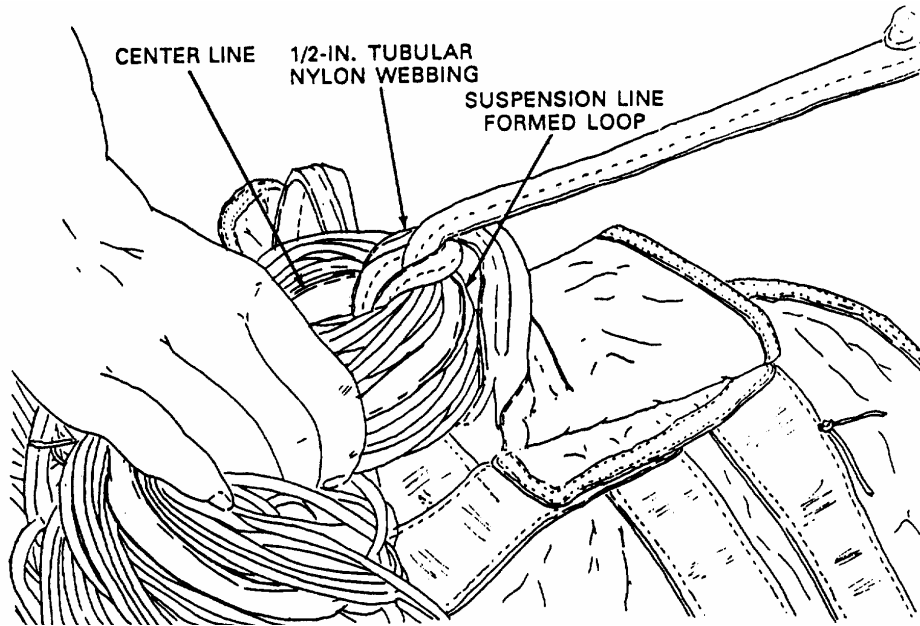


#### 14. Making locking stows.

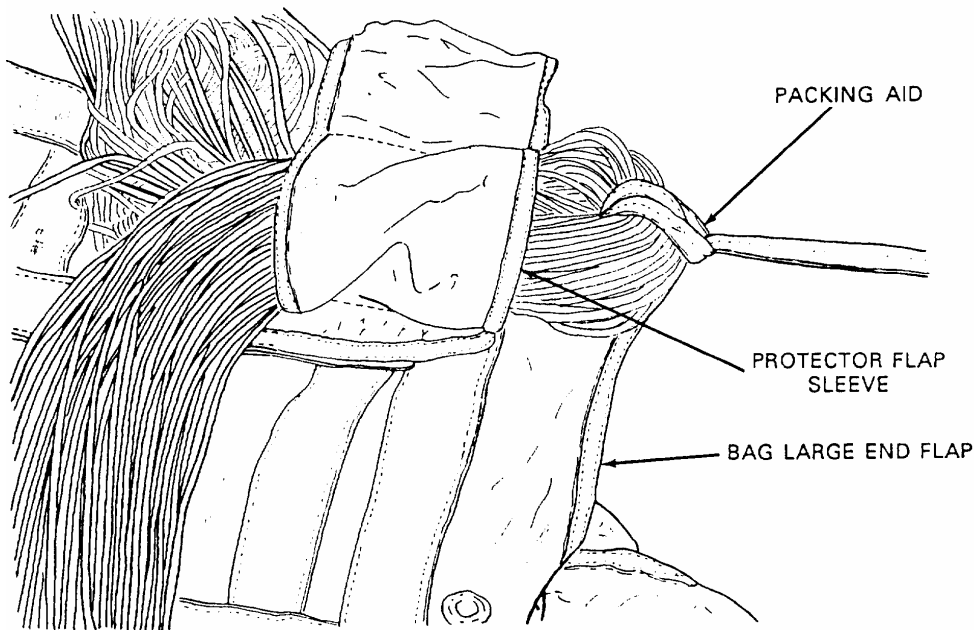
#### CAUTION

Failure to remove the packing aid will cause total malfunction of the parachute.

- a. Cut a 36-inch length of 1/2-inch wide tubular nylon webbing, or equivalent, for use as packing aid in making the locking stows. Double the webbing length and make an overhand knot in the aligned ends.
- b. Fold the suspension lines and center line back over the large end flap. Measure and form a loop in the lines that will extend to the right edge of the bag large flap.
- c. Using the packing aid, encircle the formed loop in the suspension lines and make girth hitch in the packing aid.

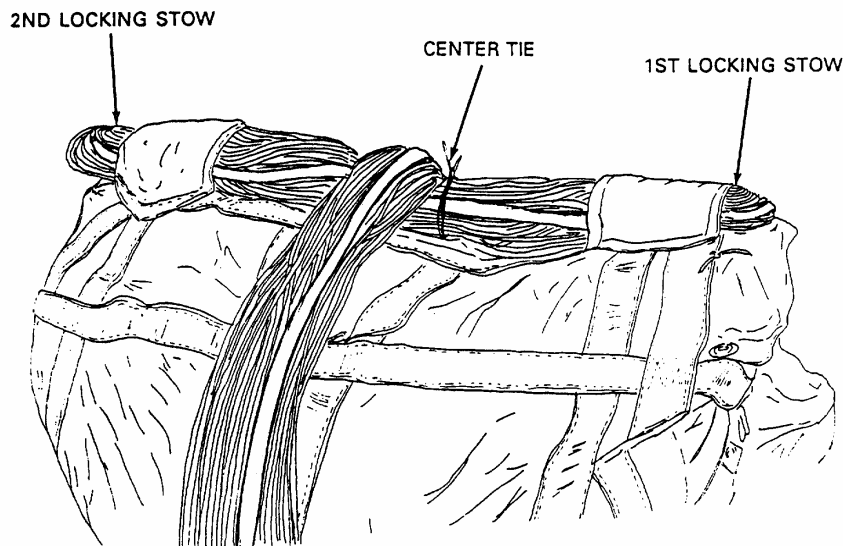


- d. Thread the knotted end of the packing aid through the locking stow loop located under the protector flap sleeve at the lower right corner of the deployment bag.
- e. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.
- f. Remove the packing aid.



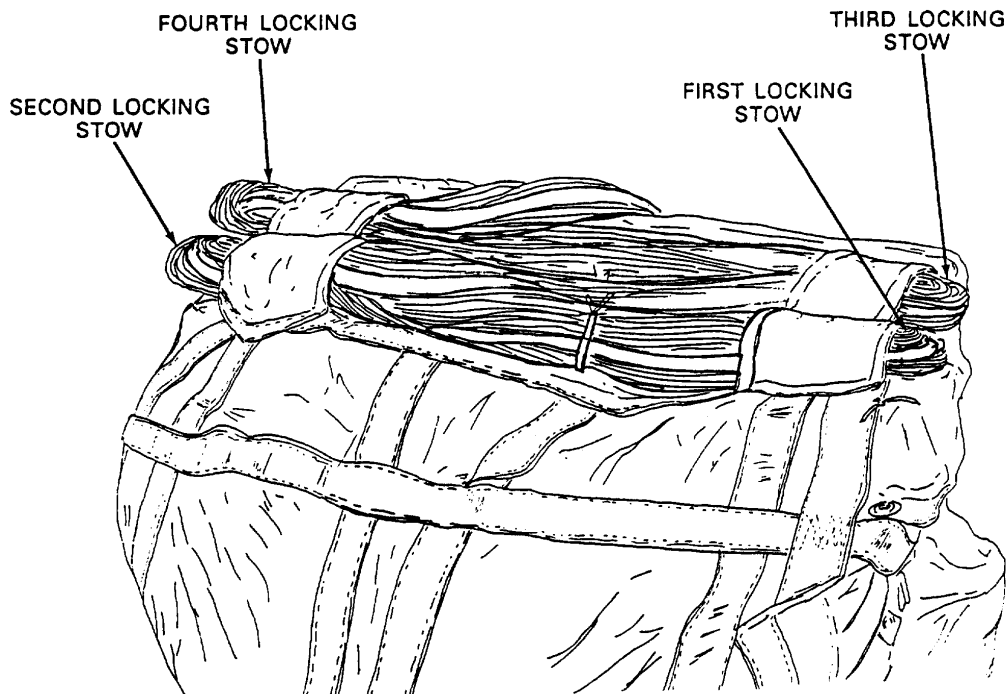
- g. Extend the running end of the suspension lines and center line to the locking stow loop at the lower left corner of the deployment bag and measure and form a loop in the lines.

- h. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- i. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the lower left corner of the deployment bag.
- j. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large end flap.
- k. Remove the packing aid.
- l. Secure the first two locking stows by tying the suspension lines together at a point between the two stows.
- m. Use the ¼-inch wide cotton webbing previously installed.
- n. Make the tie one turn single and secure with a surgeon's knot and locking knot.
- o. Trim tie ends to 2-inches.



- p. Extend the suspension lines to the upper right corner of the large end flap and measure and form a loop in the lines.
- q. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- r. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the upper right corner of the deployment bag.
- s. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.
- t. Remove the packing aid.

- u. Extend the suspension lines to the upper left corner of the large end flap and measure and form a loop that aligns with the left edge of the large end flap.
- v. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- w. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the upper left corner of the deployment bag.
- x. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large end flap.
- y. Remove the packing aid.



#### 15. Installing suspension line stow ties.

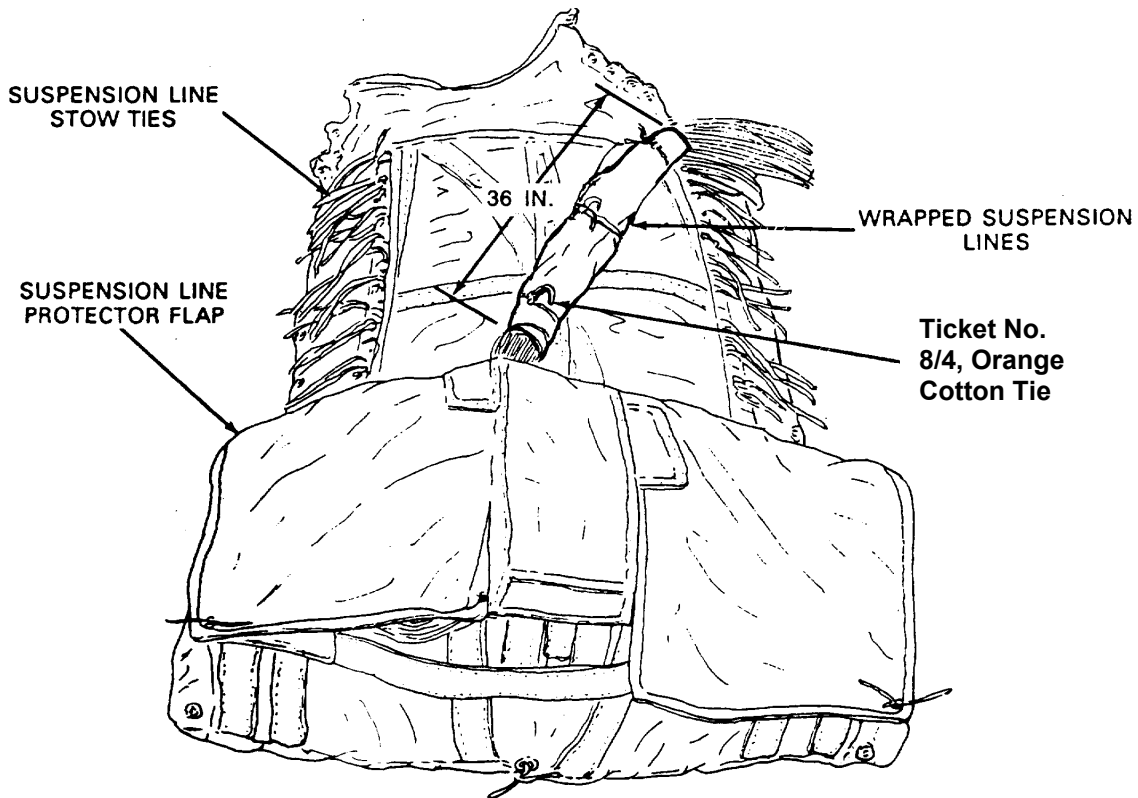
- a. Cut a minimum of thirty-six 18-inch lengths of ¼-inch wide, type I cotton webbing for use as suspension line stow ties.
- b. Secure the webbing lengths at equal intervals along each row of side strap loops by making a girth hitch in each webbing length. Ensure the ends of each webbing length are aligned and positioned toward the respective outer edge of the deployment bag.

#### 16. Wrapping the suspension lines.

- a. Extend the suspension lines and center line along the top center of the deployment bag toward the bridle end of the bag.
- b. Using a 12-inch wide by 36-inch long piece of kraft paper, wrap the suspension lines and center line extended along the top center of the deployment bag.



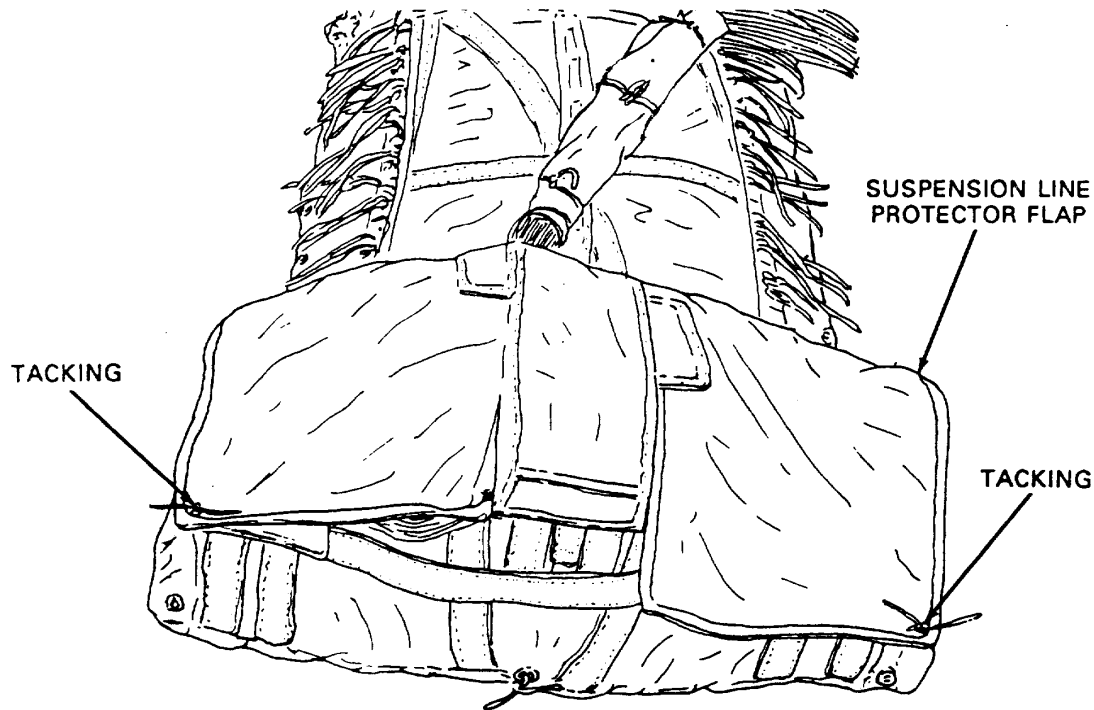
- c. Secure each end and the middle of the suspension line wrap with one turn single ticket No. 8/4, orange cotton thread.
- d. Secure each thread end with a surgeon's knot and locking knot. Ensure the suspension lines are not inadvertently secured to the center loop strap on top of the deployment bag.
- e. Trim tie ends to 2-inches.



**NOTE**

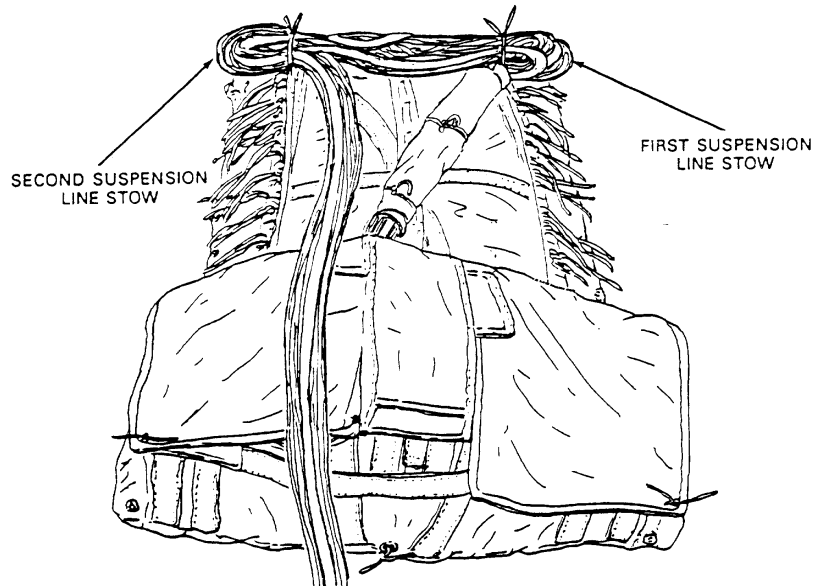
If the suspension line protector flap is damaged, it may be removed from the deployment bag. Remove by cutting the flap material as close to the deployment bag body as possible.

- 17. Tacking the suspension line protector flap.
  - a. Extend the deployment bag suspension line protector flap over the locking stows.
  - b. Secure each lower outside corner of the suspension line protector flap to the deployment bag by hand tacking using one turn single, orange cotton thread ticket No. 8/4 at each tacking point.
  - c. Secure the tacking ends at each tacking point with a surgeon's knot and locking knot.
  - d. Trim tie ends to two-inches.

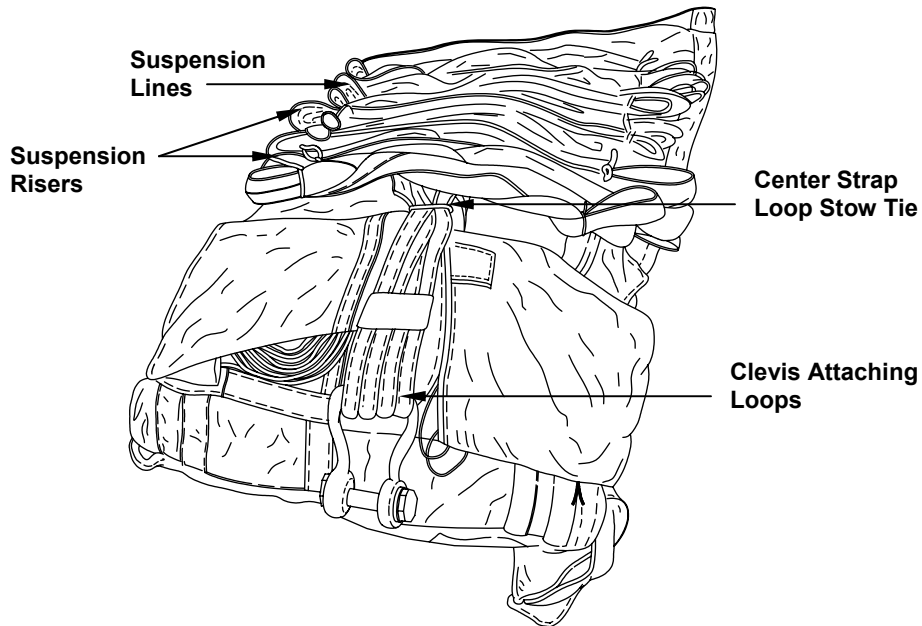


18. Stowing the suspension lines and suspension risers.

- a. Extend the running end of the suspension lines and center line to the upper right corner of the deployment bag.
- b. Measuring to the right edge of the stowage compartment, form the first suspension line stow by making a loop in the suspension lines.
- c. Secure the first suspension line stow to the upper right outside strap loop using the first stow tie.
- d. Secure the stow tie with a surgeon's knot and locking knot.
- e. Rigger check number 5.
- f. Extend the running end of the suspension lines across the deployment bag to the upper left corner of the bag.
- g. Measuring to the left edge of the stowage compartment, form the second suspension line stow by making a loop in the suspension lines.
- h. Secure the second suspension line stow to the upper left outside strap loop using the first stow tie.
- i. Secure the stow tie with a surgeon's knot and locking knot.

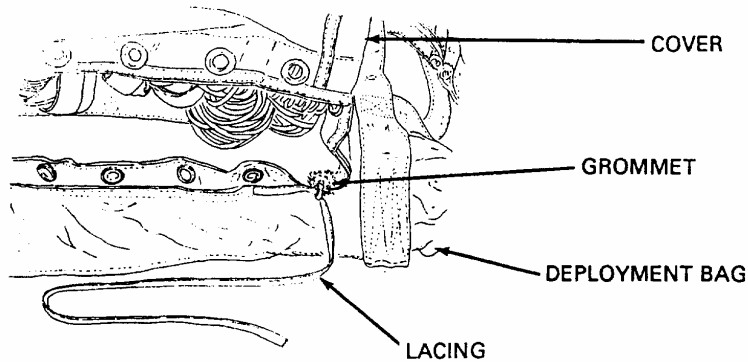


- j. Using the procedures in (a) through (i), stow the remaining length of suspension lines, center line and the suspension risers to a point 6 to 10-inches from the clevis attaching loops on the end of the suspension risers.
- k. Install an additional stow tie on the center strap loop in order to route the suspension risers from the center of the bag.
- l. Trim all ties to 2-inches.
- m. Remove excess ties.

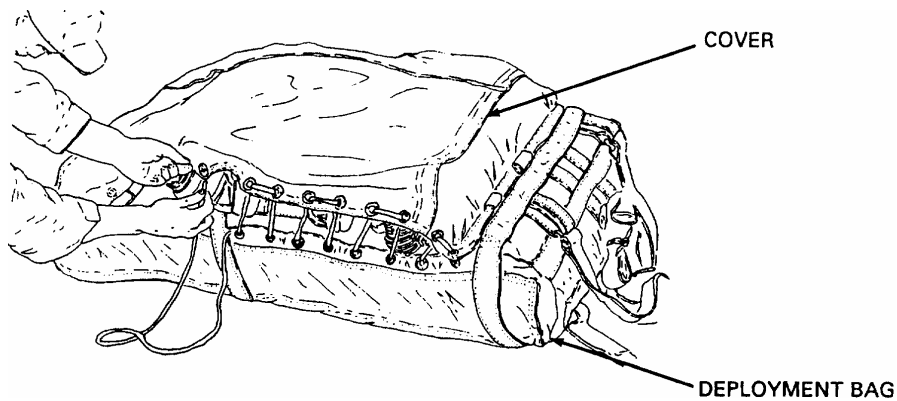


19. Lacing the deployment bag.

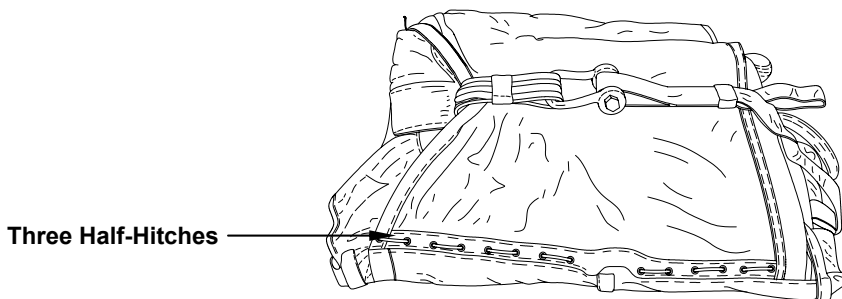
- a. Bring the suspension line protector flap down over the stowed suspension lines, center line and suspension risers. The grommets on the flap sides should overlap the grommets on the side of the deployment bag.
- b. Cut two 60-inch lengths of 1/4-inch cotton webbing for use as lacing ties.
- c. Secure an end of each webbing length to the first grommet located on the bottom corner of the deployment bag upper corners with two half-hitches.



- d. With a packer positioned on each side of the deployment bag and using the lacing tie running end, lace the flap to the deployment bag main body, grommet over grommet.



- e. Secure the lacing tie free end to the last lace with three half-hitches. Trim the tie ends to 2-inches.



- f. Rigger check number 6.

**NOTE**

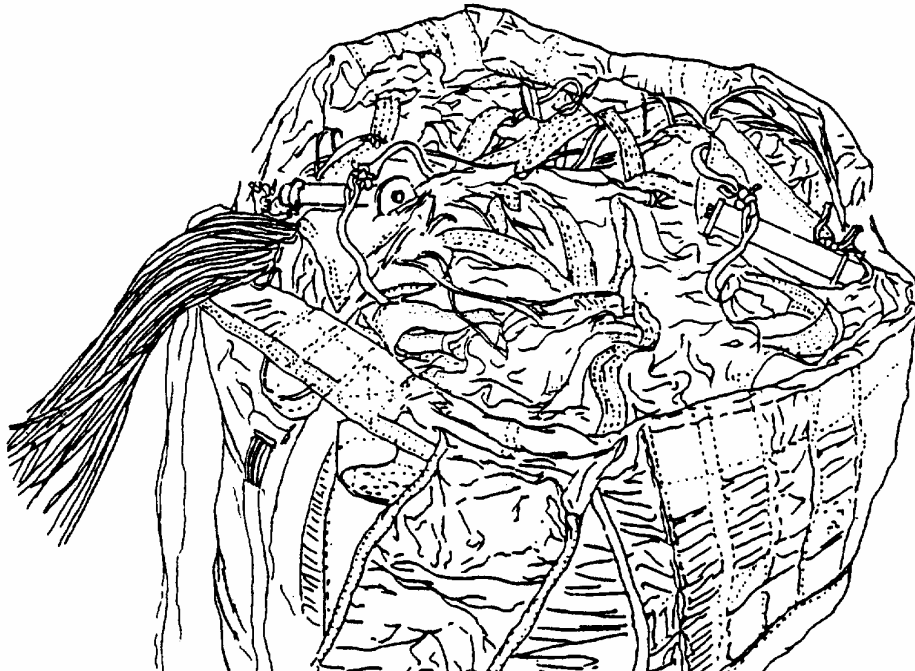
Proceed to LOG RECORD BOOK ENTRIES below for log book entries.

**NOTE**

Paragraphs (20) through (27) will be used when packing the G-11C in the nylon deployment bag.

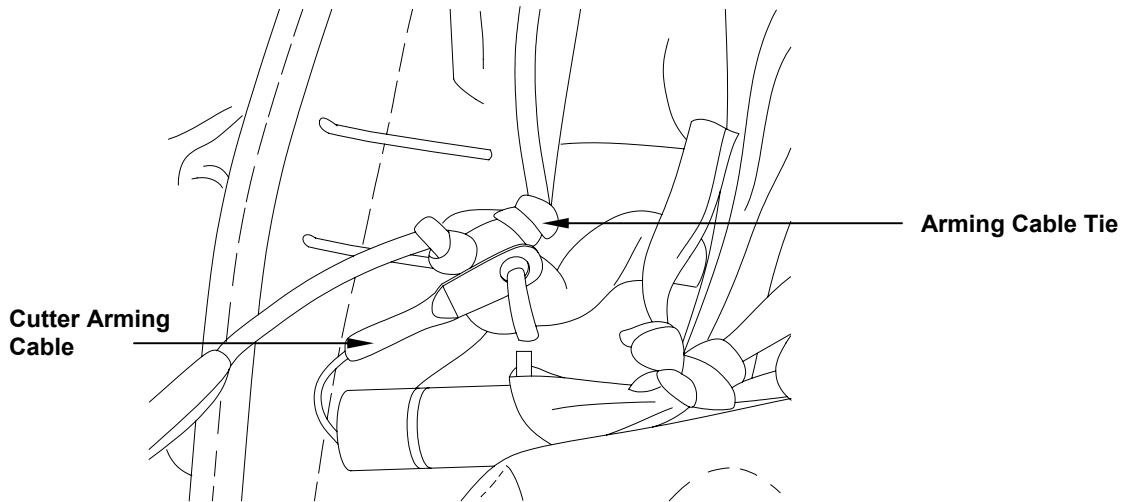
20. Arming the reefing line cutters.

- a. Position the two reefing line cutters on top of the stowed canopy with the cutter at suspension line 61 placed adjacent to the arming loop at the bag bottom and the cutter at suspension line 1 placed adjacent to the bag arming loop on the bag top.

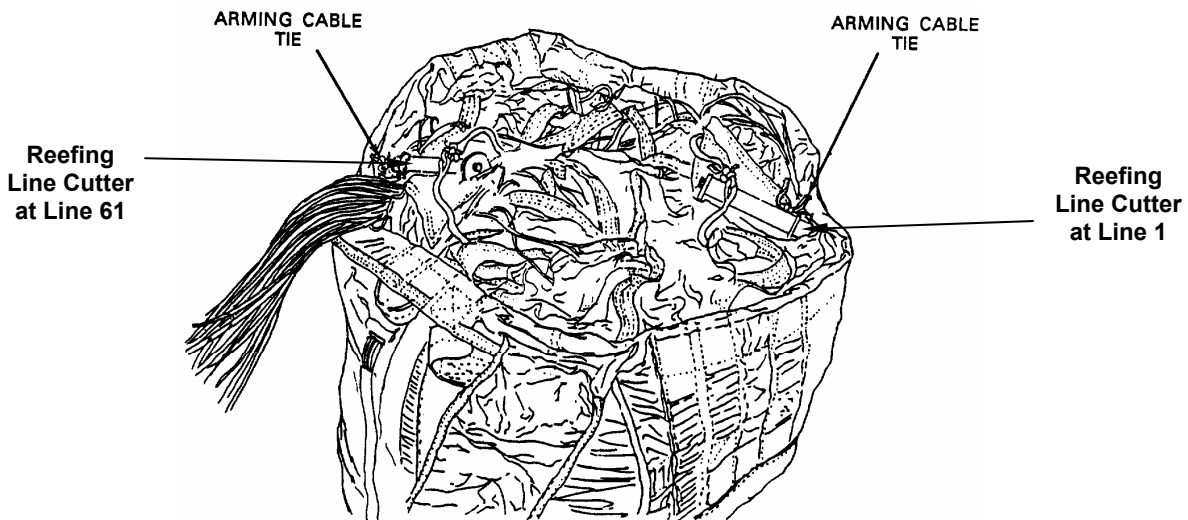


- b. Cut two 12-inch lengths of type III nylon cord for use as arming cable ties.
- c. Beginning with the reefing line cutter at line 1 near the bag top, pass the end of one cord through the reefing line cutter arming cable and through the arming loop on the bag top.
- d. Draw the cord tight and secure the cord ends with a surgeon's knot and locking knot.

- e. Trim the tie ends at a point 2-inches from the surgeon's knot and locking knot.



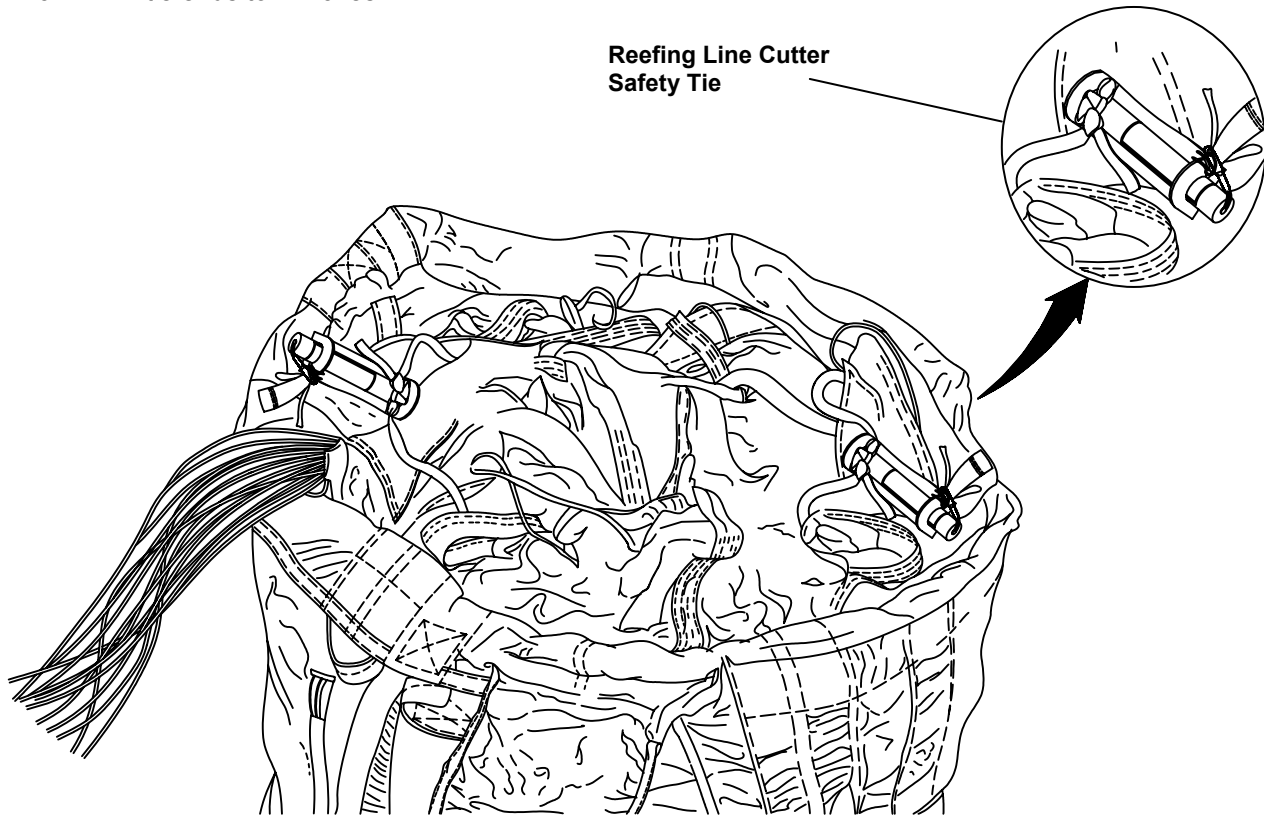
- f. Using the remaining cord length on the reefing line cutter at line 61 near the bag bottom, pass one end of the cord through the hole in top of the reefing line arming cable and through the arming loop.
- g. Draw the ends of the tie tight and secure the ends with a surgeon's knot and locking knot.
- h. Trim tie ends 2-inches from the surgeon's knot and locking knot.
- i. Rigger check number 4.



21. Installing reefing line cutter safety ties. To prevent premature firing of a reefing line cutter while stowing the suspension lines, install a safety tie on each of the reefing line cutters and remove the safety cotter pins as follows:

- a. Using a length of one turn double, ticket No. 8/7 cotton thread, pass one end of the doubled thread through the slot in each reefing line cutter bracket, through the hole in the top of the reefing line arming cable, and draw the tie ends tight.

- b. Secure the safety tie with a surgeon's knot and locking knot.
- c. Trim tie ends to 2-inches.



- d. The senior packer will annotate each cutter tag with the reefing line cutter lot number/serial number and parachute pack date. After these entries have been made, the senior packer will sign each tag.

**CAUTION**

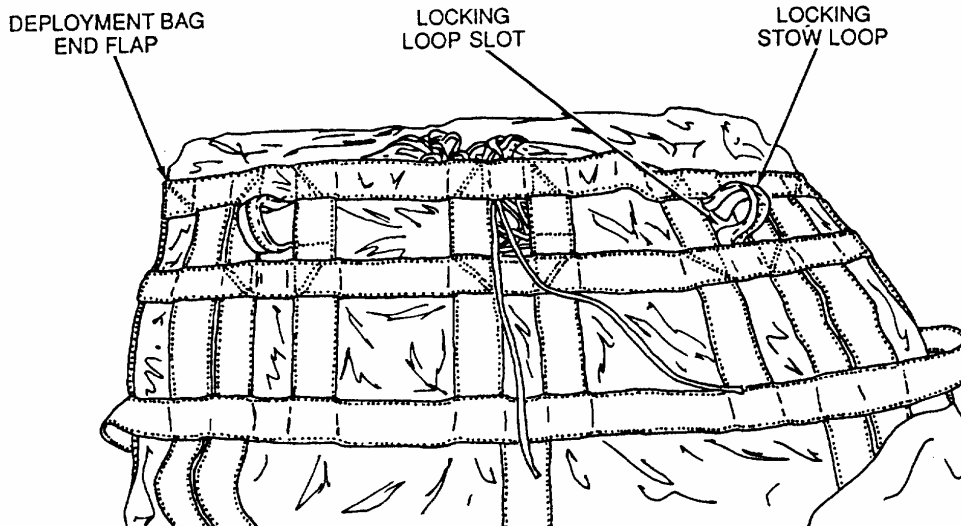
Failure to remove the cutter cotter pins will cause malfunction of the parachute.

- e. Remove the safety cotter pin and tag from each reefing line cutter. Fold the tags lengthwise and stow safety pins and tags in the parachute inspection data pocket within the log record book.

22. Closing the nylon deployment bag.

- a. Bring the suspension lines and center line up over the top of the deployment bag and close the side flaps.
- b. Cut an 18-inch length of 1/4-inch type I cotton webbing and girth hitch the webbing length in the deployment bag top center loop strap.

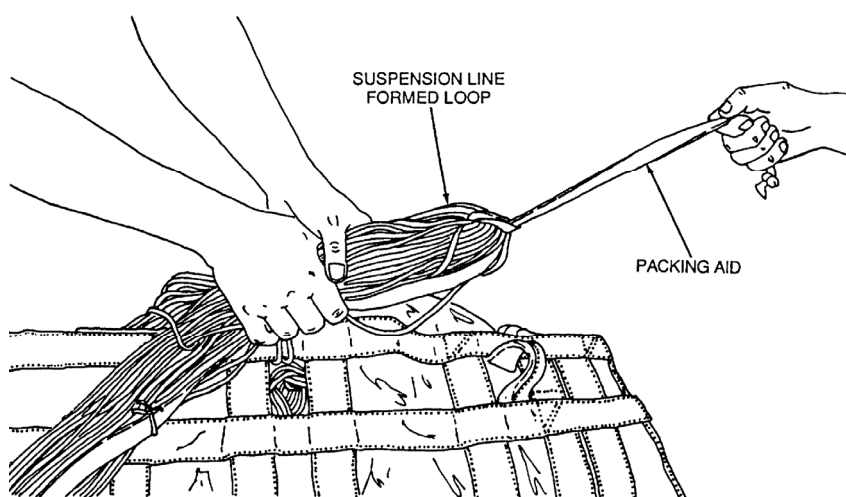
- c. Bring the large end flap of the deployment bag over the bag end and pull the locking loops up through the locking loop slots.
- d. Pull the ¼-inch wide cotton webbing ends on the center loop strap through the top center opening on the end flap.



- e. Secure with temporary bow knot.

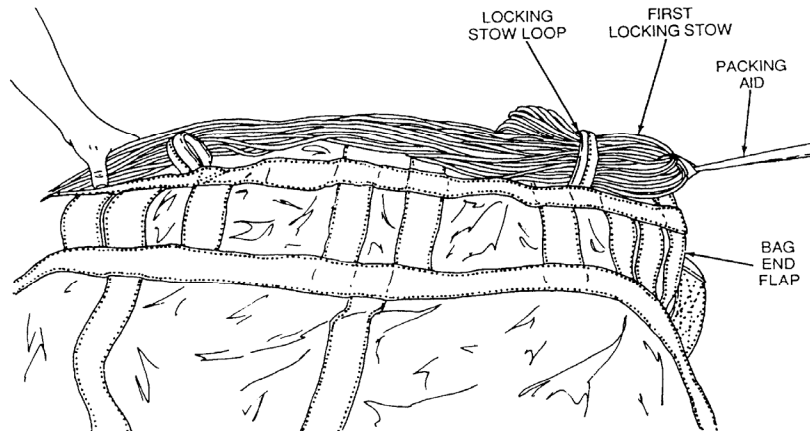
23. Making locking stows.

- a. Cut a 36-inch length of ½-inch wide tubular nylon webbing or equivalent for use as packing aid in making the locking stows.
- b. Double the webbing length and make an overhand knot in the aligned ends.
- c. Fold the suspension lines and center line back over the large end flap and measure and form a loop in the lines that will extend to the right edge of the bag large flap.
- d. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.

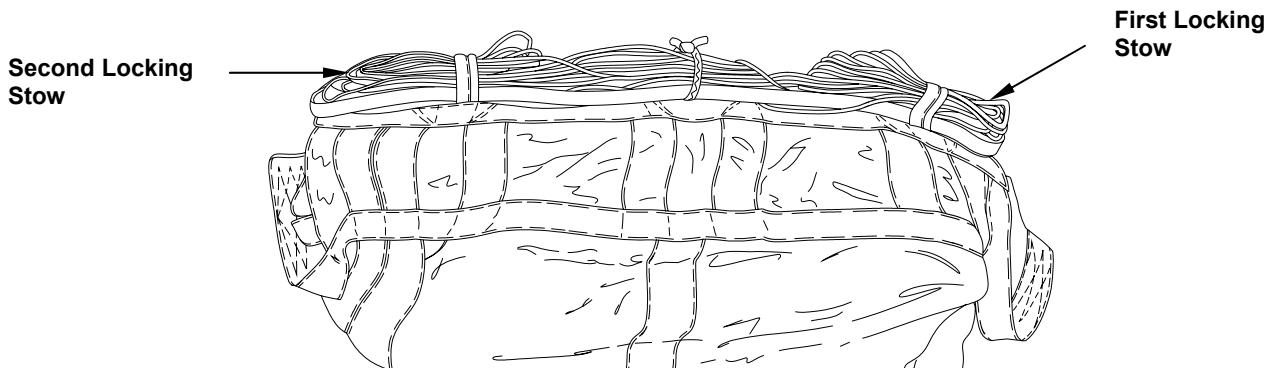




- e. Thread the knotted end of the packing aid through the locking stow loop located at the lower right corner of the deployment bag.
- f. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.
- g. Remove the packing aid.



- h. Extend the running end of the suspension lines and center line to the locking stow loop at the lower left corner of the deployment bag and measure and form a loop in the lines.
- i. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- j. Thread the knotted end of the packing aid through the locking stow loop located at the lower left corner of the deployment bag.
- k. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large flap.
- l. Remove the packing aid.
- m. Secure the first two locking stows by tying the suspension lines together at a point between the two stows. Use the 1/4-inch wide cotton webbing previously installed.
- n. Make the tie one turn single and secure with a surgeon's knot and locking knot.
- o. Trim tie ends to two-inches.

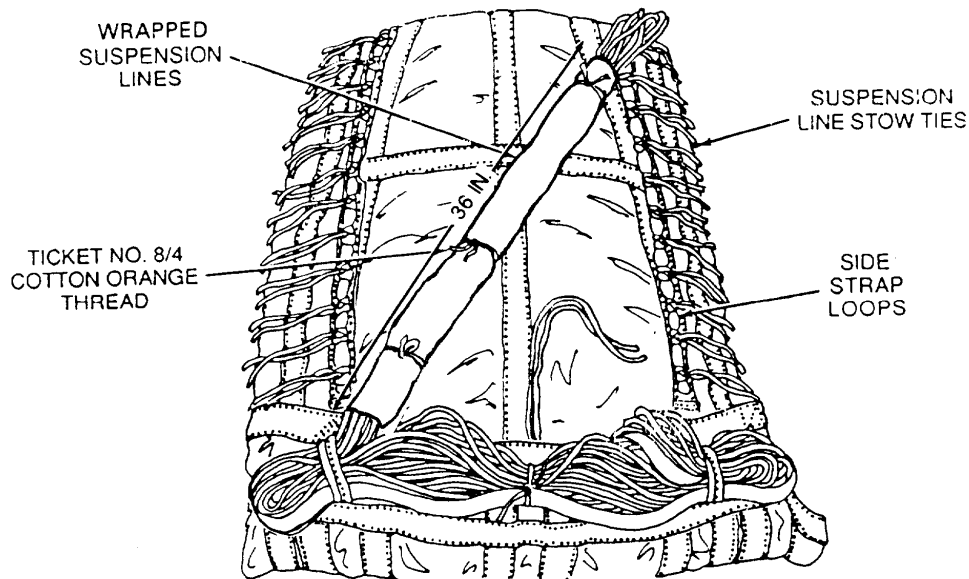


## 24. Installing suspension line stow ties.

- a. Cut a minimum of thirty-two 18-inch lengths of  $\frac{1}{4}$ -inch wide, type I cotton webbing for use as suspension line stow ties.
- b. Secure the webbing lengths two per loop along each row of side strap loops by making a girth hitch in each webbing length. Ensure the ends of each webbing length are aligned and positioned toward the respective outer edge of the deployment bag.

## 25. Wrapping the suspension lines.

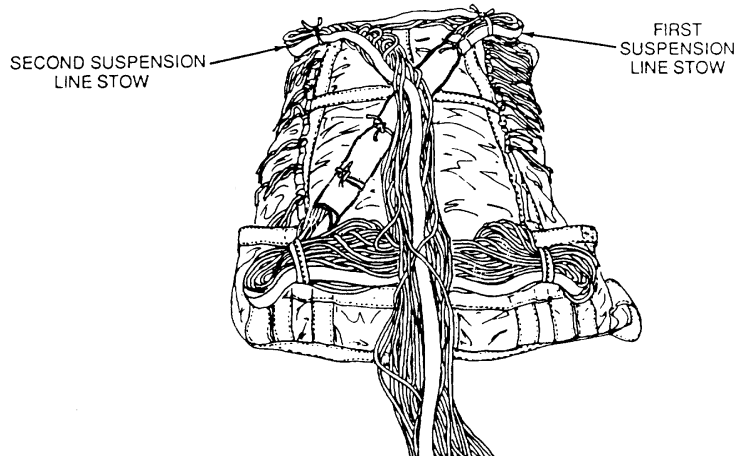
- a. Extend the suspension lines and center line along the top center of the deployment bag toward the bridle end of the bag.
- b. Using a 12-inch wide by 36-inch long piece of kraft paper, wrap the suspension lines and center line extended along the top center of the deployment bag.
- c. Secure each end and the middle of the suspension line wrap with one turn single ticket No. 8/4 cotton orange thread.
- d. Secure each thread end with a surgeon's knot and locking knot.
- e. Trim tie ends to 2-inches.



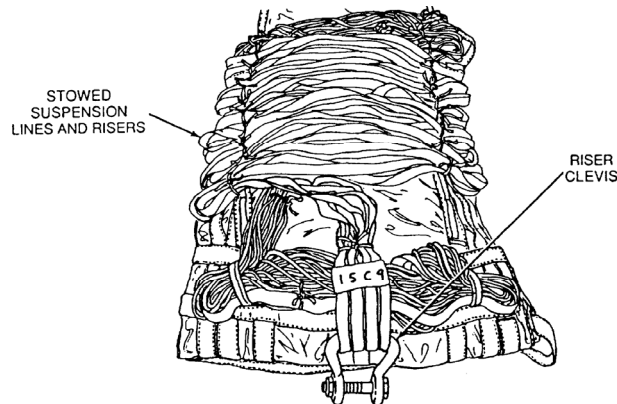
## 26. Stowing the suspension lines and suspension risers.

- a. Extend the running end of the suspension lines and center line to the upper right corner of the deployment bag.
- b. Measuring to the right edge of the stowage compartment, form the first suspension line stow by making a loop in the suspension lines.
- c. Secure the first suspension line stow to the upper right outside strap loop using the first stow tie.

- d. Secure the stow tie with a surgeon's knot and locking knot.
- e. Rigger check number 5.
- f. Extend the running end of the suspension lines across the deployment bag to the upper left corner of the deployment bag.
- g. Measuring to the left edge of the stowage compartment, form the second suspension line stow by making a loop in the lines.
- h. Secure the second suspension line stow to the upper left outside strap loop using the first stow tie.
- i. Secure the stow tie with a surgeon's knot and locking knot.

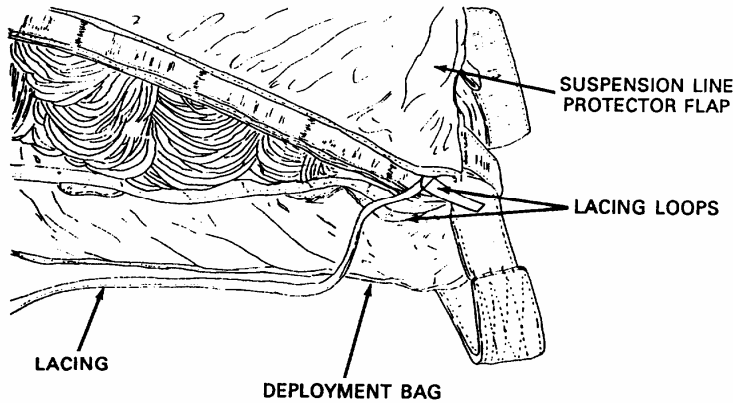


- j. Using the procedures in (a) through (i) above, stow the remaining lengths of suspension lines, center lines and the suspension risers to a point 6 to 10-inches from the clevis attaching loops on the end of the suspension risers.
- k. Install an additional stow tie on the center strap loop in order to route the suspension risers and center line from the center of the bag.
- l. Trim all ties to 2-inches.
- m. Remove unused ties.

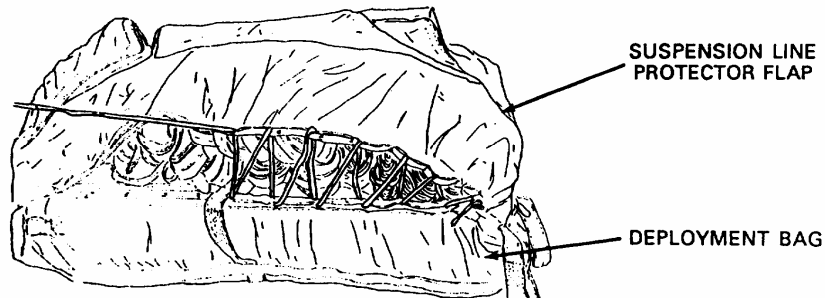


27. Lacing the nylon deployment bag.

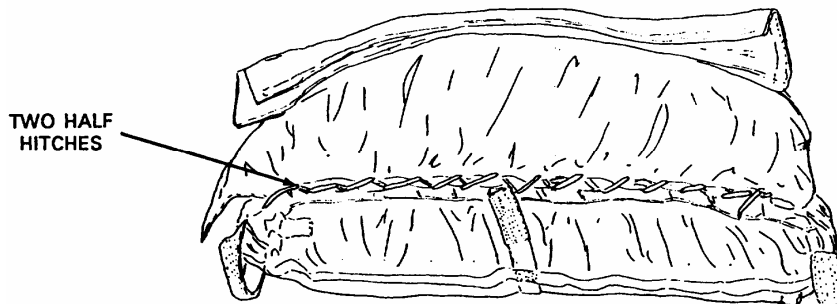
- a. Bring the suspension line protector flap across the stowed suspension lines and suspension risers.
- b. Cut a 70-inch length of 1/4-inch cotton webbing for use as lacing tie.
- c. Secure an end of the webbing length to the first loop located on the bottom corner of the deployment bag left upper corner with two half-hitches.



- d. Using the lacing tie running end, lace the flap to the deployment bag main body.



- e. Secure the lacing tie free end to the last lace with two half-hitches.
- f. Trim the tie ends to 2-inches.



g. Rigger check number 6.

28. Log record book entries.

**CAUTION**

The inspector **MUST** ensure that the reefing line cutter tag entries match those made in the log record book. Inspect the cutter tags for the current date and verify that the signature on the tags is that of the senior packer of the parachute.

**NOTE**

The log record book must be modified for use on the G-11C cargo parachute. On the "Jump, Inspection and Repack Data" page, change "BAG NUMBER" to "LOT/SER NUMBER". Senior packer's signature **MUST** be legible.

- a. Remove the log record (DA Form 3912, AFTO 391, and Navy WPNCEN or Navy WPNS CL 13512/11) from the parachute inspection data pocket (log record book pocket) located on the riser.
- b. Make entries on the "Jump, Inspection and Repack Data" page as follows:
  - (1) Date. Enter the pack day, month, and year.
  - (2) Lot/Ser Number. Enter the lot number or serial number of the reefing line cutters that are being used for this repack.
  - (3) Routine inspection. No entry required.
  - (4) Jumps or dropped. No entry required.
  - (5) Repack. For initial packing, enter "IN"; thereafter, enter a checkmark in the column each time the parachute is repacked.
  - (6) Packer's Name. The senior packer will place his or her signature in this column.
  - (7) Inspector's Name. The inspector who performed the pack-in-process inspection will sign this entry.
  - (8) Unit. Enter the unit designation to which the packer and/or inspector are assigned.
- c. Return the log record book with four (4) cotter pins and tags to the log record book pocket upon completion of all required entries.
- d. Route the log record pocket tie cord through the closing loops at the bottom of the pocket and secure the tie cord ends with a square knot.

**NOTE**

Stow riser extension in accordance with FM 4-20.102 (FM 10-500-2).

29. Closing the riser extension flap.

- a. Temporarily secure the riser extension flap until riser extension has been stowed. Secure the flap at each corner and at the center with ¼-inch cotton webbing.
- b. Remove the temporary ties, open riser extension flap and stow riser extension.
- c. Bring the riser extension flap across the stowed riser extension.
- d. Cut a 36-inch length of ¼-inch cotton webbing for use as a lacing tie.
- e. With two half-hitches, secure an end of the webbing length to the first loop on the deployment bag main body at the right upper corner.
- f. Using the lacing tie running end, lace the riser extension cover flap to the deployment bag main body.
- g. Secure the lacing tie free end to the last lace with two half-hitches.

**END OF WORK PACKAGE**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**G-11D PACKING PROCEDURES**

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**THIS TASK COVERS:**

- Inspection
  - Orientation
  - Preparing Parachute for Proper Layout
  - Removing Inversions
  - Locating Suspension Lines
  - Packing the G-11D Parachute Assembly
- 

**Personnel Required**

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

**Equipment Condition**

Parachute cleaned (WP 0008 00) and given a shakeout (WP 0007 00).

**Materials/Parts**

Cloth, Cotton Muslin (Item 4/5, WP 0059 00)  
 Cord, Nylon, Type III (Item 12, WP 0059 00)  
 Cutter, Reefing Line, M-21, 2-Second (Item 15, WP 0059 00)  
 Marking Aid (Item 21/22, WP 0059 00)  
 Paper, Kraft (Item 23, WP 0059 00)  
 Tape, Adhesive, Pressure Sensitive (Item 27, WP 0059 00)  
 Tape, Lacing & Tying (Item 31, WP 0059 00)  
 Tape, Masking (Item 32, WP 0059 00)  
 Thread, Cotton, Size 8/4, Orange (Item 35, WP 0059 00)  
 Thread, Cotton, Ticket 8/7 (Item 36, WP 0059 00)  
 Webbing, Cotton, Type I, 1/4-IN. (Item 44, WP 0059 00)  
 Webbing, Textile, Nylon, Tubular, 1/2-IN. (Item 46, WP 0059 00)

**References**

DA PAM 738-750 and DA PAM 738-751;  
 TB 43-0002-43; WP 0009 00

**Tools**

Knife (Item 7, WP 0050 00)  
 Line Separator (Item 10, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

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**WARNING**

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

**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 TM 10-1670-201-23 and DA PAM 738-751. A detailed inspection and a pack-in-process inspection must be performed in conjunction with the packing of each parachute (refer to WP 0009 00, INSPECTION).

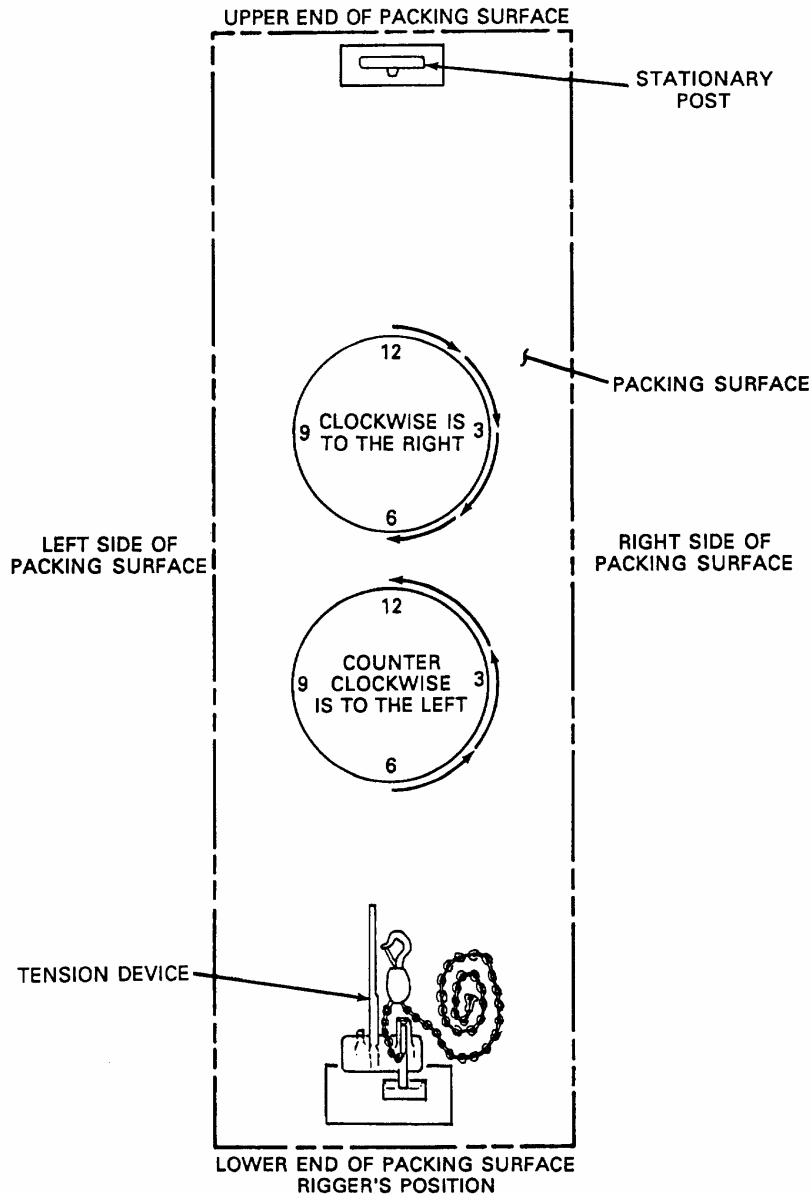
1. **Detailed Inspection.** During the packing of the parachute, it must be given a detailed inspection by the packer in accordance with WP 0009 00, INSPECTION.

2. **Pack-In-Process Inspection.** A designated supervisory parachute rigger, other than the packer, must perform a pack-in process inspection at six intervals during the packing procedure. The inspection is performed to ensure the parachute is packed according to authorized packing procedures (refer to WP 0009 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 looking from the parachute riser (tension device) toward the canopy vent (stationary post) 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.

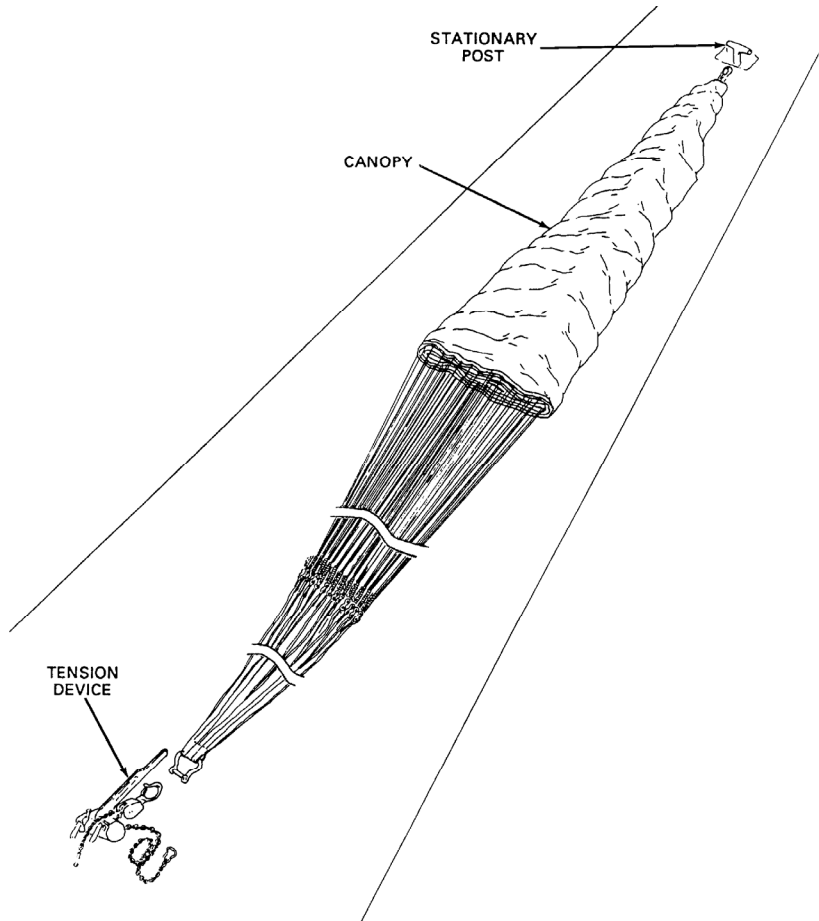




## PREPARING PARACHUTE FOR PROPER LAYOUT

Prepare the parachute as follows:

1. Prepare the parachute for proper layout by positioning the canopy in an elongated manner on a suitable packing surface, with the vent lines located next to a stationary post and the suspension risers near a tension device.
2. Remove the reefing line cutter tags and cotter pins from the log record book pocket.
3. To complete proper layout, ensure canopy inversions are removed, suspension lines are in proper layout, and turn, tangles and twits are removed.



## REMOVING CANOPY INVERSION

To remove an inversion, proceed as follows:

1. Inspect the canopy vent lines to determine if the canopy is inverted. (If the vent lines are located on the inside of the upper lateral band, the canopy is inverted.)
2. To remove the inversion, lift the canopy skirt and walk up through the canopy to the vent area.

3. Grasp the bridle loop and pull the canopy vent down through the canopy skirt between two adjacent suspension lines.



4. On the outside of the canopy, pull the canopy vent back to the stationary post. Attach the bridle loop to the stationary post.

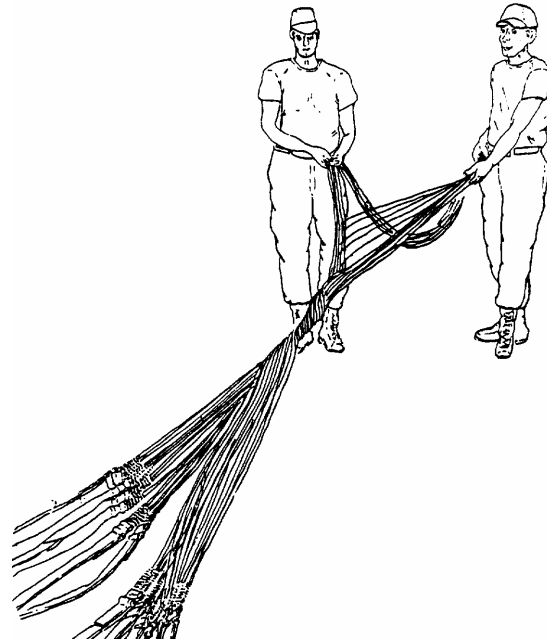
#### **LOCATING SUSPENSION LINES IN PROPER LAYOUT**

To properly locate suspension lines, proceed as follows:

1. Locate the top center gore of the canopy and divide the suspension lines into two groups, lines 1 through 60 in the left group and lines 61 through 120 in the right group.
2. Maintain group separation by moving from the skirt of the canopy towards the suspension risers, removing turns, tangles and twists from the two groups.

**REMOVING TURNS, TANGLES AND TWISTS FROM SUSPENSION LINES**

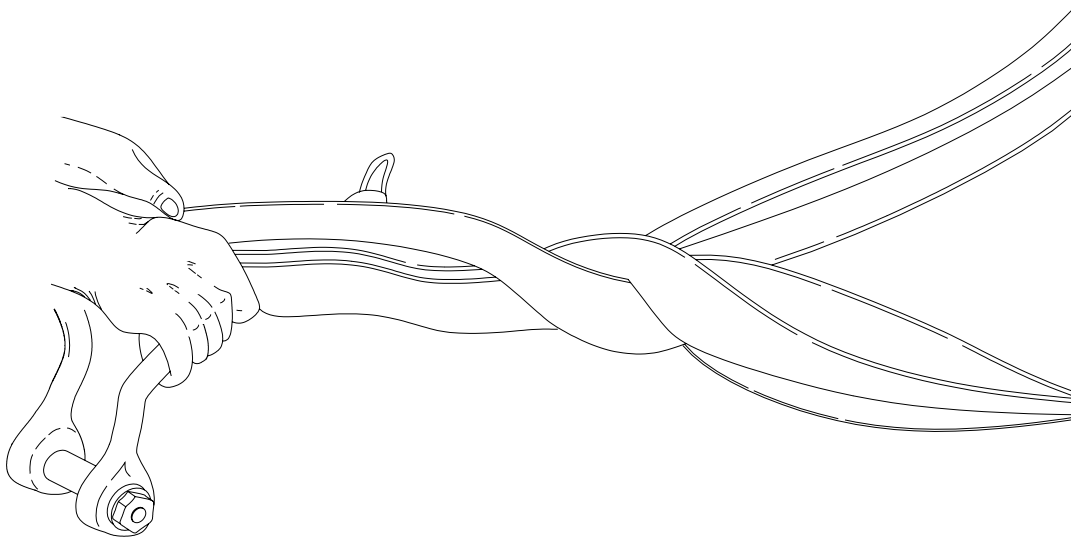
1. Turns. A turn occurs when one group of suspension lines rotates around the opposite group of suspension lines. Remove the turn by rotating the suspension lines in a direction opposite to that of the turn.



2. Tangles. Remove tangles as follows:
  - a. To remove tangle(s) in the suspension lines, begin by separating lines 1 through 40 from the canopy skirt to the connector link assemblies.
  - b. While separating the lines, place all lines which pass over the top of the group over one forearm.
  - c. Grasp the four connector link assemblies which have lines 1 through 40 attached and pull the connector link assemblies and the suspension risers through the remaining suspension lines.



- d. At line 41, count 40 more lines. Separate the lines from the canopy skirt to the connector link assemblies.
  - e. While separating the lines, place all lines that pass over the top of the group over one forearm.
  - f. Grasp the four connector link assemblies that have lines 41 through 80 attached and pull the connector link assemblies and the suspension risers through the remaining suspension lines. This will give you three groups of 40 lines each.
3. Twists. Remove twists as follows:
- a. A twist occurs when the suspension lines in one group become improperly crossed. To remove the twists in the suspension lines, each group of ten suspension lines must be traced from the skirt of the canopy to the connector links.



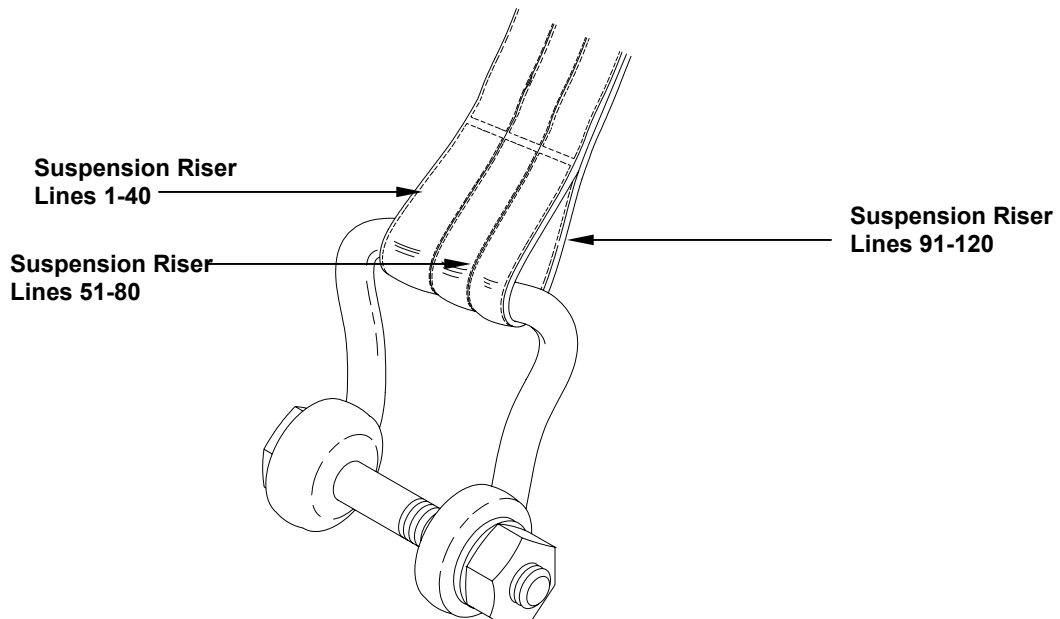
- b. As the lines are being traced they must be threaded onto a nylon strap, such as an A-7A or 60-inch shear strap. To trace the suspension lines and thread the connector link assemblies, three persons shall be required to perform the following:
  - (1) One person grasps the suspension risers at a point just below the connector link assemblies and holds the suspension lines taut.
  - (2) A second person, positioned at the canopy skirt, begins with line 1 and picks up the first line in each line group.
  - (3) As each line is picked up, it will be held in such a manner as to allow the line to be visually traced to the respective connector link assembly.
  - (4) After tracing the first line of each line group, the first person passes the respective connector link assembly containing the line to another person who threads the nylon strap through the connector link assembly.
  - (5) As the strap is being threaded through the connector link assembly, the person positioned at the canopy skirt grasps all suspension lines that are attached to the connector link assembly and throws the line group over his/her shoulder. (This procedure shall be repeated for each succeeding line group.)

- (6) Ensure the connector link assemblies are threaded on the strap in a manner which positions the odd numbered suspension lines to the left side of the strap.
- (7) Secure the ends of the strap.

### RISER LAYOUT

To properly layout the risers, proceed as follows:

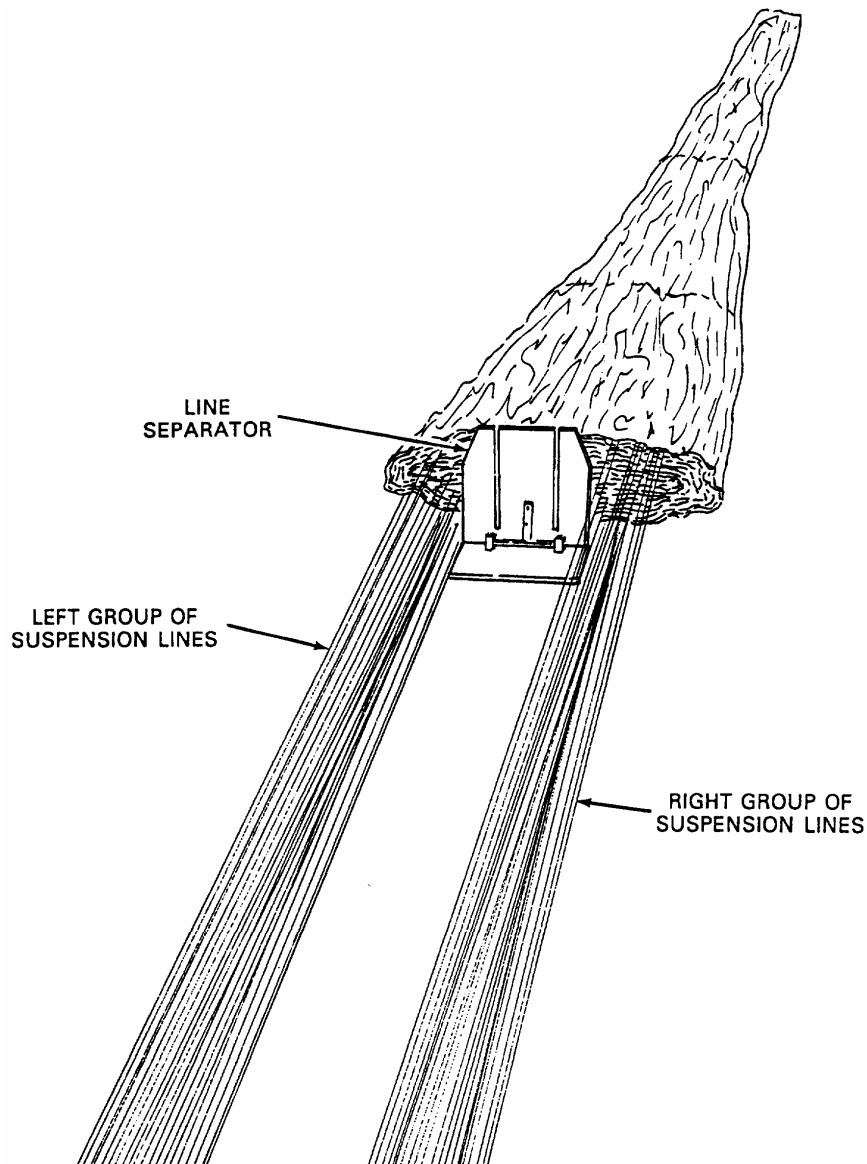
1. Adapting the procedures above for locating the suspension lines in the proper layout, remove all turns, tangles, and twists from the suspension risers.
2. Arrange the three suspension clevis attaching loops at the ends of the suspension risers in order, with suspension riser of lines 1 through 40 to the left, suspension riser of lines 41 through 80 in the center and suspension riser of lines 81 through 120 to the right.
3. Install a large suspension clevis through the riser attaching loops to maintain proper layout of the risers.



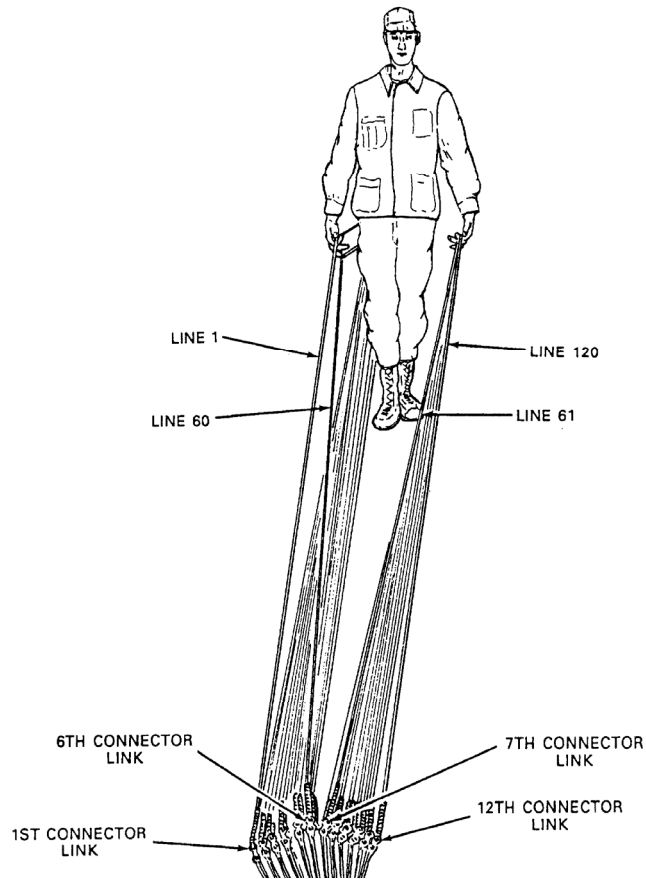
### PACKING THE G-11D PARACHUTE

After preparing the parachute for proper layout, continue packing the G-11D parachute as follows:

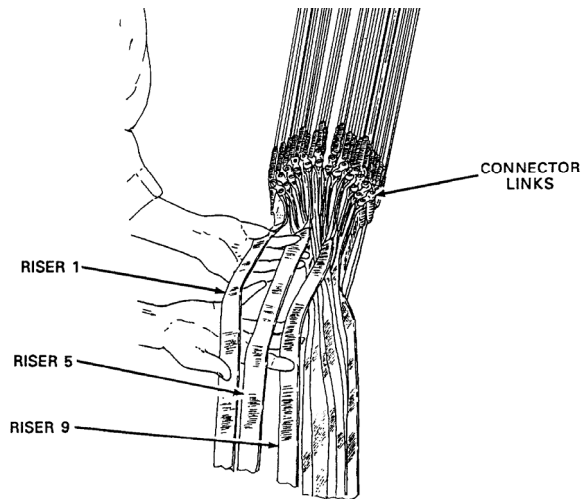
1. Obtain group separation of suspension lines as follows:
  - a. Begin with the connector link assembly to which suspension line number 1 is attached, count six connector link assemblies.
  - b. Grasp all suspension lines attached to the six (6) connector link assemblies and working to the canopy skirt, separate these lines from the remaining suspension lines.
  - c. Position a large separator between the two groups of lines at the canopy skirt to maintain group separation.



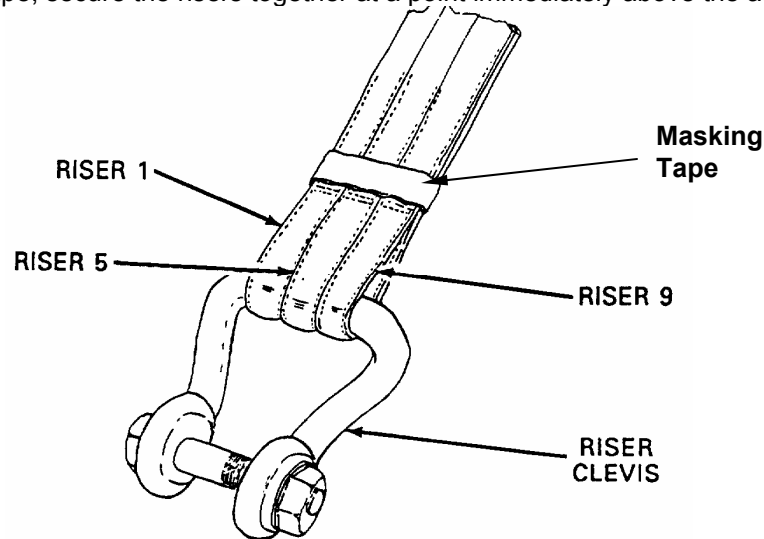
2. Confirming proper layout. Perform a four-line check to confirm that the suspension lines are in proper layout and a three-line check to confirm that the suspension risers are in proper layout. Proceed as follows:
  - a. One packer will take a position between the separated suspension lines near the skirt of the canopy, facing the suspension risers.
  - b. Place lines 1 and 60 in the right hand and lines 61 and 120 in the left hand. Hold these suspension lines in a manner that will keep the lines separated and identifiable in each hand.
  - c. Walking slowly, trace the four lines to the connector link assemblies. Line 1 should be at the top of the first connector link on the left (rigger view), line 60 should be at the bottom of the sixth connector link, line 61 should be at the top of the seventh connector link and line 120 should be on the bottom of the twelfth connector link.



- d. Below the connector link assemblies, pick up the first suspension riser on the left (rigger view) attached to the first connector link, the fifth suspension riser and the ninth suspension riser.



- e. Slowly trace these suspension risers toward the attaching loop end of the suspension risers.
- f. The three suspension risers should be on top of each riser group.
- g. Using masking tape, secure the risers together at a point immediately above the attaching loops.



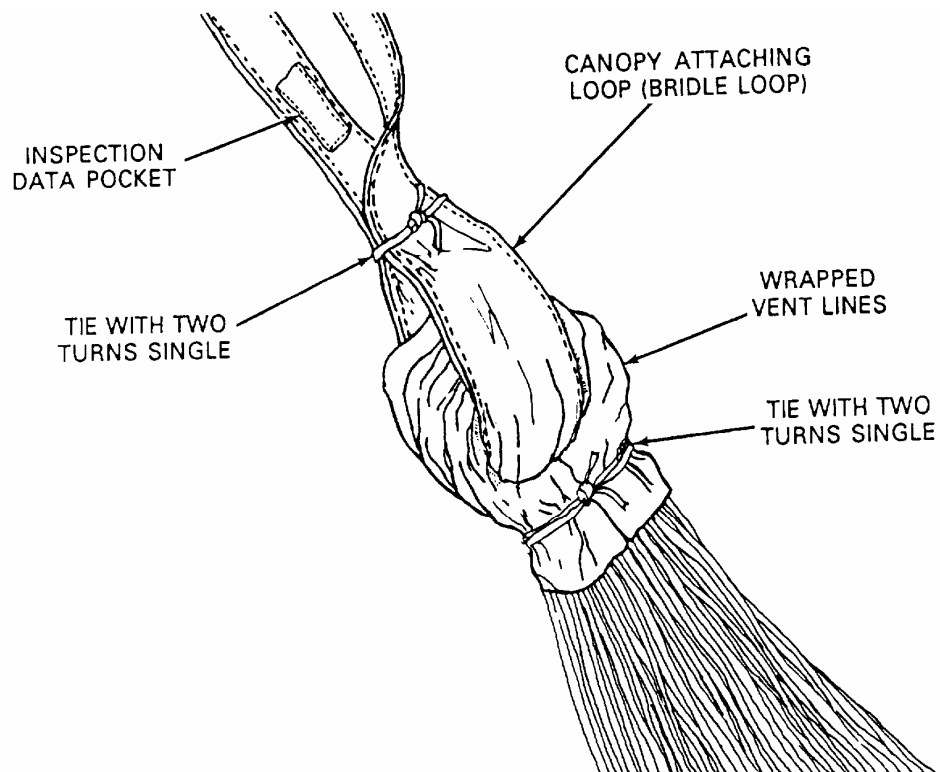
**NOTE**

Dress the vent reinforcement (upper lateral band) to center the canopy vent lines.

3. Serving the canopy vent.
  - a. Remove the canopy attaching loop (bridle loop) from the stationary post and dress the upper lateral band to center the vent lines.
  - b. Ensuring that the dressed vent reinforcement is not disturbed unnecessarily, slide the attaching loop to one side of the canopy vent lines.
  - c. Cut a 10-inch square piece of cotton muslin cloth and wrap the cloth around the center of the vent lines.
  - d. Center the canopy attaching loop on the wrapped portion of the vent lines.



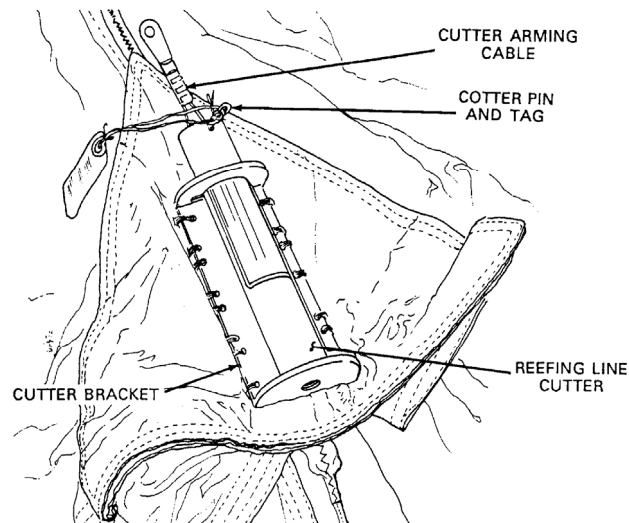
- e. Bring the cloth wrap ends together to form a loop around the attaching loop.
- f. Secure the cloth wrap ends together with a 24-inch-wide, type ¼ cotton webbing. Make the tie with two turns single and secure the tie with a surgeon's knot and locking knot.
- g. Trim tie ends to 2-inches.
- h. At a point 2-inches above that part of the bridle loop through which the vent lines pass, make a tie around the bridle loop using 24-inch-wide, type ¼ cotton webbing.
- i. Make the tie with two turns single and secure the tie with a surgeon's knot and locking knot.
- j. Trim tie ends to 2-inches.
- k. Ensure the parachute inspection data pocket (log record pocket) on the inside of the bridle loop remains accessible.



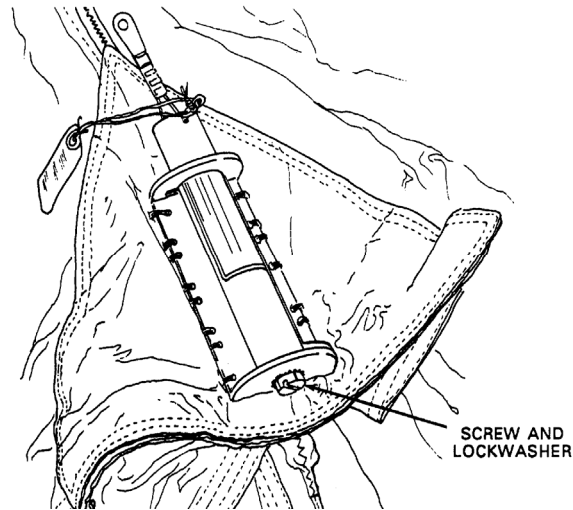
- I. Attach the bridle loop to the stationary post.
4. Installing M-21 reefing line cutter. Install an M-21 reefing line cutter at lines 1, 31, 61 and 91 as follows:
    - a. Remove ¼-inch screw and insert the cutter into the upper end of the cutter bracket. Ensure the cutter arming cable is pointed toward the canopy vent.
    - b. Align the screw that protrudes from the side of the cutter with the slot in the upper end of the cutter bracket.
    - c. Slide the cutter into the cutter bracket until the cutter lower end is flush against the inside bottom end of the bracket.
    - d. Turn the cutter one-quarter turn to allow the screw, which protrudes from the cutter side, to fit into the indentation located in the center of the bracket.

**NOTE**

Do not use any type of tool to tighten the reefing line cutter bottom screw.



- e. Insert the 1/4-inch screw with serrated lockwasher through the hole on the bottom of the bracket, into the threaded hole in the bottom end of the cutter and tighten the screw finger tight.



**NOTE**

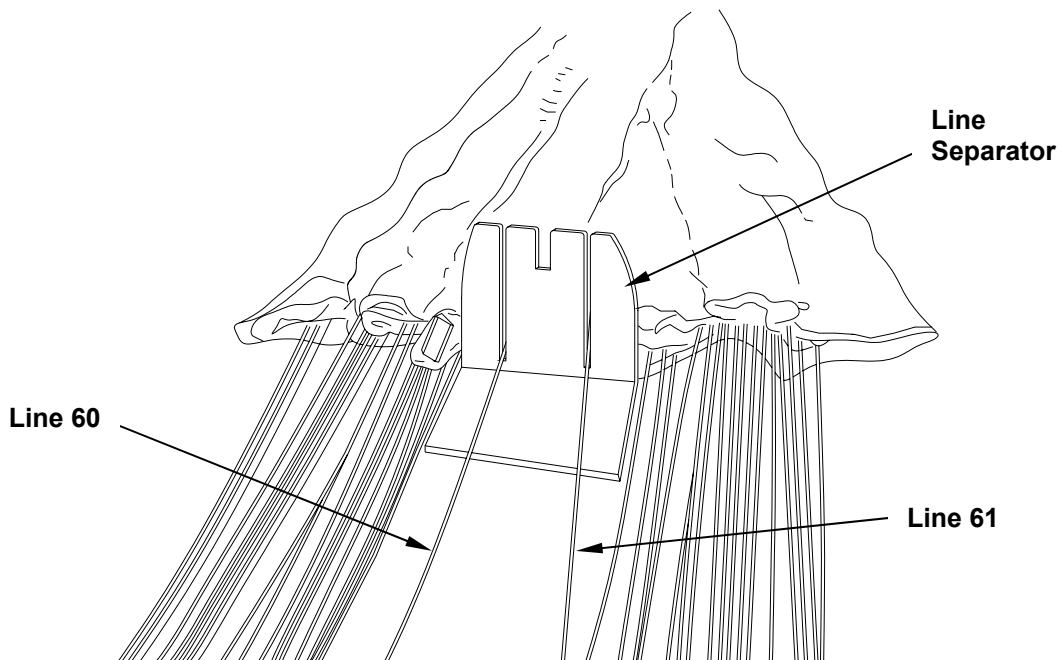
A four-line check for proper layout shall be performed before applying tension.

- f. Rigger check number 1.
5. Applying tension. Attach the nylon webbing strap routed through the connector links to a tension device and apply tension.

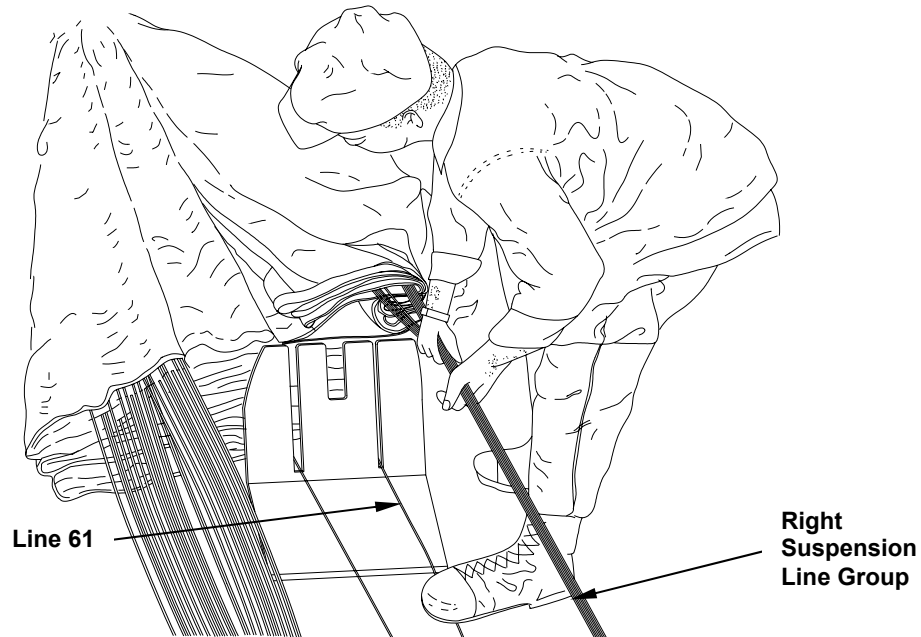
**NOTE**

A tension jack, chain hoist, power winch, or a vehicle may be used as a tension device when applying tension to the parachute.

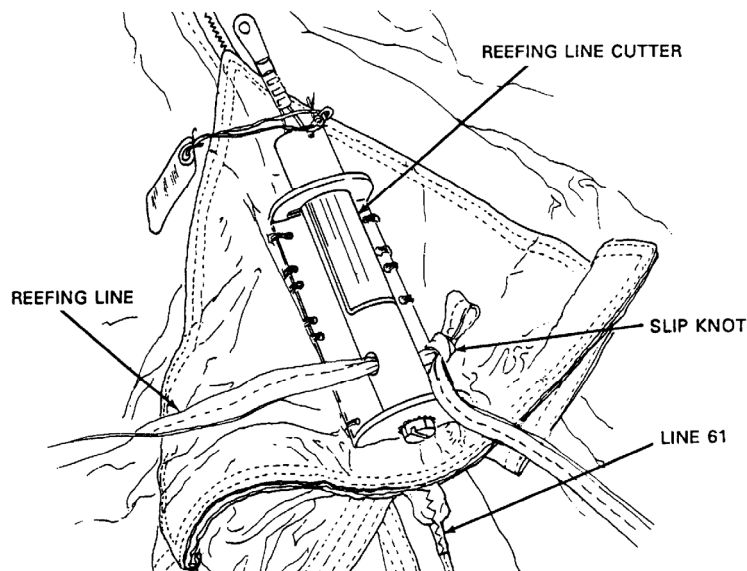
6. Folding the gores and reefing the canopy. Fold the canopy gores into two groups of 60 gores each and thread the reefing line through the canopy reefing rings as follows:
  - a. At a suitable point below the canopy skirt (lower lateral band), position a large line separator between the two groups of suspension lines. Insert line 61 into the right slot of the line separator and line 60 into the left slot.



- b. While holding line 61 in position in the line separator, pick up the right suspension line group and throw the right group of gores and lines over the left group of gores and lines.



- c. Cut four 12-foot lengths of ½-inch wide tubular nylon webbing and tape 2-inches of the ends of each webbing length with masking tape.
- d. Rotate the reefing line cutter at line 61 upward and pass one end of a 12-foot reefing line from left to right through the hole in the reefing line cutter. Pull 6-inches of the reefing line through cutter.
- e. Using the 6-inch length of the reefing line, make a slip knot immediately to the right of the reefing line cutter to secure the reefing line during the reefing process.



- f. Position a large pedestal fan at a point 10-feet below the canopy skirt. Position the fan so the air stream will partially inflate the canopy.

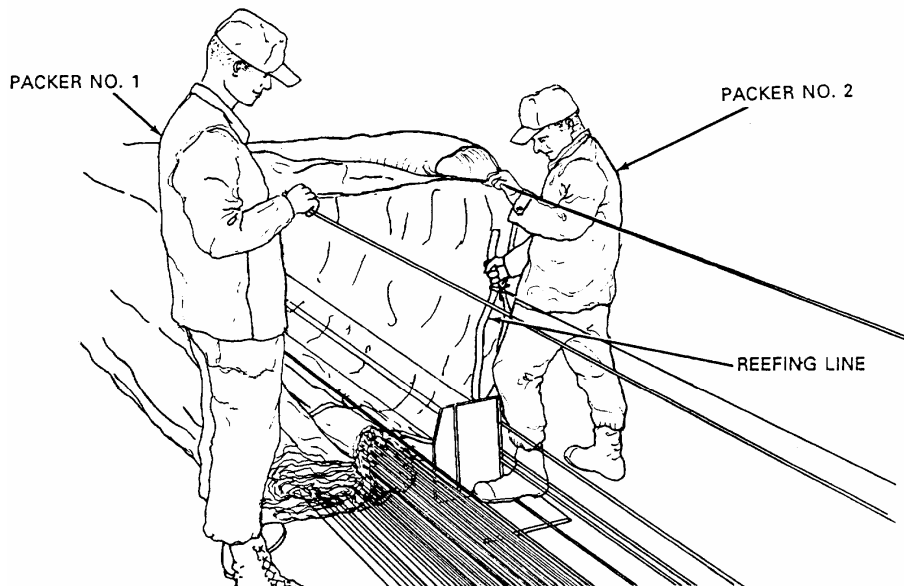
**CAUTION**

Failure to evenly distribute the reefing line between each reefing ring will cause a delay in the parachute deployment, an uneven inflation of the canopy or result in a malfunction.

**NOTE**

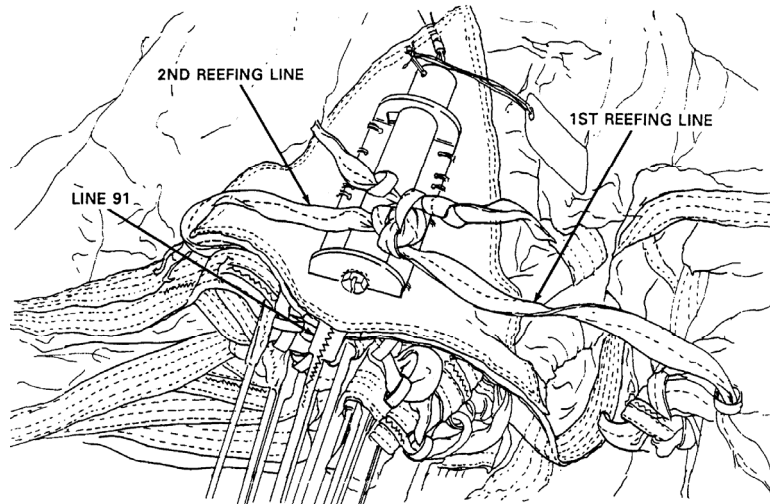
A packer will take a position near the apex of the canopy and observe the canopy during the reefing process. If canopy damage is observed the reefing process will be stopped and the parachute will be processed for maintenance.

- g. Beginning with line 62, one packer passes each line in the right group to a second packer who threads the right running end of the reefing line through each reefing ring. After each reefing ring is reefed, the second packer will use a leg to guide the suspension line into the right slot of the line separator. Continue the gore folding process until lines 61 through 90 are reefed and in the right slot of the line separator and the gores between each line are folded.

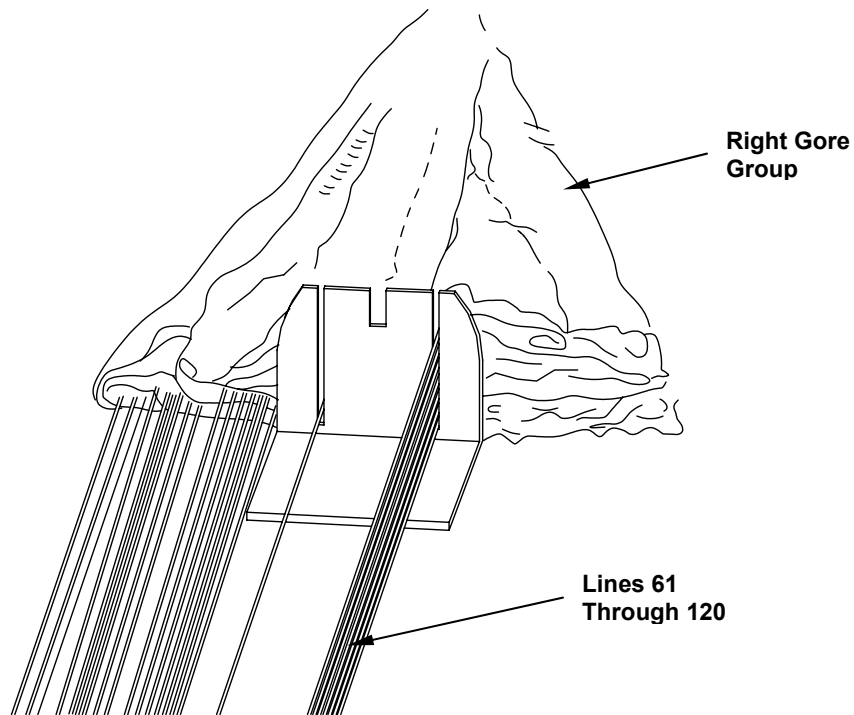


- h. Stop the gore folding and from right to left, pass the end of the reefing line through the reefing line cutter at line 91 and pull 6-inches through.
- i. Pass one end of the second reefing line, from left to right, through the hole in the reefing line cutter at line 91 and pull 6-inches through.

- j. Secure the two reefing line ends together over the reefing line cutter at line 91 with a surgeon's knot and locking knot. Make an overhand knot in each running end.
- k. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.

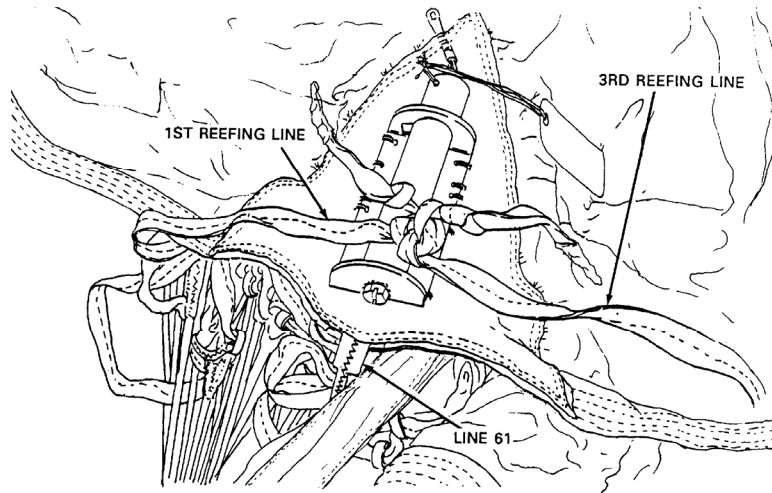


- l. Using the gore folding procedures in (g), fold the gores and reef the canopy skirt between lines 91 and 120 until the right group of gores are folded and lines 61 through 120 are in the right slot of the line separator.

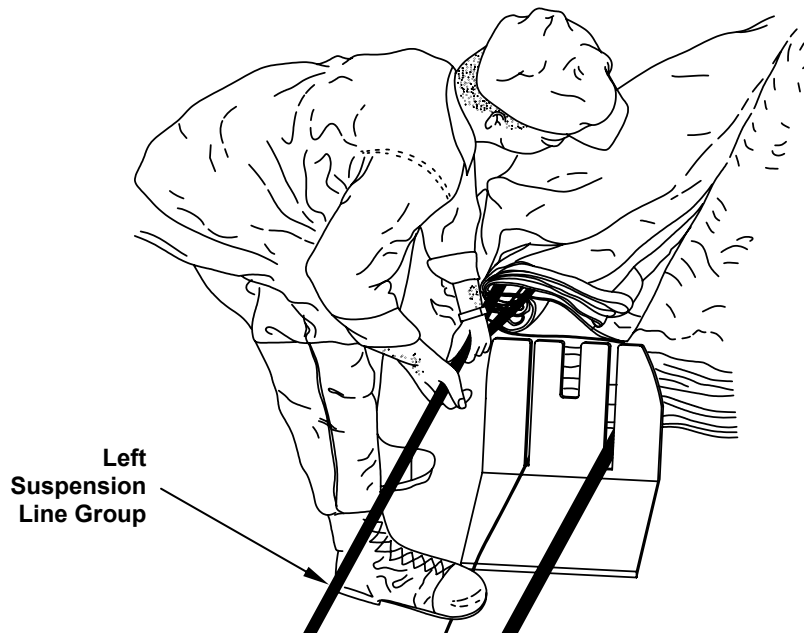


- m. Rotate the reefing line cutter at line 61 upward again and from right to left, pass one end of the third reefing line through the hole in the reefing line cutter.

- n. Pull 6-inches of the third reefing line through the reefing line cutter. Release the slipknot on the first reefing line.
- o. Secure the ends of the first and third reefing lines together over the reefing line cutter at line 61 with a surgeon's knot and locking knot. Make an overhand knot in each running end.
- p. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.

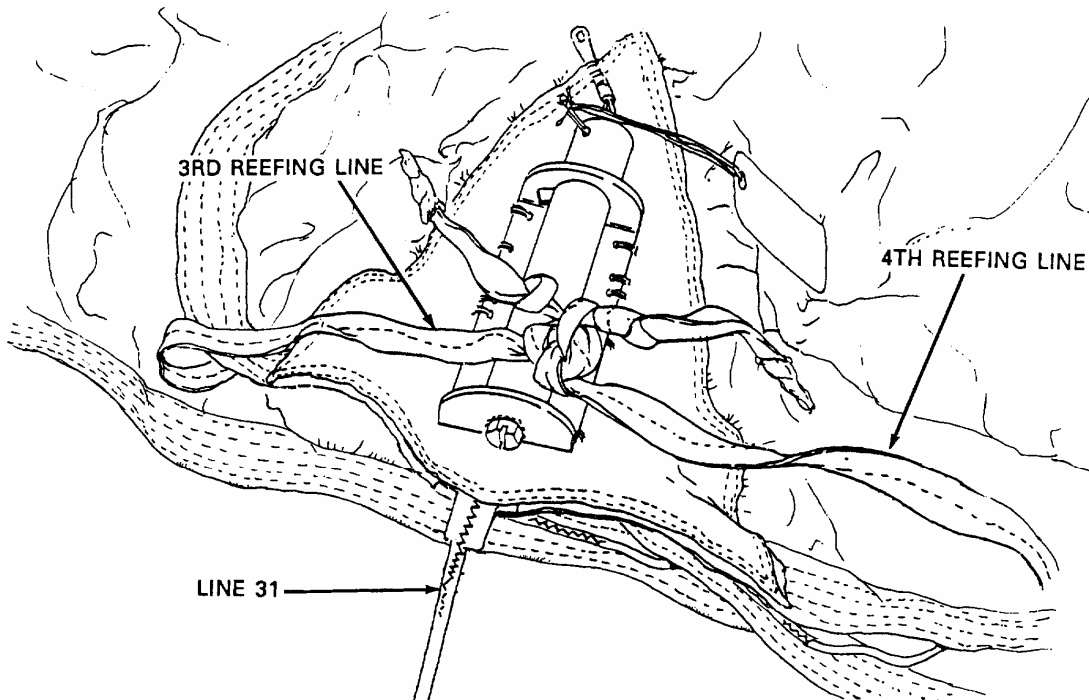


- q. While holding line 60 in position in the line separator, pick up the left suspension line group and throw the left group of gores and lines over the folded right group of gores and lines.



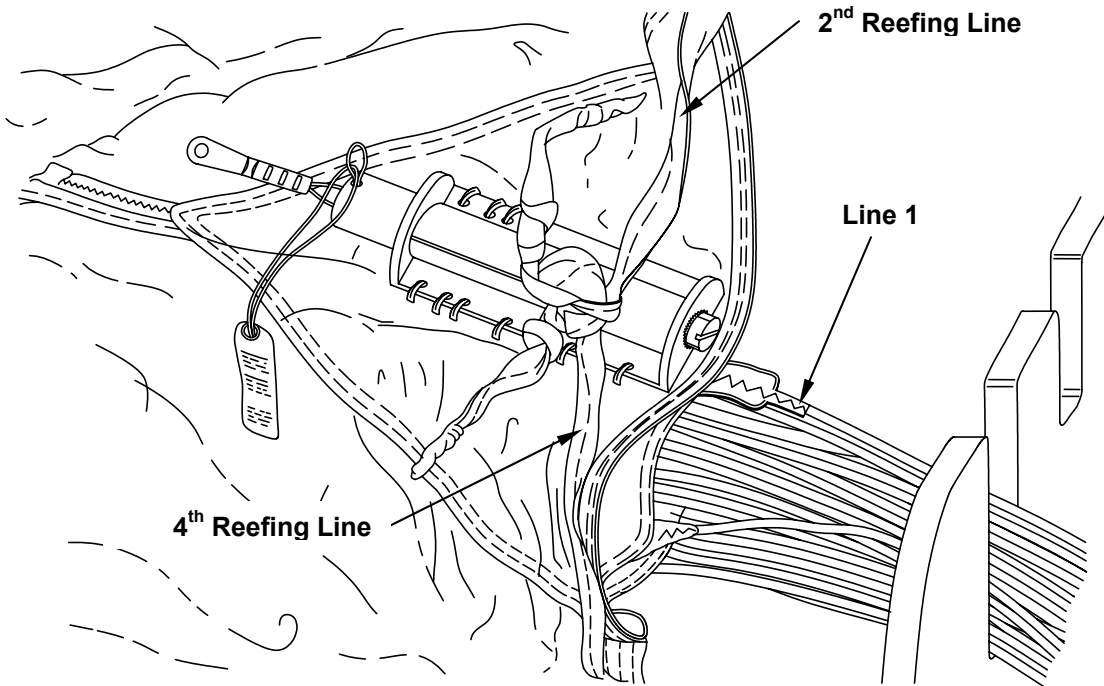


- r. Beginning with line 59, one packer passes each line in the left group to a second packer who threads the left running end of the reefing line through each reefing ring. After each reefing ring is threaded, the second packer will use a leg to guide the suspension line into the left slot of the line separator. Continue the gore folding process until lines 60 through 31 are reefed and in the left slot of the line separator and the gores between each line are folded.
- s. Stop the gore folding process and from left to right, pass the end of the third reefing line through the reefing line at line 31 and pull 6-inches through.
- t. Pass one end of the fourth reefing line, from right to left, through the hole in the reefing line cutter at line 31 and pull 6-inches through.
- u. Secure the two reefing line ends together over the reefing line cutter at line 31 with a surgeon's knot and locking knot. Make an overhand knot in each running end.
- v. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



- w. Using the gore folding procedures in (r), fold the gores and reef the canopy skirt between lines 31 and 1 until the left group of gores is folded and lines 60 through 1 are in the left slot of the suspension line separator.
- x. From left to right, pass the end of the fourth reefing line through the hole in the reefing line cutter at line 1 and pull 6-inches through.
- y. From right to left, pass the end of the second reefing line through the hole in the reefing line cutter at line 1 and pull 6-inches through.
- z. Secure the two reefing line ends together over the reefing line cutter at line 1 with a surgeon's knot and locking knot. Make an overhand knot in each running end.

- aa. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.
- bb. Rigger check number 2.



**NOTE**

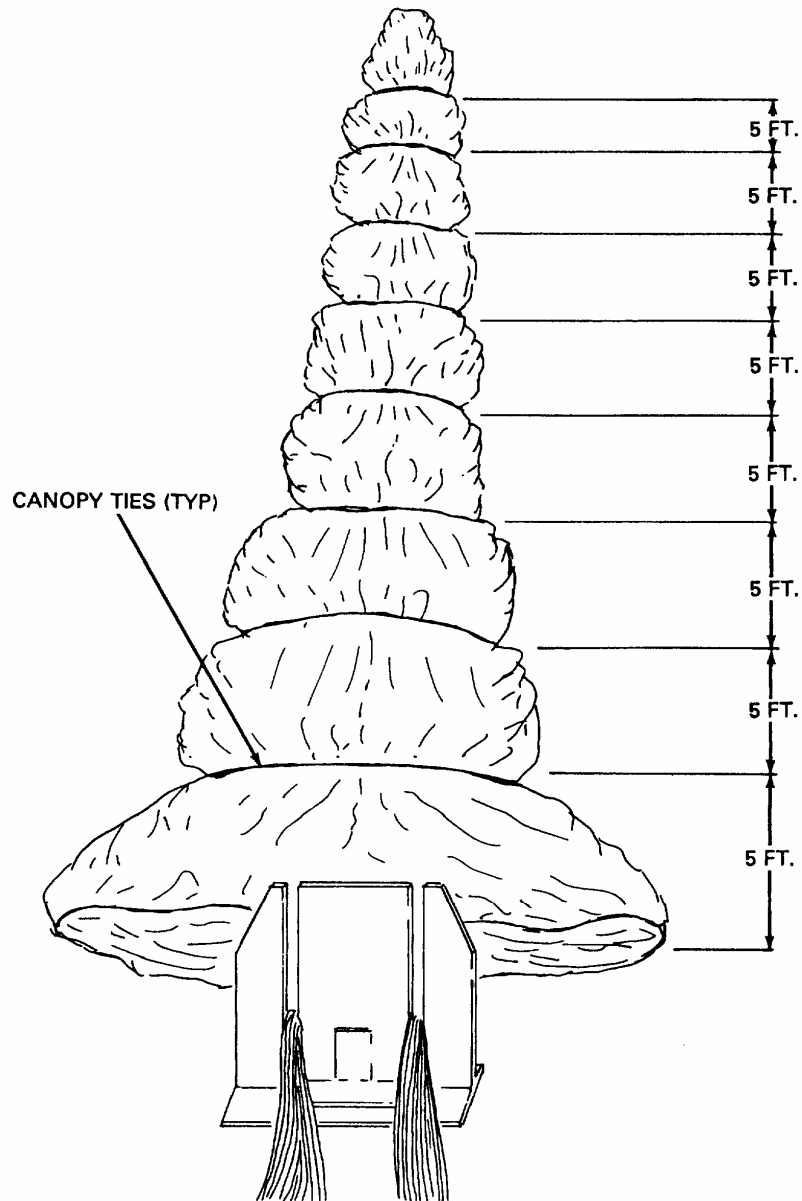
It is 48-feet from the lower lateral band to the upper lateral band. It is not necessary to install a 9<sup>th</sup> canopy tie.

**NOTE**

Ensure all ties are tight.

- 7. Tying the canopy assembly. To tie the canopy assembly, release tension, remove the tension device and tie the canopy assembly as follows:
  - a. Folded canopy.
    - (1) Beginning at a point 5-foot above the skirt band (lower lateral band) and at 5-foot intervals thereafter, install the eight canopy ties.
    - (2) Tie the canopy folds using one turn single, ticket No. 8/4 cotton orange thread at each point.
    - (3) Secure each tie with a surgeon's knot and locking knot.

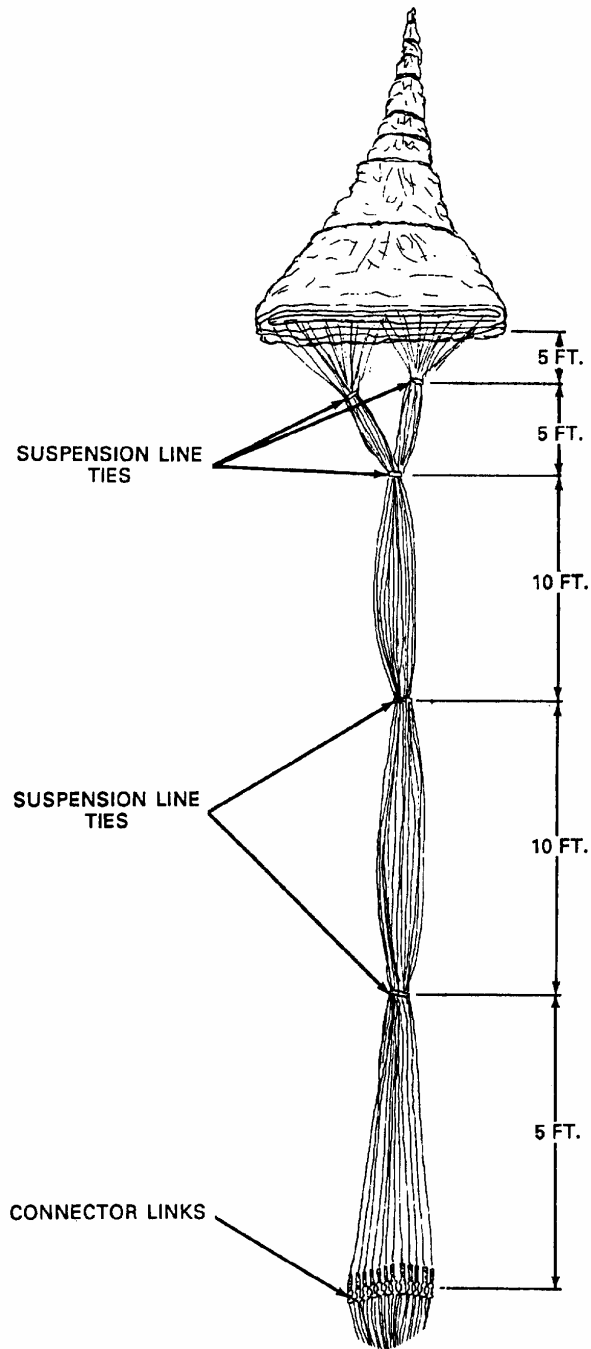
(4) Trim tie ends to 2-inches.



b. Suspension lines.

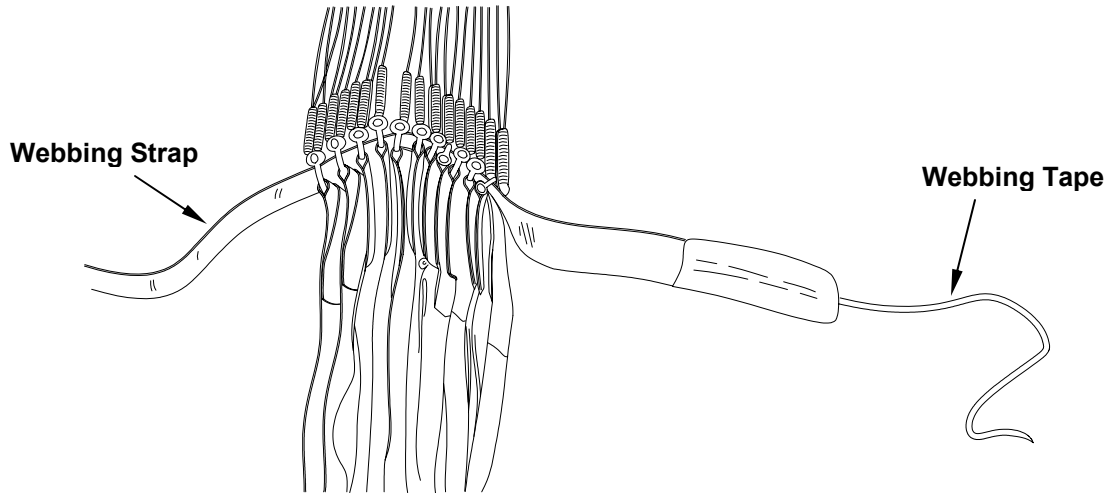
- (1) At a point 5-feet below the skirt band (lower lateral band), tie each group of suspension lines separately using one turn single, ticket No. 8/4 cotton orange thread.
- (2) Secure each tie with a surgeon's knot and locking knot.
- (3) Trim tie ends to 2-inches.
- (4) Remove the large line separator.

- (5) Beginning at a point 10-feet below the skirt band (lower lateral band) and at 10-foot intervals thereafter, tie both suspension line groups together using one turn single, ticket No. 8/4 cotton orange thread at each point.
- (6) Secure each tie with a surgeon's knot and locking knot. Make the last tie 5-feet above the connector link assemblies.
- (7) Trim all tie ends to 2-inches.

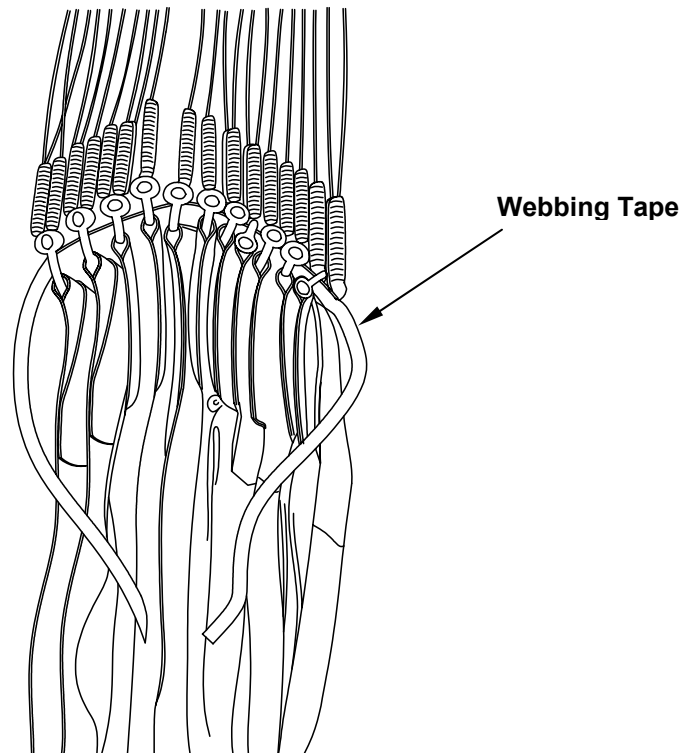


## c. Connector link assemblies.

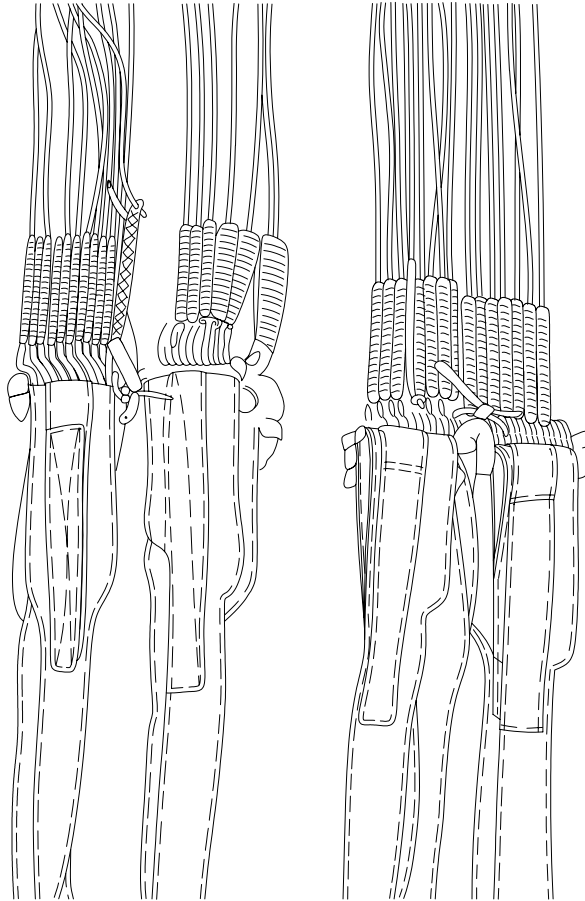
- (1) Release the strap fastener on the webbing strap threaded through the connector link assemblies and tape a 14-inch length of type I cotton webbing to the running end of the strap.



- (2) Remove the webbing strap from the connector link assemblies that, in turn, will pull the taped webbing through the connector link assemblies.



- (3) Remove the taped webbing length from the webbing strap and cut the webbing into two equal lengths with six (6) connector links on each length. Rotate connector links inboard and tie the connector link assemblies together with the webbing length.
- (4) Secure the ties with a surgeon's knot and a locking knot.
- (5) Trim tie ends to 2-inches.

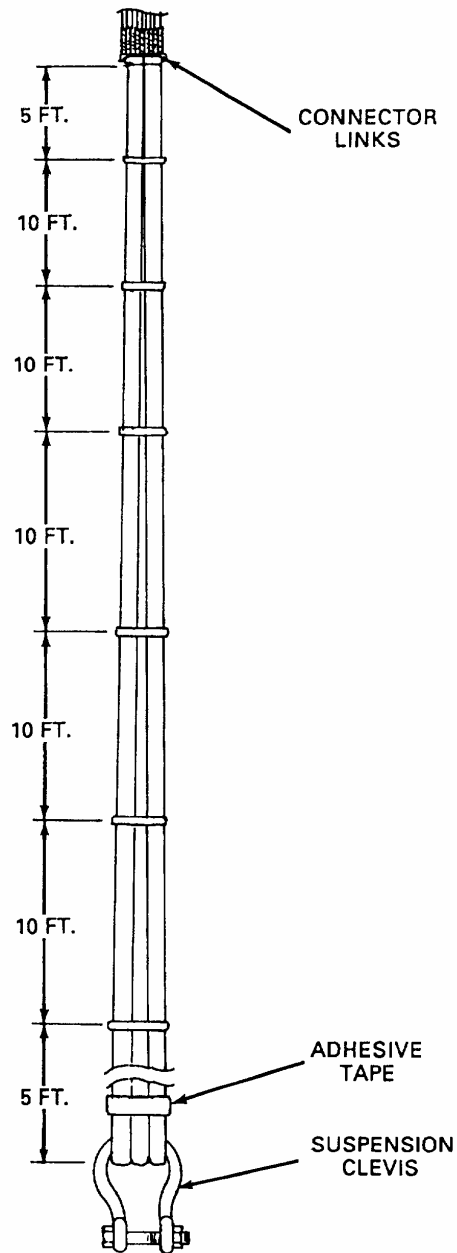


- (6) Cut two lengths of kraft paper, 14-inches by 28-inches. Wrap each group of connector links with two turns single of the kraft paper. Secure the kraft paper with one turn single of thread ticket No. 8/4 cotton orange on each side of the connector links.
- (7) Secure ties with a surgeon's knot and locking knot.
- (8) Trim tie ends to two-inches.

d. Suspension riser.

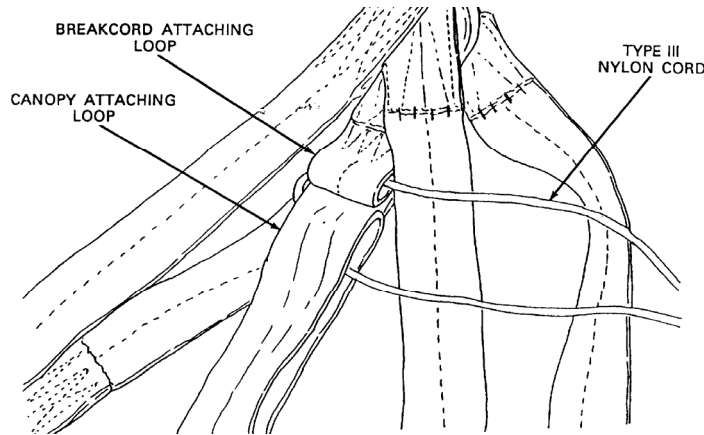
- (1) Beginning at a point 5-feet below the connector link assemblies and at 10-foot intervals thereafter, tie the suspension risers together using one turn single, ticket No. 8/4 cotton orange thread at each point. Make the last tie at a point 5-feet above the suspension clevis attaching loops.

- (2) Secure each tie with a surgeon's knot and a locking knot.
- (3) Trim tie ends to two-inches.

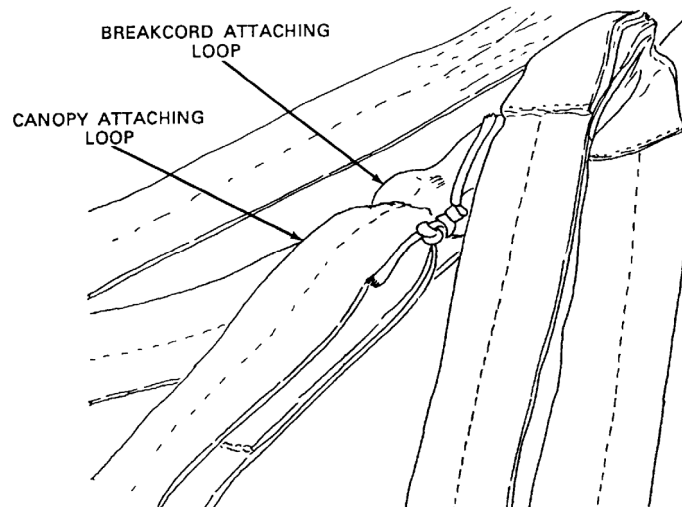


- e. Rigger check number 3.
8. Installing canopy breakcord.
- a. Remove the canopy attaching loop from the stationary post.
  - b. Position the deployment bag at the canopy vent with protector flap up.

- c. Pass the canopy attaching loop through the deployment bag from the bag open end and through the vent line hole located in the bag closed end. Allow 12-inches of the attaching loop and serviced vent lines to extend from the vent line hole.
- d. Secure the canopy attaching loop to the breakcord attaching loop of the deployment bag bridle assembly with an 18-inch length of type III nylon cord.
- e. Pass one end of the cord length through the canopy attaching loop and through the breakcord attaching loop of the deployment bag bridle assembly.



- f. Secure the cord ends with a surgeon's knot and a locking knot.
- g. Make and overhand knot in each running end.
- h. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.

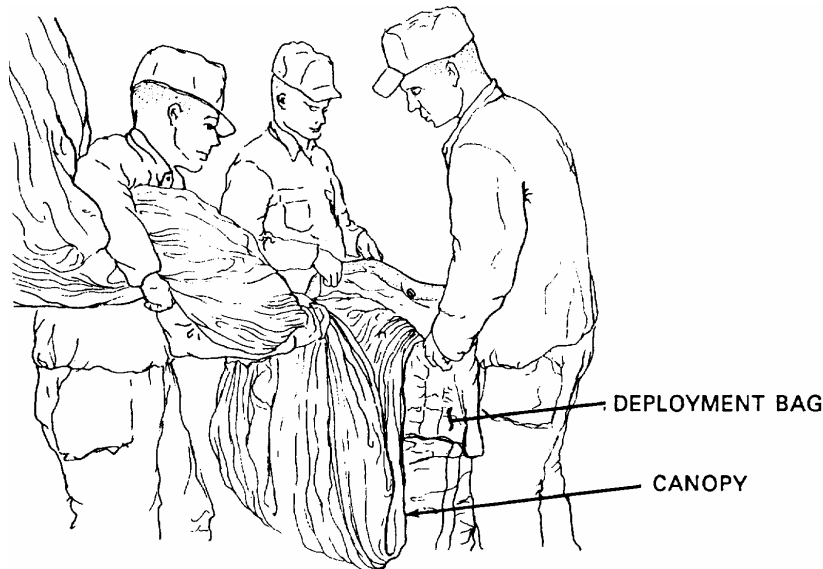


- i. Rigger check number 4 (1<sup>st</sup> portion).

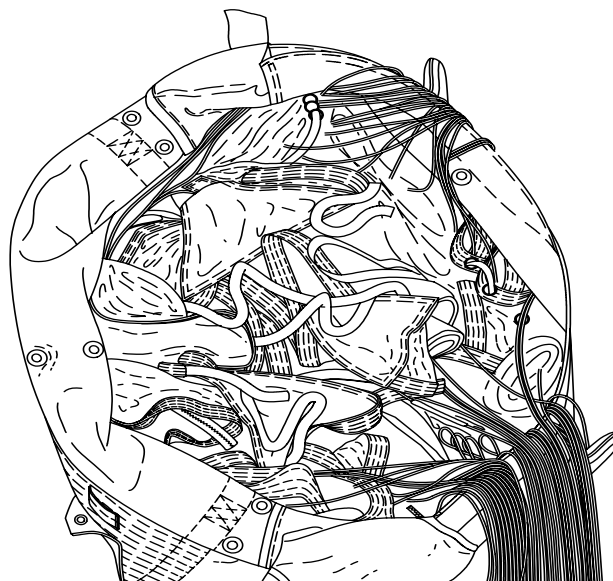


## 9. Stowing the canopy.

- a. Two packers, positioned at the top of the canopy, will raise the open end of the deployment bag up to prevent the canopy vent from being withdrawn through the bag vent line hole while the canopy is being picked up from the packing surface.
- b. A third packer shall move to a point located a reasonable distance below the canopy apex, pick up the canopy from the packing surface and S-fold the canopy material into the deployment bag.



- c. Continue stowing the canopy until only 2-feet of the canopy remains out of the deployment bag.
- d. At a point immediately below the skirt reinforcement, grasp both groups of suspension lines with the right hand, and two-feet below the right hand, grasp both groups with the left hand.
- e. While holding both groups of suspension lines, pick up the canopy skirt and push the canopy skirt, and 18-inches of suspension lines, into the deployment bag.

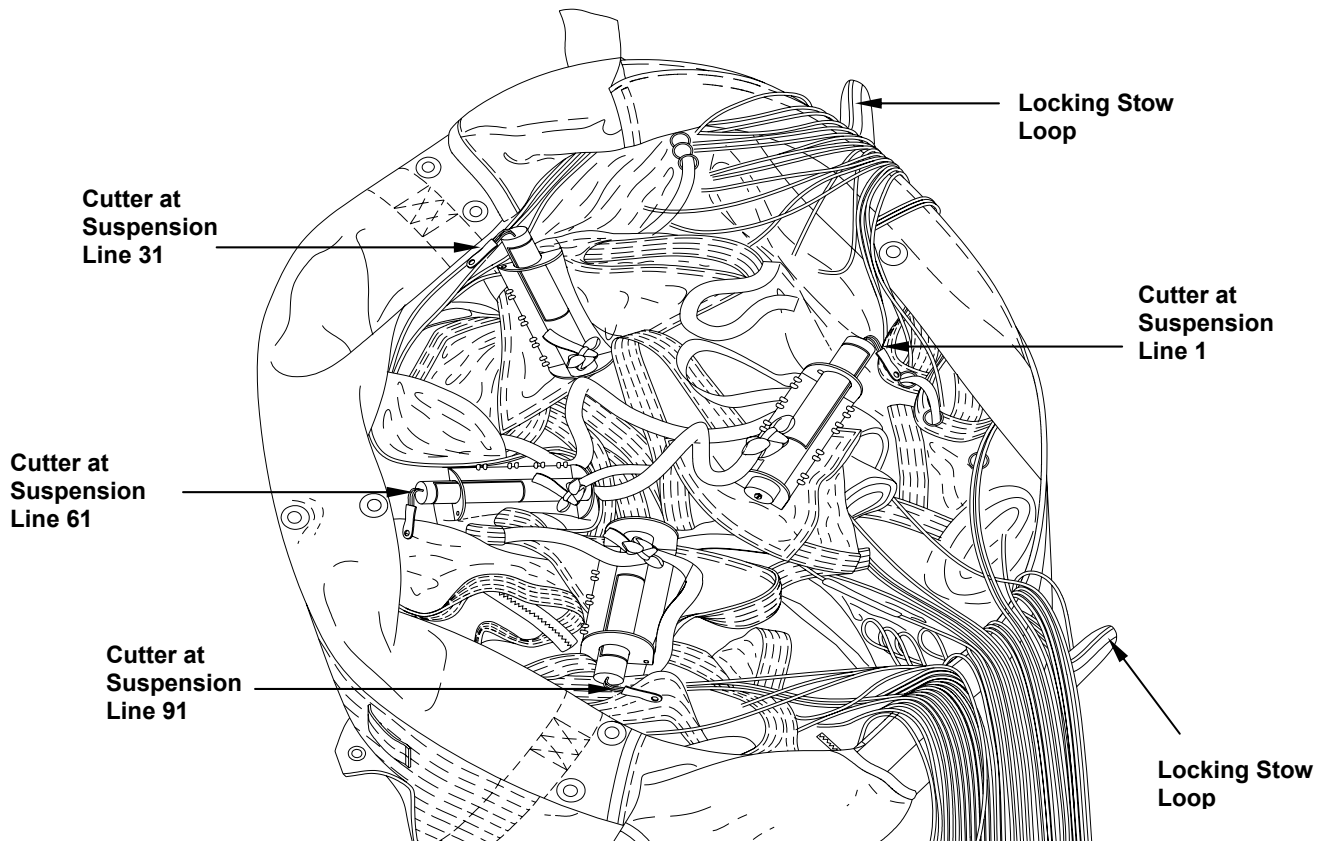


## 10. Arming the reefing line cutters.

**NOTE**

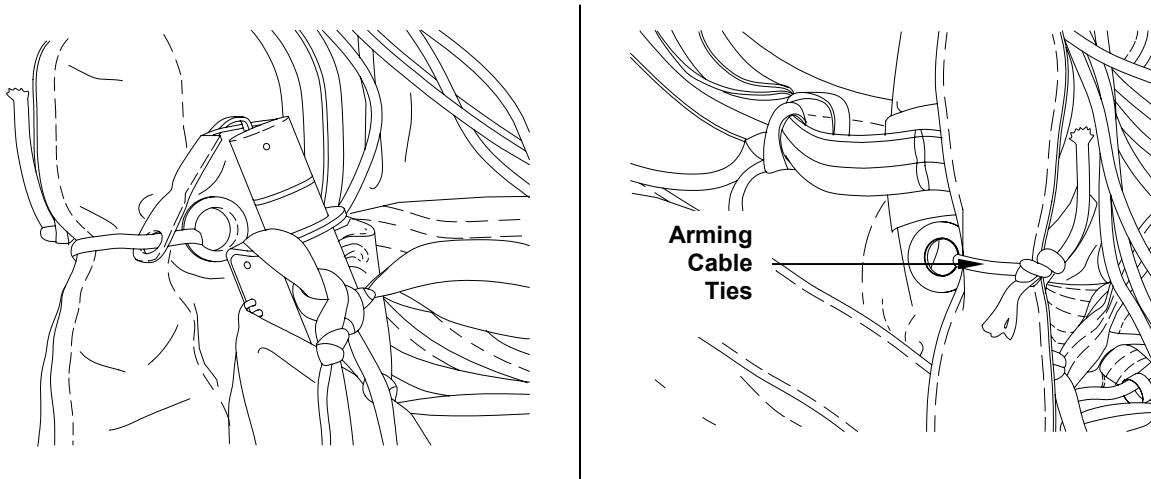
The following procedures are for using a G-11 Cotton Deployment Bag. If using a nylon deployment bag, proceed to the **ARMING THE REEFING LINE CUTTERS** paragraph, paragraph 19, below.

- a. Position the four reefing line cutters on top of the stowed canopy with the cutter at suspension line 61 placed adjacent to the bag double grommet on the bag bottom, the cutter at suspension line 31 placed adjacent to the grommet on the left side of the deployment bag, the cutter at suspension line 91 adjacent to the grommet on the right side of the deployment bag and the cutter at suspension line 1 placed adjacent to the bag single grommet on the bag top.

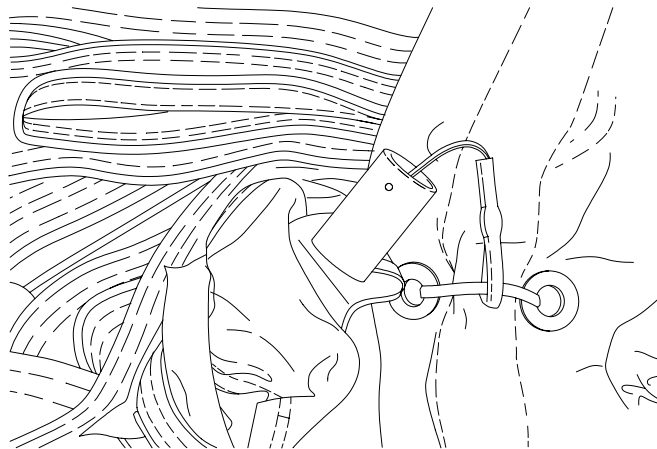


- b. Cut four 12-inch lengths of type III nylon cord for use as arming cable ties.
- c. Beginning with the reefing line cutter at line 1 near the bag top, pass the end of one cord through the hole in the top of the reefing line cutter arming cable and through the bag single grommet to the outside.
- d. Pass the other end of the cord over the top of the bag edge and draw the cord ends tight.
- e. Secure the cord ends on the bag outside with a surgeon's knot and locking knot. Make an overhand knot in each running end.

- f. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.

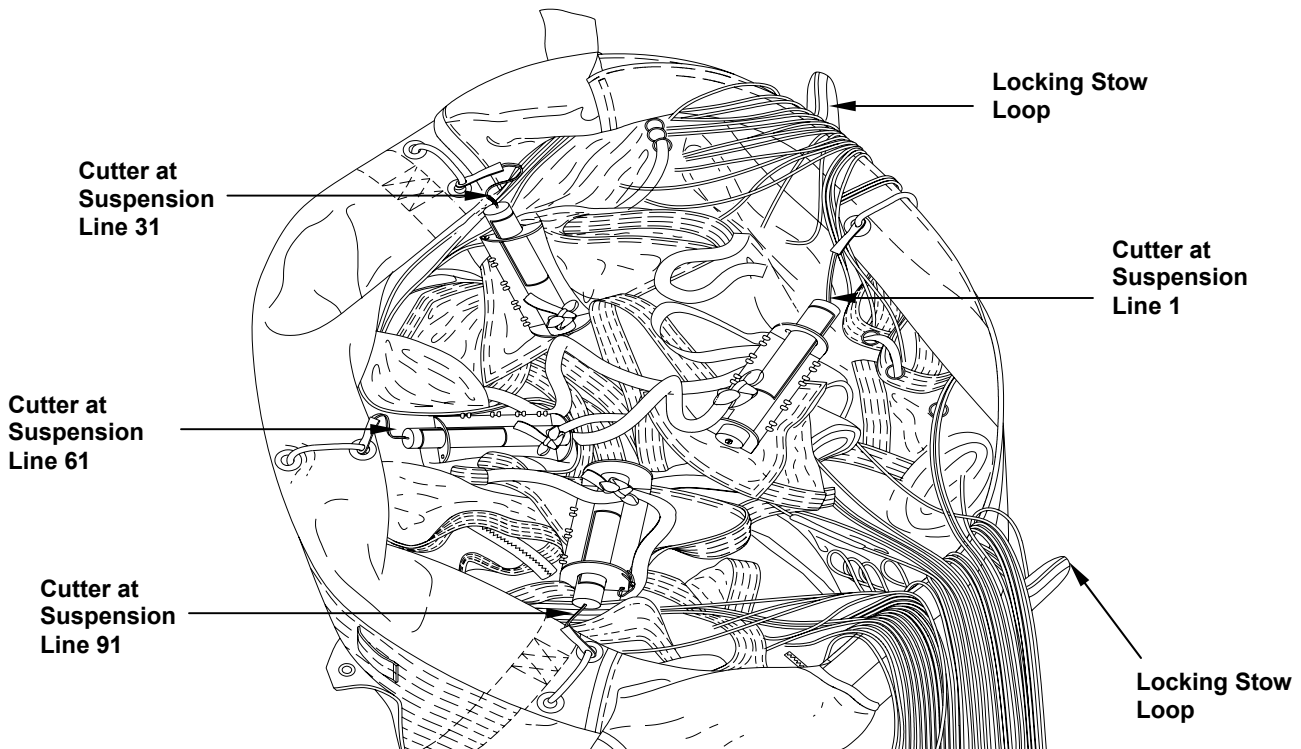


- g. On the left side of the deployment bag, arm the reefing line cutter at line 31, pass the end of one of the cords through the hole in the top of the reefing line arming cable and through the lower grommet located on the left side of the deployment bag.
- h. Pass the other end of the cord through the top grommet and draw the cord ends tight.
- i. Secure the cord ends on the bag outside with a surgeon's knot and locking knot. Make an overhand knot in each running end.
- j. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



- k. On the right side of the deployment bag, arm the reefing line cutter at line 91, pass the end of one of the cords through the hole in top of the reefing line arming cable and through the lower grommet located on the right side of the deployment bag.
- l. Pass the other end of the cord through the top grommet and draw the cord ends tight.

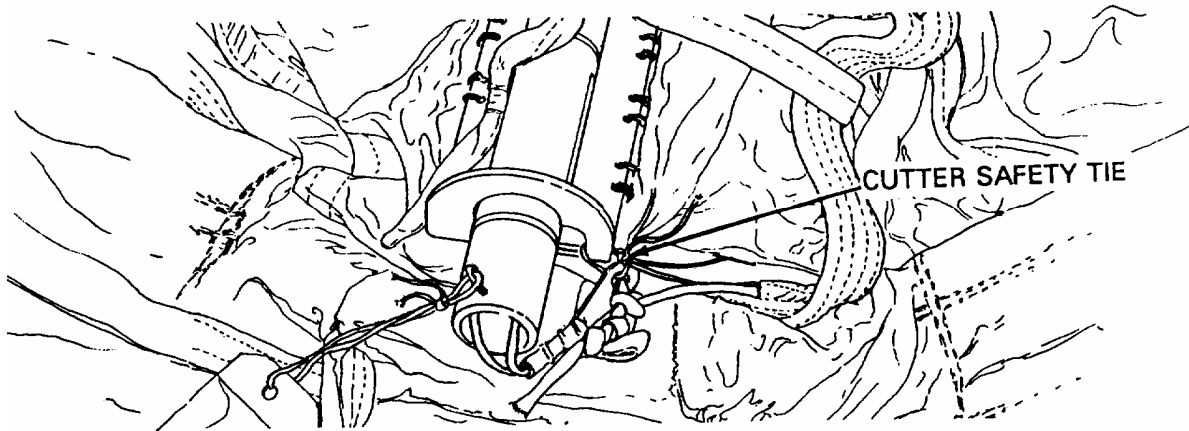
- m. Secure the cord ends on the bag outside with a surgeon's knot and locking knot.
- n. Make an overhand knot in each running end.
- o. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.
- p. Using the remaining cord length on the reefing line cutter at line 61 near the bag bottom, pass one end of the cord through the hole in the top of the reefing line cutter arming cable and through the lower bag grommet to the bag outside.
- q. Pass the opposite cord end through the upper bag grommet to the bag outside and draw the cord ends tight. Secure the cord ends together on the outside of the bag with a surgeon's knot and locking knot.
- r. Make an overhand knot in each running end.
- s. Trim each tie end at a point 2-inches from the surgeon's knot and locking knot.



t. Rigger check number 4 (2<sup>nd</sup> portion).

11. Installing reefing line cutter safety ties. To prevent premature firing of a reefing line cutter while stowing the suspension lines, install a safety tie on each of the reefing line cutters and remove the safety cotter pins as follows:

- a. Using a length of one turn double, ticket No. 8/7 cotton thread, pass one end of the doubled thread lengths through the slot in a reefing line cutter bracket, through the hole in top of the reefing line arming cable, and draw the tie ends tight.
- b. Secure the safety ties with a surgeon's knot and locking knot.
- c. Trim tie ends to 2-inches.



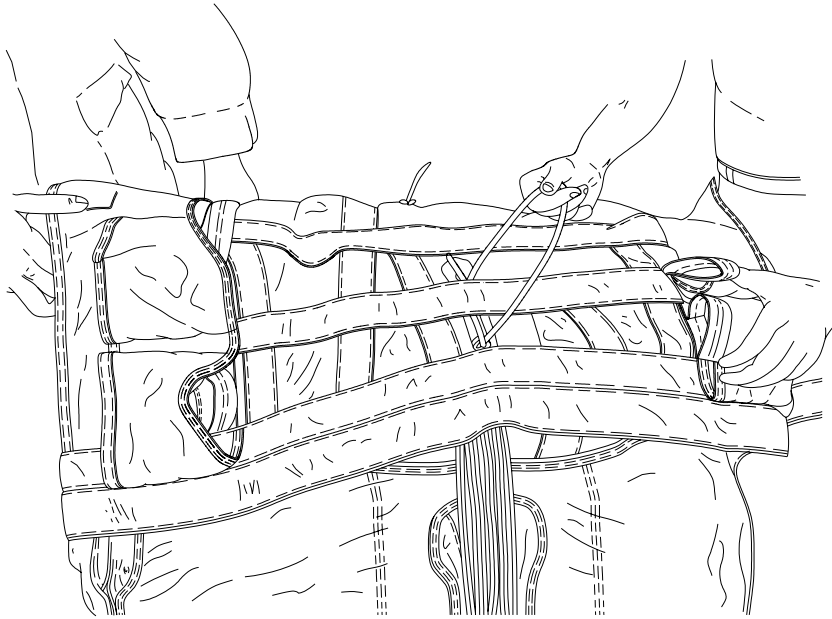
- d. The senior packer will annotate each cutter tag with the reefing line cutter lot number/serial number and when the hermetically sealed container was opened. After these entries have been made, the senior packer will sign each tag.

**CAUTION**

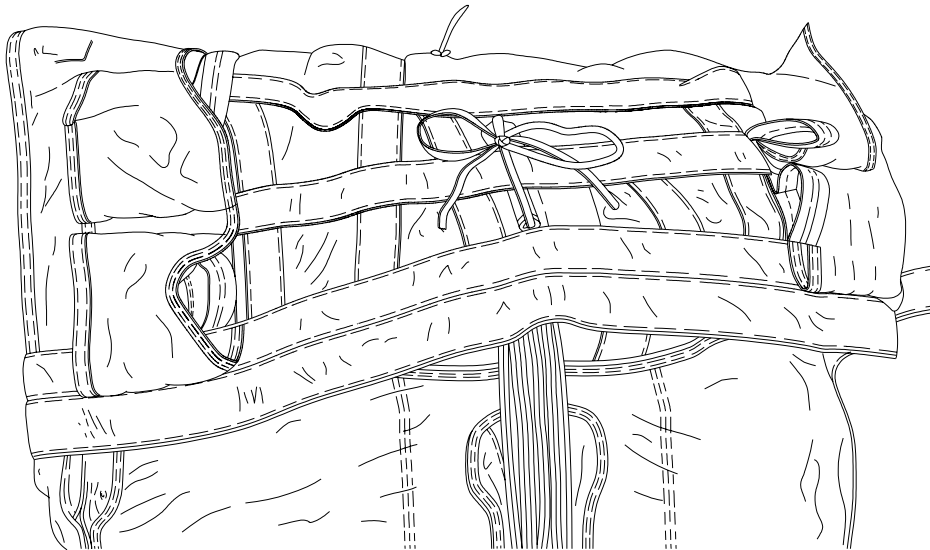
Failure to remove the cutter cotter pins will cause a malfunction of the parachute.

- e. Remove the safety cotter pin and tag from each reefing line cutter, fold the tags lengthwise and stow safety pins and tags in the parachute inspection data pocket within the log record book.
12. Closing the cotton deployment bag.
- a. Bring the suspension lines up over the top of the deployment bag and close the side flaps.

- b. Cut an 18-inch length of ¼-inch type I cotton webbing and girth hitch the webbing length in the deployment bag top center loop strap.



- c. Bring the large end flap of the bag over the bag end and pull the locking loops up through the locking slots.
- d. Pull the ¼-inch wide cotton webbing ends on the center loop strap through the top center opening on the end flap.
- e. Secure with a temporary bow knot.

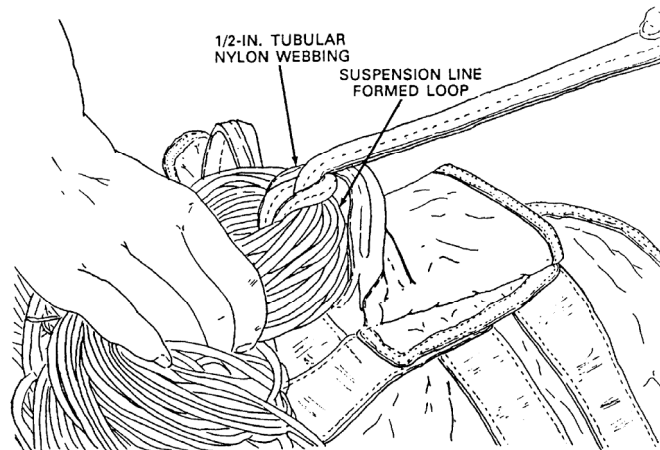


## 13. Making locking stows.

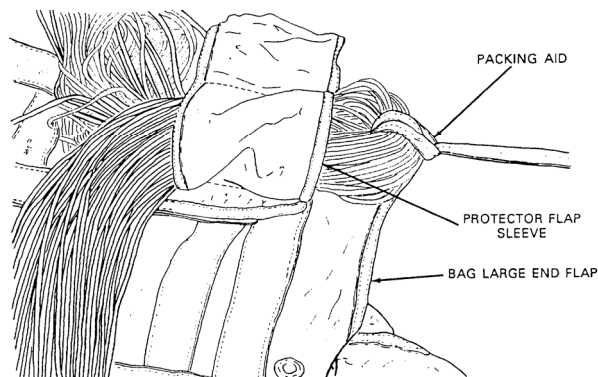
**CAUTION**

Failure to remove the packing aid will cause total malfunction of the parachute.

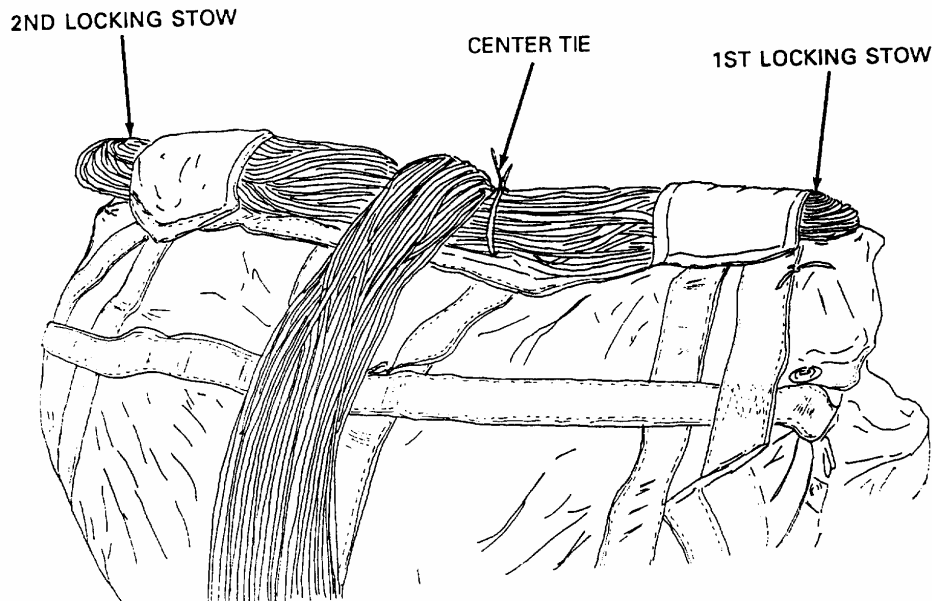
- a. Cut a 36-inch length of 1/2-inch wide tubular nylon webbing, or equivalent, for use as packing aid in making the locking stows.
- b. Double the webbing length and make an overhand knot in the aligned ends.
- c. Fold the suspension lines back over the large end flap and measure and form a loop in the lines that will extend to the right edge of the bag large flap.
- d. Using the packing aid, encircle the formed loop in the suspension lines and make girth hitch in the packing aid.



- e. Thread the knotted end of the packing aid through the locking stow loop located under the protector flap sleeve at the lower right corner of the deployment bag.
- f. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.
- g. Remove the packing aid.



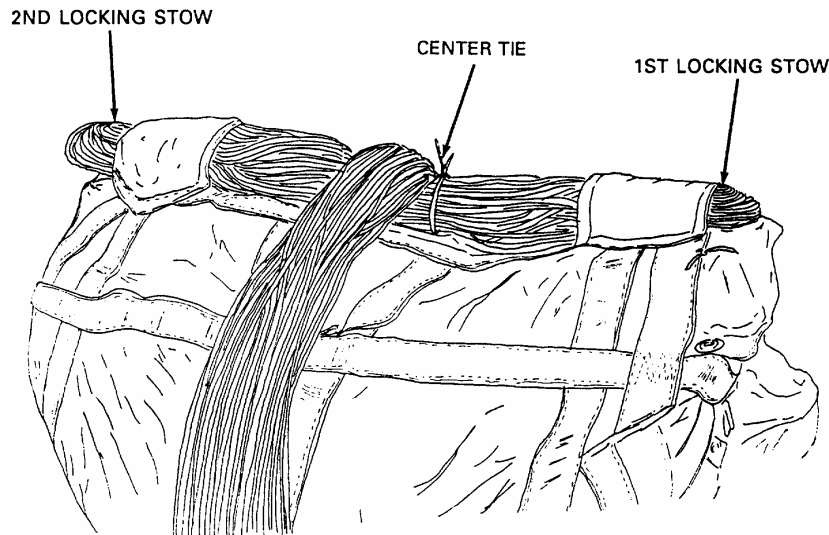
- h. Extend the running end of the suspension lines to the locking stow loop at the lower left corner of the deployment bag and measure and form a loop in the lines.
- i. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- j. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the lower left corner of the deployment bag.
- k. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large end flap.
- l. Remove the packing aid.
- m. Secure the first two locking stows by tying the suspension lines together at a point between the two stows. Use the ¼-inch wide cotton webbing previously installed.
- n. Make the tie one turn single and secure with a surgeon's knot and locking knot.
- o. Trim tie ends to 2-inches.



- p. Extend the suspension lines to the upper right corner of the large end flap and measure and form a loop in the lines.
- q. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- r. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the upper right corner of the deployment bag.
- s. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.



- t. Remove the packing aid.
- u. Extend the suspension lines to the upper left corner of the large end flap and measure and form a loop that aligns with the left edge of the large end flap.
- v. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.
- w. Thread the knotted end of the packing aid through the locking stow loop located under the protector sleeve at the upper left corner of the deployment bag.
- x. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large end flap.
- y. Remove the packing aid.



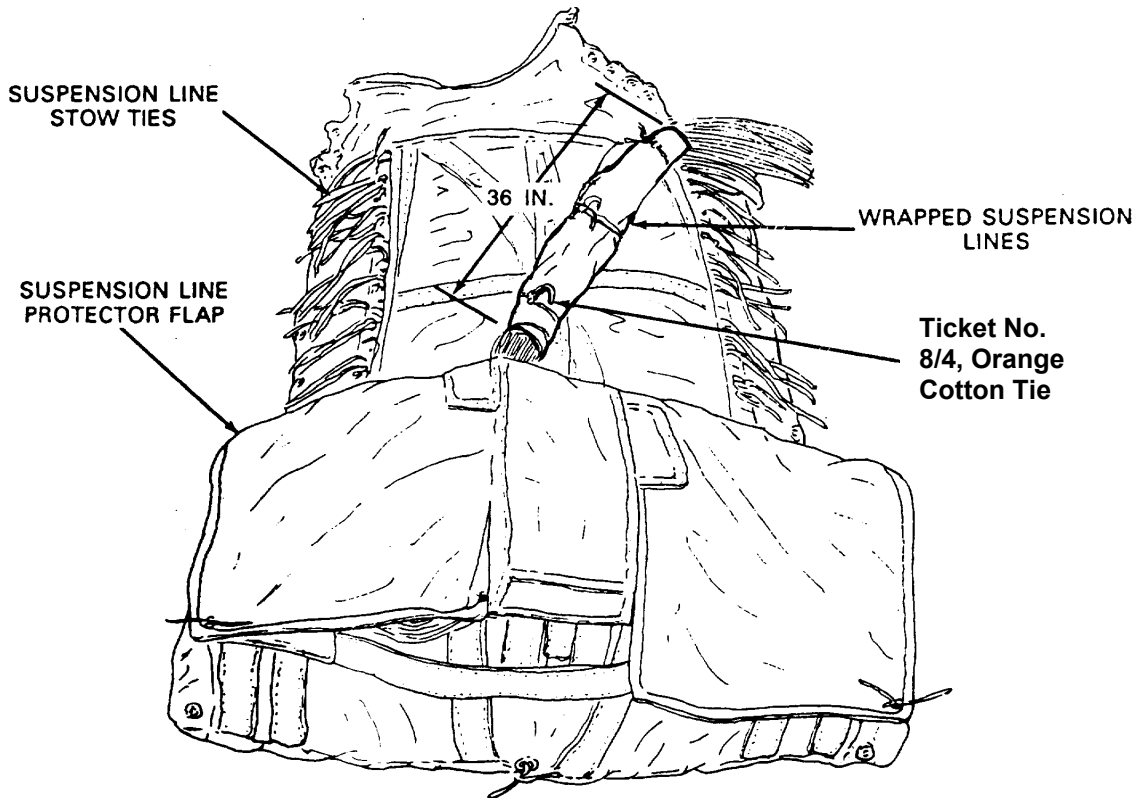
#### 14. Installing suspension line stow ties.

- a. Cut a minimum of thirty-six 18-inch lengths of ¼-inch wide, type I cotton webbing for use as suspension line stow ties.
- b. Secure the webbing lengths at equal intervals along each row of side strap loops by making a girth hitch in each webbing length. Ensure the ends of each webbing length are aligned and positioned toward the respective outer edge of the deployment bag.

#### 15. Wrapping the suspension lines.

- a. Extend the suspension lines along the top center of the deployment bag toward the bridle end of the bag.
- b. Using a 12-inch wide by 36-inch long piece of kraft paper, wrap the suspension lines extended along the top center of the deployment bag.

- c. Secure each end and the middle of the suspension line wrap with one turn single ticket No. 8/4, orange cotton thread.
- d. Secure each thread end with a surgeon's knot and locking knot. Ensure the suspension lines are not inadvertently secured to the center loop strap on top of the deployment bag.
- e. Trim tie ends to 2-inches.

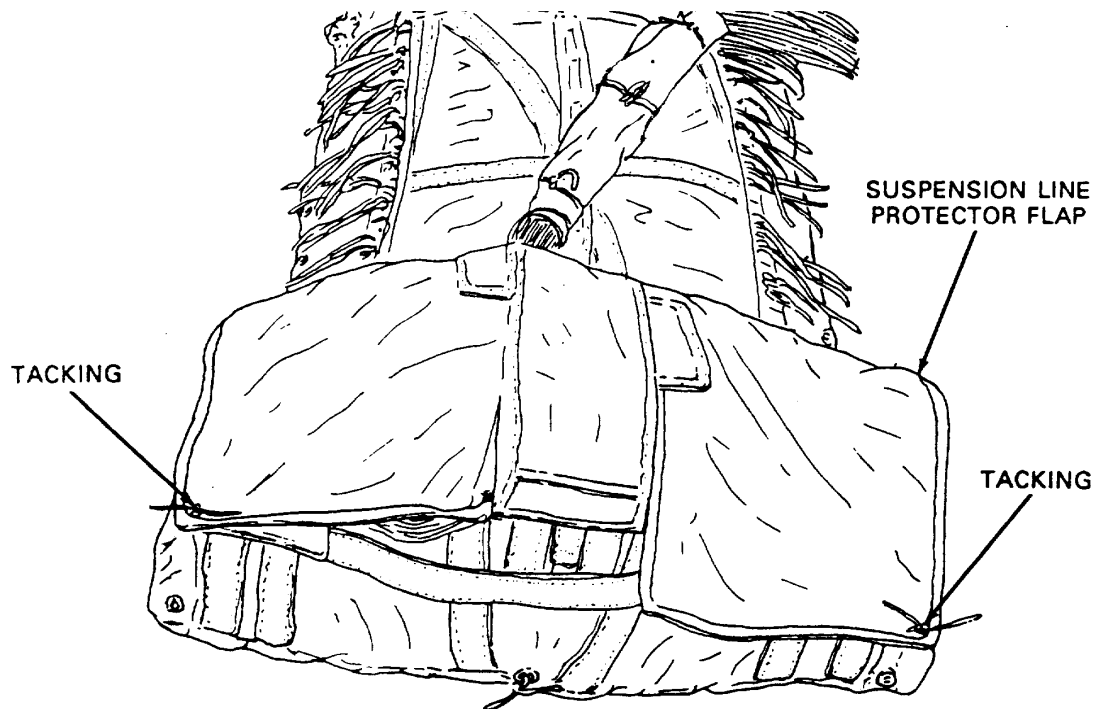


**NOTE**

If the suspension line protector flap is damaged, it may be removed from the deployment bag. Remove by cutting the flap material as close to the deployment bag body as possible.

- 16. Tacking the suspension line protector flap.
  - a. Extend the deployment bag suspension line protector flap over the locking stows.
  - b. Secure each lower outside corner of the suspension line protector flap to the deployment bag by hand tacking using one turn single, orange cotton thread ticket No. 8/4 at each tacking point.
  - c. Pass the tacking needle through the deployment bag outside edge of the reinforcement strap and the protective flap edge reinforcement.

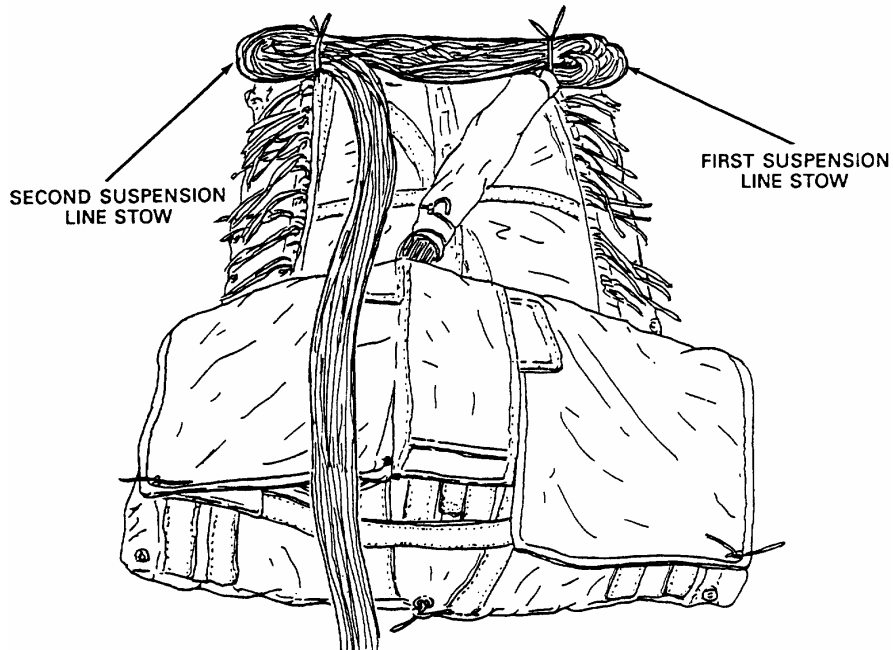
- d. Secure the tacking ends at each tacking point with a surgeon's knot and locking knot.
- e. Trim tie ends to 2-inches.



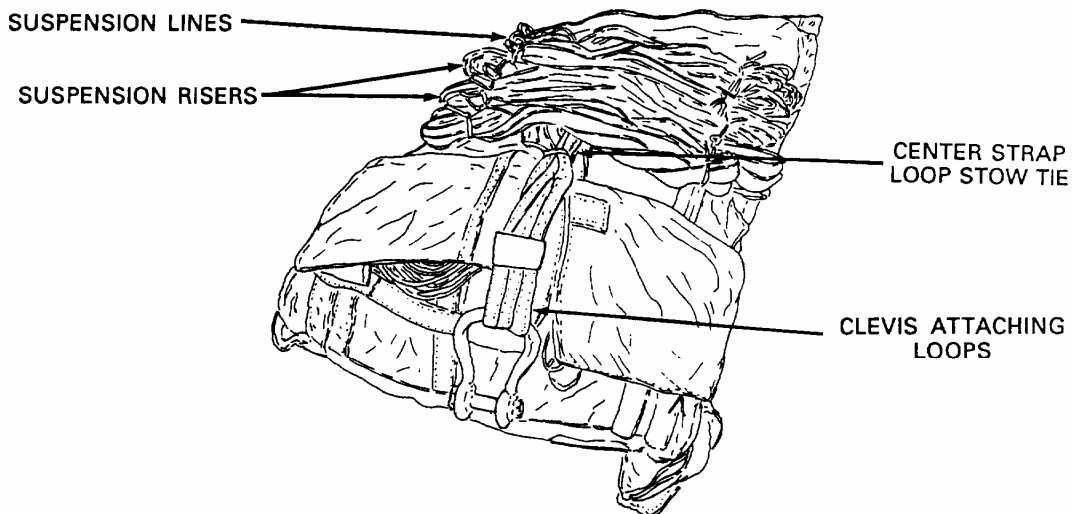
17. Stowing the suspension lines and suspension risers.

- a. Extend the running end of the suspension lines to the upper right corner of the deployment bag.
- b. Measure to the right edge of the stowage compartment and form the first suspension line stow by making a loop in the suspension lines.
- c. Secure the first suspension line stow to the upper right outside strap loop using the first stow tie.
- d. Secure the stow tie with a surgeon's knot and locking knot.
- e. Rigger check number 5.
- f. Extend the running end of the suspension lines across the deployment bag to the upper left corner of the deployment bag.
- g. Measuring to the left edge of the stowage compartment, form the second suspension line stow by making a loop in the suspension lines.
- h. Secure the second suspension line stow to the upper left outside strap loop using the second stow tie.

- i. Secure the stow tie with a surgeon's knot and locking knot.

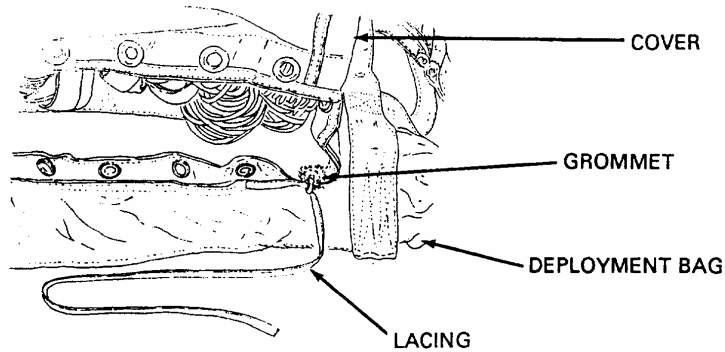


- j. Using the procedures in (a) through (i), stow the remaining length of suspension lines and the suspension risers to a point 6 to 10-inches from the clevis attaching loops on the end of the suspension risers.
- k. Install an additional stow tie on the center strap loop in order to route the suspension risers from the center of the bag.
- l. Trim all ties to 2-inches.
- m. Remove excess ties.

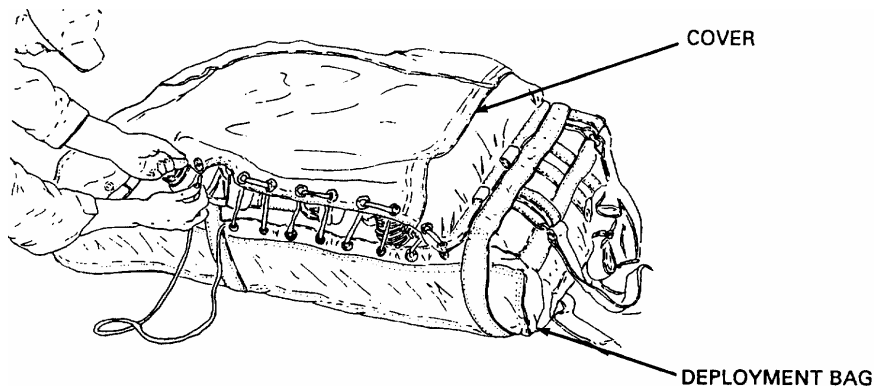


18. Lacing the deployment bag.

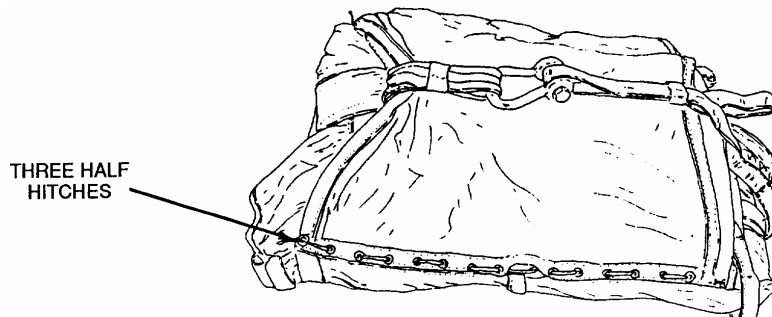
- a. Bring the suspension line protector flap down over the stowed suspension lines and suspension risers. The grommets on the flap sides should overlap the grommets on the side of the deployment bag.
- b. Cut two 60-inch lengths of 1/4-inch cotton webbing for use as lacing ties.
- c. Secure an end of each webbing length to the first grommet located on the bottom corner of the deployment bag upper corners with two half-hitches.



- d. With a packer positioned on each side of the deployment bag and using the lacing tie running end, lace the flap to the deployment bag main body, grommet over grommet.



- e. Secure the lacing tie free end to the last lace with three half-hitches. Trim the tie ends to 2 inches.



NOTE

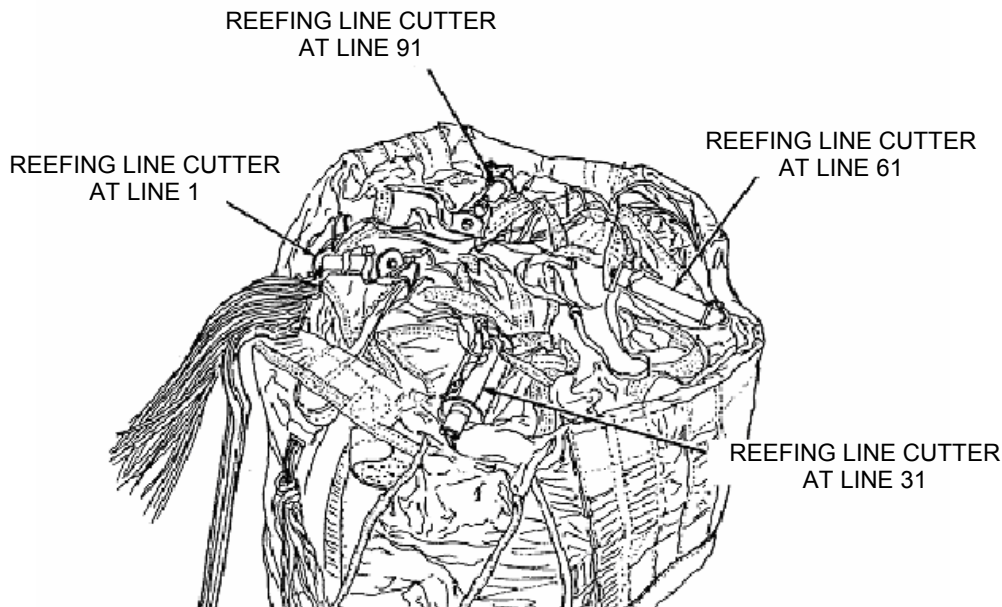
Proceed to LOG RECORD BOOK ENTRIES below for log book entries.

NOTE

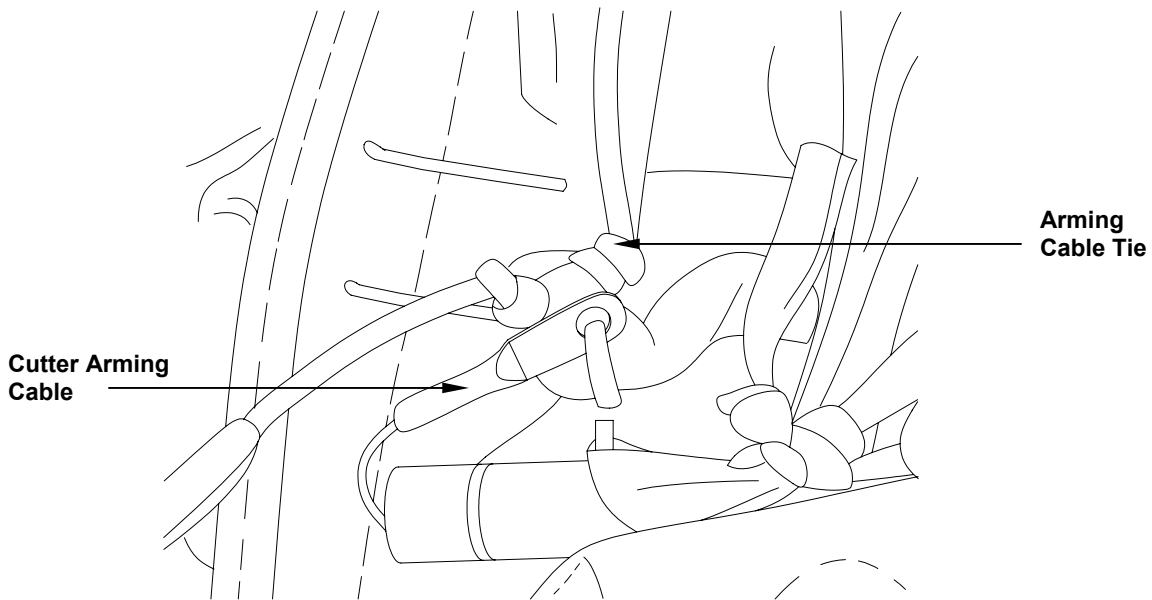
Paragraphs (19) through (26) will be used when packing the G-11D in the nylon deployment bag.

19. Arming the reefing line cutters.

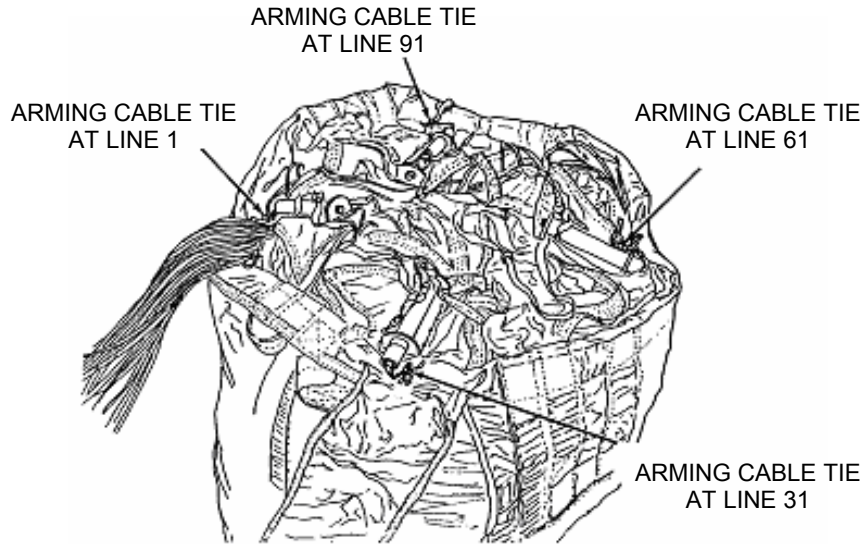
- a. Position the four reefing line cutters on top of the stowed canopy with the cutter at suspension line 61 placed adjacent to the arming loop on the bag bottom, the cutter at suspension line 31 placed adjacent to the arming loop on the left side of the deployment bag, the cutter at suspension line 91 placed adjacent to the arming loop on the right side of the deployment bag and the cutter at suspension line 1 placed adjacent to the arming loop on the bag top.



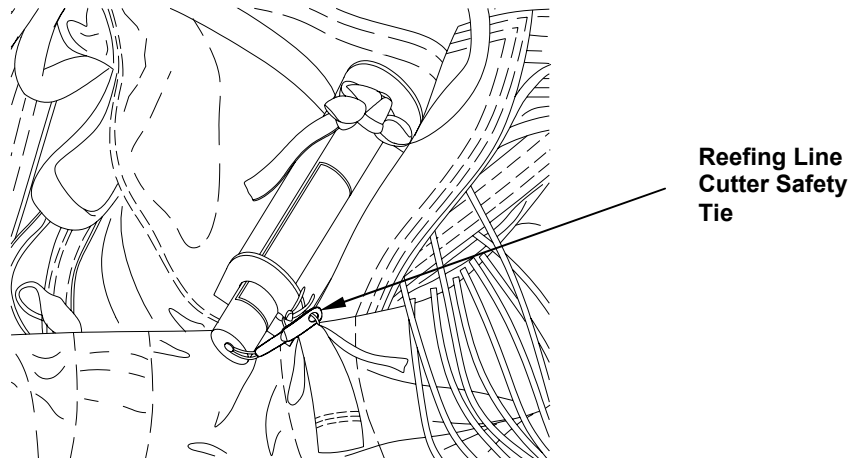
- b. Cut four 12-inch lengths of type III nylon cord for use as arming cable ties.
- c. Beginning with the reefing line cutter at line 1 near the bag top, pass the end of one cord through the reefing line cutter arming cable and through the arming loop on the bag top.
- d. Draw the cord tight and secure the cord ends with a surgeon's knot and locking knot.
- e. Trim the tie ends at a point 2-inches from the surgeon's knot and locking knot.



- f. On the left side of the deployment bag, arm the reefing line cutter at line 31, pass the end of one of the cord through the hole in the top of the reefing line arming cable and through the arming loop located on the left side of the deployment bag.
- g. Draw the ends of the tie tight and secure the ends with a surgeon's knot and locking knot.
- h. Trim the tie ends 2-inches from the surgeon's knot and locking knot.
- i. On the right side of the deployment bag, arm the reefing line cutter at line 91, pass the end of one of the cord through the hole in the top of the reefing line arming cable and through the arming loop located on the right side of the deployment bag.
- j. Draw the ends of the tie tight and secure the cord ends with a surgeon's knot and locking knot.
- k. Trim the tie ends at a point 2-inches from the surgeon's knot and locking knot.
- l. Using the remaining cord length on the reefing line cutter at line 61 near the bag bottom, pass one end of the cord through the hole in top of the reefing line arming cable and through the arming loop.
- m. Draw the ends of the tie tight and secure the ends with a surgeon's knot and locking knot.
- n. Trim tie ends 2-inches from the surgeon's knot and locking knot.
- o. Rigger check number 4.



20. Installing reefing line cutter safety ties. To prevent premature firing of a reefing line cutter while stowing the suspension lines, install a safety tie on each of the reefing line cutters and remove the safety cotter pins as follows:
- Using a length of one turn double, ticket No. 8/7 cotton thread, pass one end of the doubled thread through the slot in the reefing line cutter bracket, through the hole in the top of the reefing line arming cable, and draw the tie ends tight.
  - Secure the safety tie with a surgeon's knot and locking knot.
  - Trim tie ends to 2-inches.



- The senior packer will annotate each cutter tag with the reefing line cutter lot number/serial number and parachute pack date. After these entries have been made, the senior packer will sign each tag.



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**CAUTION**

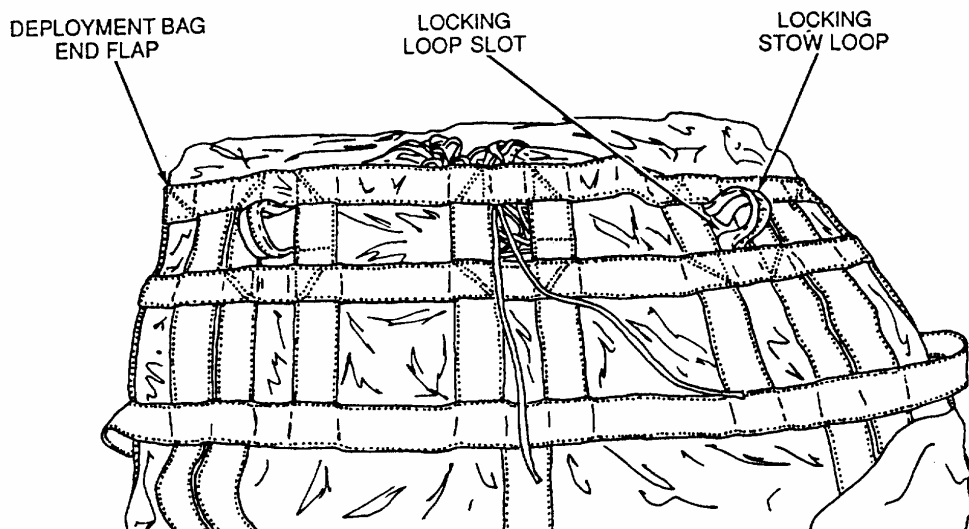

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Failure to remove the cutter cotter pins will cause malfunction of the parachute.

- e. Remove the safety cotter pin and tag from each reefing line cutter. Fold the tags lengthwise and stow safety pins and tags in the parachute inspection data pocket within the log record book.

21. Closing the nylon deployment bag.

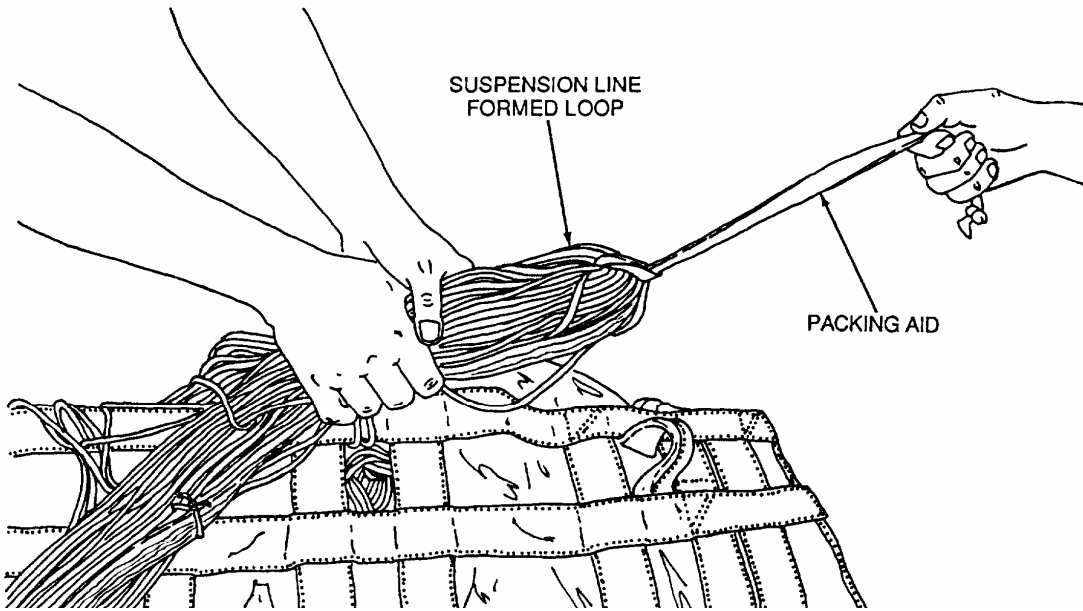
- a. Bring the suspension lines up over the top of the deployment bag and close the side flaps.
- b. Cut an 18-inch length of ¼-inch type I cotton webbing and girth hitch the webbing length in the deployment bag top center loop strap.
- c. Bring the large end flap of the deployment bag over the bag end and pull the locking loops up through the locking loop slots.
- d. Pull the ¼-inch wide cotton webbing ends on the center loop strap through the top center opening on the end flap.



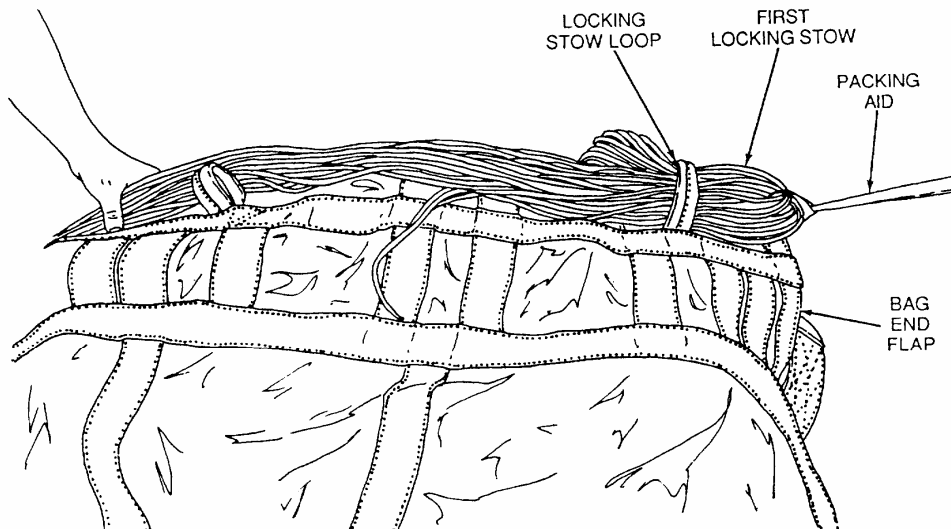
- e. Secure with a temporary bow knot.

22. Making locking stows.

- a. Cut a 36-inch length of ½-inch wide tubular nylon webbing, or equivalent, for use as packing aid in making the locking stows.
- b. Double the webbing length and make an overhand knot in the aligned ends.
- c. Fold the suspension lines back over the large end flap and measure and form a loop in the lines that will extend to the right edge of the bag large flap.
- d. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.

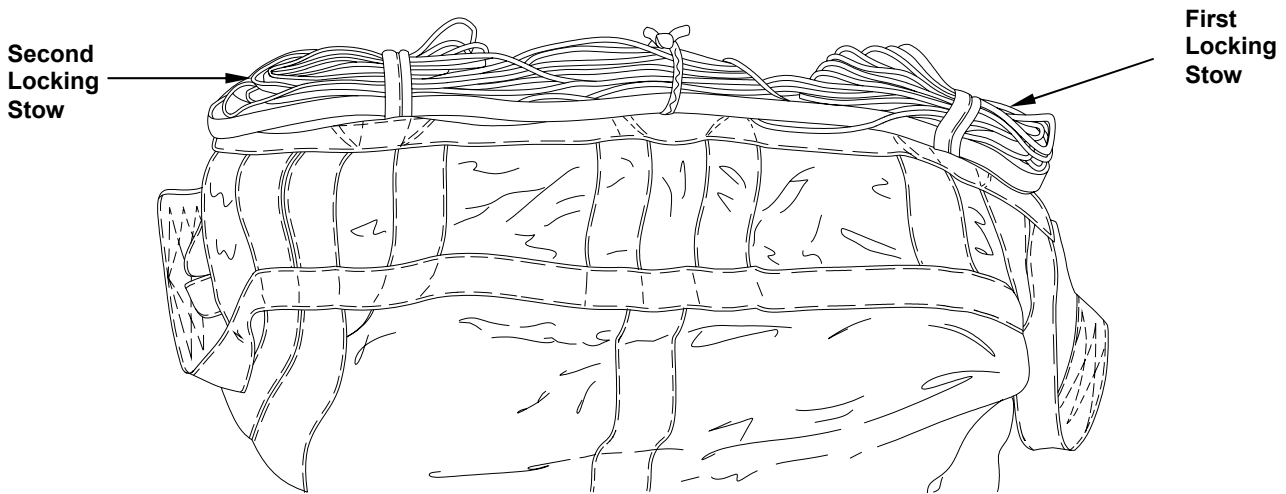


- e. Thread the knotted end of the packing aid through the locking stow loop located at the upper right corner of the deployment bag.
- f. Pull the suspension line formed loop until the loop is aligned with the right edge of the bag large end flap.
- g. Remove the packing aid.



- h. Extend the running end of the suspension lines and center line to the locking stow loop at the lower left corner of the deployment bag and measure and form a loop in the lines.
- i. Using the packing aid, encircle the formed loop in the suspension lines and make a girth hitch in the packing aid.

- j. Thread the knotted end of the packing aid through the locking stow loop located at the upper left corner of the deployment bag.
- k. Pull the suspension line formed loop until the loop is aligned with the left edge of the bag large end flap.
- l. Remove the packing aid.
- m. Secure the first two locking stows by tying the suspension lines together at a point between the two stows. Use the ¼-inch wide cotton webbing previously installed.
- n. Make the tie one turn single and secure with a surgeon's knot and locking knot.
- o. Trim tie ends to two-inches.

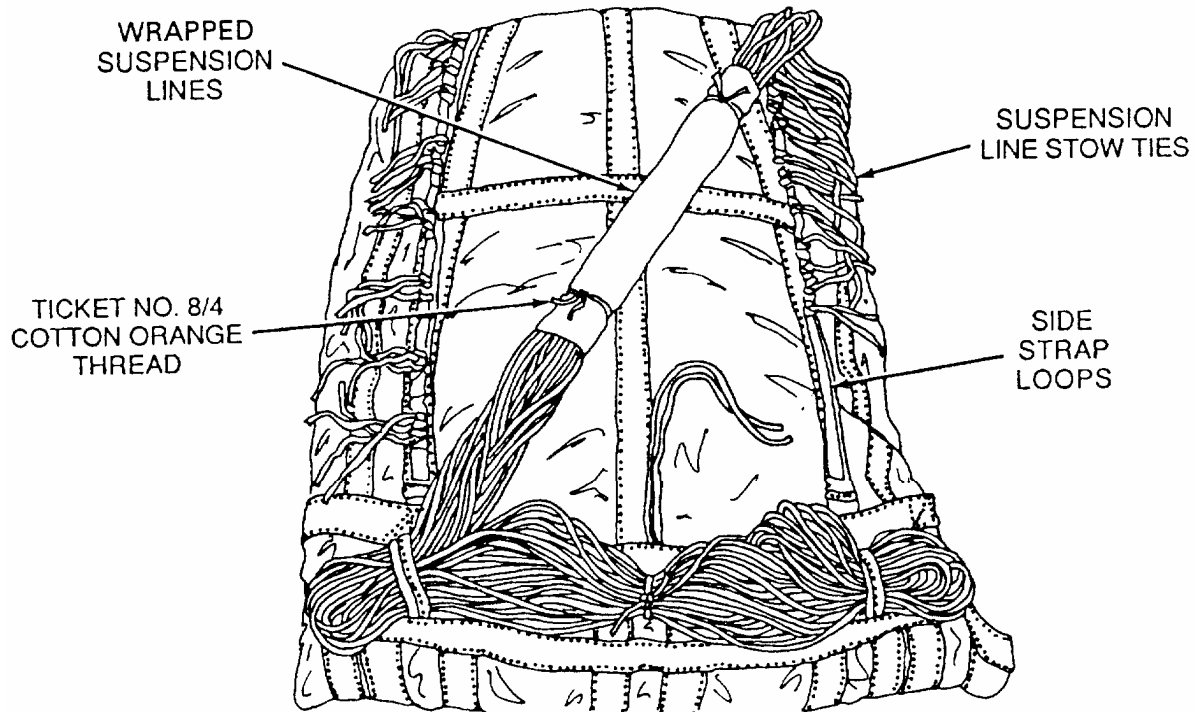


23. Installing suspension line stow ties.

- a. Cut a minimum of thirty-two 18-inch lengths of ¼-inch wide, type I cotton webbing for use as suspension line stow ties.
- b. Secure the webbing lengths two per loop along each row of side strap loops by making a girth hitch in each webbing length. Ensure the ends of each webbing length are aligned and positioned toward the respective outer edge of the deployment bag.

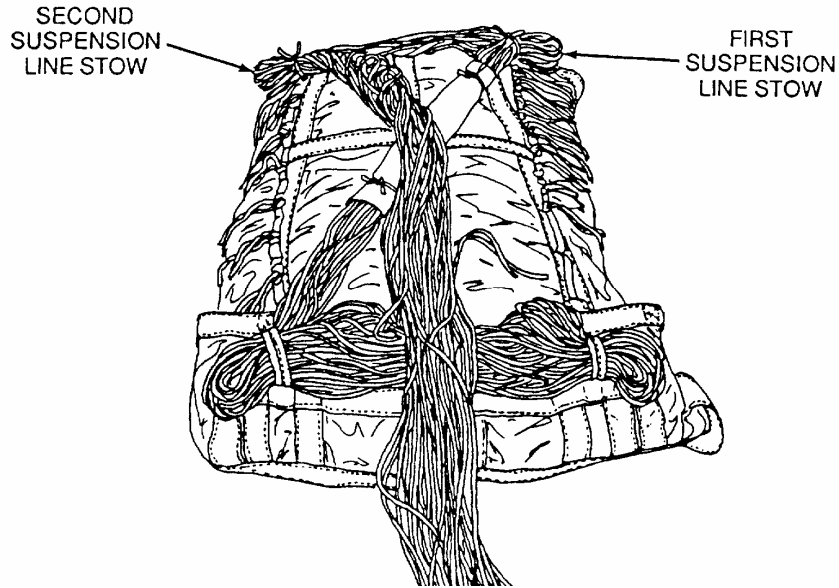
24. Wrapping the suspension lines.

- a. Extend the suspension lines along the top center of the deployment bag toward the bridle end of the bag.
- b. Using a 12-inch wide by 36-inch long piece of kraft paper, wrap the suspension lines extended along the top center of the deployment bag.
- c. Secure each end of the suspension line wrap with one turn single ticket No. 8/4 cotton orange thread.
- d. Secure each thread end with a surgeon's knot and locking knot.
- e. Trim tie ends to 2-inches.

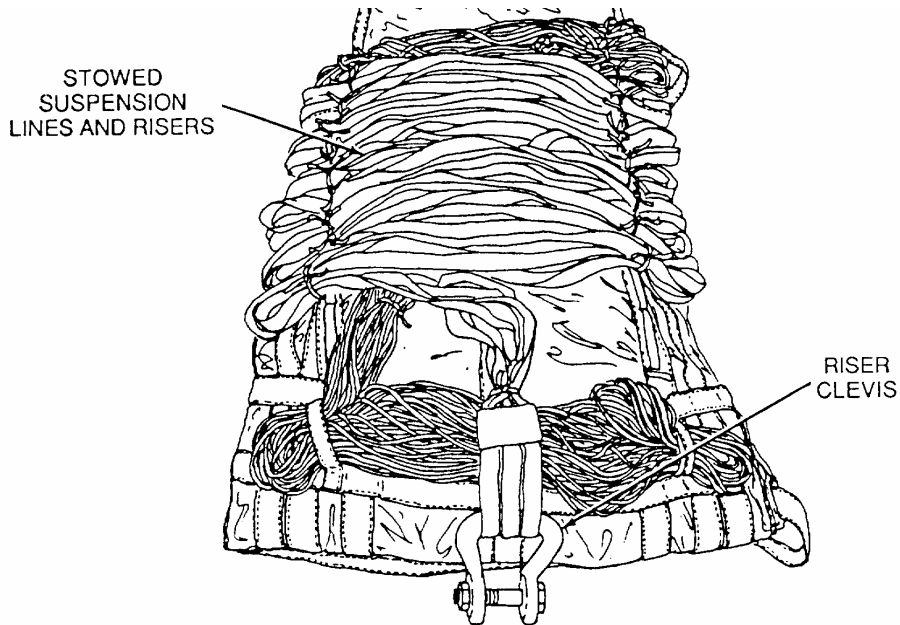


25. Stowing the suspension lines and suspension risers.

- a. Extend the running end of the suspension lines to the lower right corner of the deployment bag.
- b. Measuring to the right edge of the stowage compartment, form the first suspension line stow by making a loop in the lines.
- c. Secure the first suspension line stow to the lower right outside strap loop using the first stow tie.
- d. Secure the stow tie with a surgeon's knot and locking knot.
- e. Rigger check number 5.
- f. Extend the running end of the suspension lines across the deployment bag to the lower left corner of the deployment bag.
- g. Measuring to the left edge of the stowage compartment, form the second suspension line stow by making a loop in the lines.
- h. Secure the second suspension line stow to the lower left outside strap loop using the first stow tie.
- i. Secure the stow tie with a surgeon's knot and locking knot.

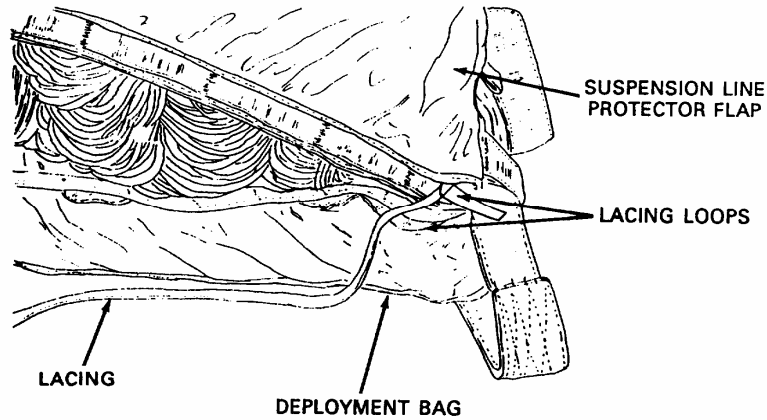


- j. Using the procedures in (a) through (i), above, stow the remaining length of suspension lines, and the suspension risers to a point 6 to 10-inches from the clevis attaching loops on the end of the suspension risers.
- k. Install an additional stow tie on the center strap loop in order to route the suspension risers from the center of the bag.
- l. Trim all ties to 2-inches.
- m. Remove unused ties.

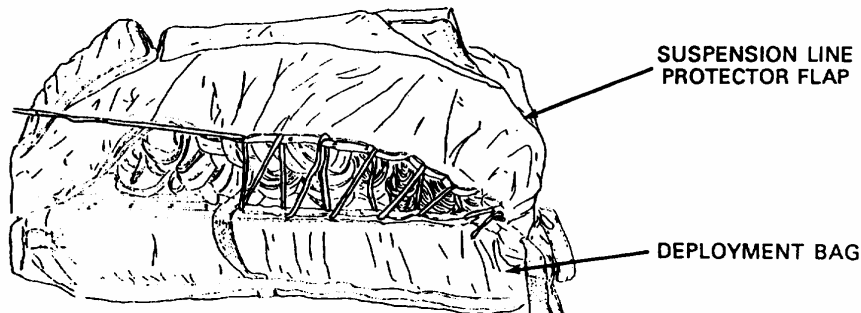


26. Lacing the nylon deployment bag.

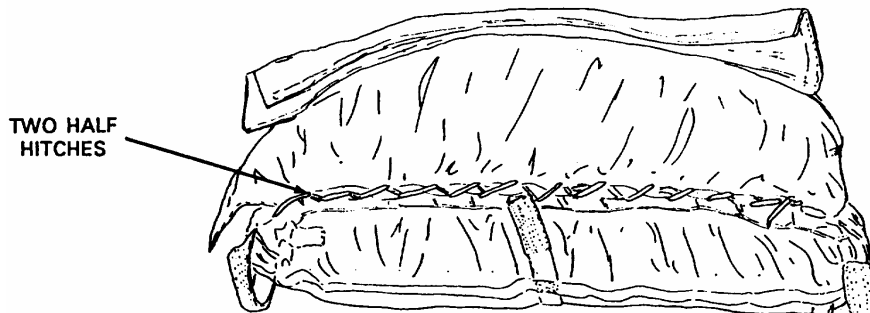
- a. Bring the suspension line protector flap across the stowed suspension lines and suspension risers.
- b. Cut a 70-inch length of ¼-inch cotton webbing for use as lacing tie.
- c. Secure an end of the webbing length to the first loop located on the bottom corner of the deployment bag left upper corner with two half-hitches.



- d. Using the lacing tie running end, lace the flap to the deployment bag main body.



- e. Secure the lacing tie free end to the last lace with two half-hitches.



- f. Rigger check number 6.

27. Log record book entries.

**CAUTION**

The inspector **MUST** ensure that the reefing line cutter tag entries match those made in the log record book. Inspect the cutter tags for the current date and verify that the signature on the tags is that of the senior packer of the parachute.

**NOTE**

The log record book must be modified for use on the G-11D cargo parachute. On the "Jump, Inspection and Repack Data" page, change "BAG NUMBER" to "LOT/SER NUMBER". Senior packer's signature **MUST** be legible.

- a. Remove the log record (DA Form 3912, AFTO 391, and Navy WPNCEN or Navy WPNS CL 13512/11) from the parachute inspection data pocket (log record book pocket) located on the riser.
- b. Make entries on the "Jump, Inspection and Repack Data" page as follows:
- (1) Date. Enter the pack day, month, and year.
  - (2) Lot/Ser Number. Enter the lot number or serial number of the reefing line cutters that are being used for this repack.
  - (3) Routine inspection. No entry required.
  - (4) Jumps or dropped. No entry required.
  - (5) Repack. For initial packing, enter IN; thereafter, enter a checkmark in the column each time the parachute is repacked.
  - (6) Packer's Name. The senior packer will place his or her signature in this column.
  - (7) Inspector's Name. The inspector who performed the pack-in-process inspection will sign this entry.
  - (8) Unit. Enter the unit designation to which the packer and/or inspector are assigned.
- c. Return the log record book with four (4) cotter pins and tags to the log record book pocket upon completion of all required entries.
- d. Route the log record pocket tie cord through the closing loops at the bottom of the pocket and secure the tie cord ends with a square knot.

**NOTE**

Stow riser extension in accordance with FM 4-20.102 (FM 10-500-2).

28. Closing the riser extension flap.

- a. Temporarily secure the riser extension flap until riser extension has been stowed. Secure the flap at each corner and at the center with ¼-inch cotton webbing.
- b. Remove the temporary ties, open riser extension flap and stow riser extension.
- c. Bring the riser extension flap across the stowed riser extension.
- d. Cut a 36-inch length of ¼-inch cotton webbing for use as a lacing tie.
- e. With two half-hitches, secure an end of the webbing length to the first loop on the deployment bag main body at the right upper corner.
- f. Using the lacing tie running end, lace the riser extension cover flap to the deployment bag main body.
- g. Secure the lacing tie free end to the last lace with two half-hitches.

**END OF WORK PACKAGE**



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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**SEWING PROCEDURES**

---

**THIS TASK COVERS:**

- Basting and Temporary Tacking
  - Stitching and Restitching
  - Darning
  - Zig-Zag Sewing
- 

**Tools**

Specified in paragraph applicable to the item being repaired.

**Personnel Required**

92R (10) Parachute Rigger

**Materials/Parts**

Specified in paragraph applicable to the item being repaired.

**Equipment Condition**

Unpacked. Cleaned canopy with defects recorded.

**References**

DA PAM 738-751; WP 0015 00; WP 0065 00

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**NOTE**

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

**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 which 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. When basting, do not tie knots at any point in the thread length. Also, the sewing should be made with two stitches per inch.
3. Temporary tacking will usually be done using a length of size E nylon thread (Item 41/42, WP 0059 00). However, an alternate type thread may be specified within the paragraph applicable to the item.
4. Immediately upon completion of a repair, remove previously made basting or temporary tacking stitches.

**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. Zig-zag stitching does not require locking; however, zig-zag 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: Zig-zag; 308 stitch; medium-duty; NSN 3530-01-181-1421.
LD ZZ	SEWING MACHINE, INDUSTRIAL: Zig-zag; 308 stitch; light-duty; NSN 3530-01-181-1420.
HD	SEWING MACHINE, INDUSTRIAL: General sewing; 301 stitch; heavy-duty; NSN 3530-01-177-8588.
MD	SEWING MACHINE, INDUSTRIAL: General sewing; 301 stitch; medium-duty; NSN 3530-01-177-8591.
DN	SEWING MACHINE, INDUSTRIAL: Darning; lock stitch; NSN 3530-01-177-8589.
LHD	SEWING MACHINE, INDUSTRIAL: 301 stitch; light, heavy-duty; NSN 3530-01-186-3079.
ND	SEWING MACHINE, INDUSTRIAL: 301 stitch; double needle; NSN 3530-01-182-2873.

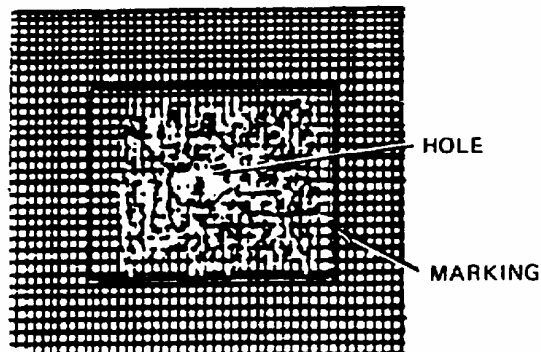
**Table 2. Stitching and Restitching Specifications**

COMPONENT	RECOMMENDED SEWING MACHINE (CODE SYMBOL)	STITCHES PER INCH	THREAD SIZE
Canopy			
Gore panel	LD DN	7 to 11 Darn	E E
Canopy line	MD ZZ	7 to 11	E
Suspension line	MD ZZ	7 to 11	E
Radial line	MD ZZ	7 to 11	E
Vent line	MD ZZ	7 to 11	E
Vent Reinforcement Band (upper/lower lateral band)	MD	7 to 11	E
Attaching loop (bridle loop)	HD	5 to 8	3
Parachute inspection data pocket	LD	7 to 11	E
Tie cord loop	ZZ	7 to 11	E
Tie cord	ZZ	7 to 11	E
Pocket band	ZZ	7 to 11	E
Cutter bracket panel reinforcement	LD	7 to 11	E
Radial line reinforcement tape	MD ZZ	7 to 11	E
Radial seam	LD	7 to 11	E
Reefing ring retainer	ZZ	7 to 11	E
Suspension riser	HD	5 to 8	6
V-tab	LD MD ZZ	7 to 11 7 to 11	E E
Deployment bag bridle	HD	5 to 8	6
Deployment bag	MD	7 to 11	FF
Panels and flaps	MD	7 to 11	FF
Bag body	MD HD DN HD	7 to 11 5 to 8 Darn 5 to 8	E 6 E 3
Bag cover	MD DN	7 to 11 Darn	E E
Suspension line protector flap	MD DN	7 to 11 Darn	E E
Edge binding	MD	7 to 11	E
Locking stow loop	HD	5 to 8	6
Center line	HD	5 to 8	6

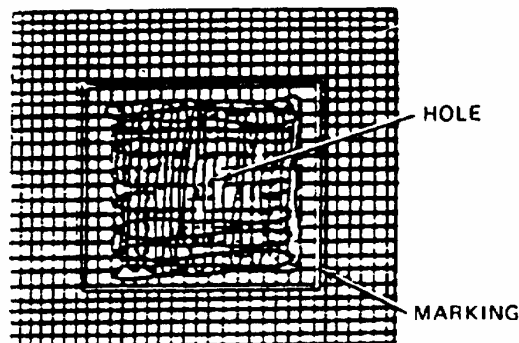
- a. Other parachute items. Stitching and restitching on other parachute items constructed from cloth, canvas, and webbing should be accomplished with thread that matches the color of the original stitching, when possible. Backstitching at least  $\frac{1}{2}$ -inch should lock all straight stitching. Restitching should be locked by overstitching each end of the stitch formation by  $\frac{1}{2}$ -inch. Zig-zag stitching does not require locking; however, zig-zag restitching should extend at least  $\frac{1}{4}$ -inch into undamaged stitching at each end, when possible. Restitching should be made directly over the original stitching, following the original stitch pattern as closely as possible.
2. Darning. (Refer to Tables 1 and Table 2.) Darning is a sewing procedure used to repair limited size holes, rips, and tears in assorted airdrop items constructed from textile material such as parachute canopy gore sections and the cloth and reinforcement webbing of packs. A darning repair may be made either by hand or 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. Darning of previously patched material can be performed provided darning size limitations prescribed in the paragraph applicable to the item are not exceeded. A darning repair will be performed using the following procedures, as appropriate:

a. Machine darning. Proceed as follows:

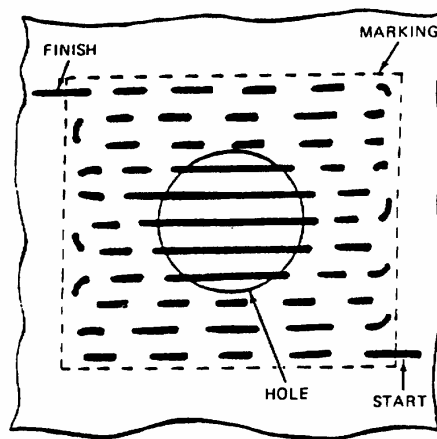
- (1) Using an authorized marking aid of contrasting color, mark a square around the damaged area and ensure that the marking is at least  $\frac{1}{4}$ -inch back from each edge of the damaged area. The marking will be made with the warp and the filling of the material.
- (2) Darn the damaged area by sewing the material in a back-and-forth manner, using size A or E nylon thread, allowing the stitching to run with the warp or filling of the fabric.



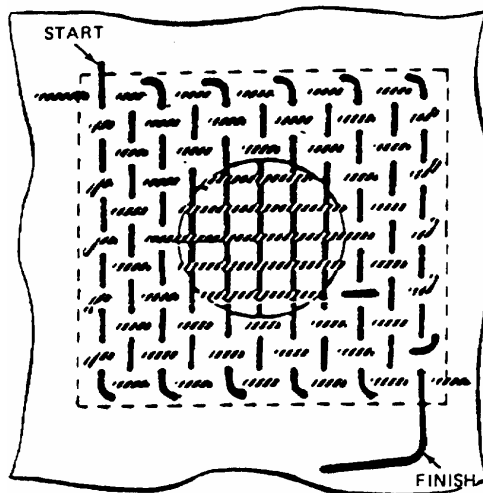
- (3) Turn the material and stitch back and forth across the stitching made in (2) above until the hole or tear is completely darned.



- (4) If applicable, restencil informational data, gore number(s), or identification marks using the criteria in WP 0015 00, SEARING AND WAXING.
- b. Hand darning. When repair of a hole or tear is made by hand darning, the darn should match the original weave of the damaged material as closely as possible. Hand darning will be performed as follows:
- (1) 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 edge of the damaged area. The marking will be made with the warp and the filling of the material.
  - (2) Using a darning needle and a length of size A or E nylon thread, begin darning at one corner of the marked area. Working in the direction of the fabric warp or filling, pass the needle and thread back and forth, through the material until the opposite diagonal corner of the marked area is reached.



- (3) Turn the material and weave the needle and thread back and forth across the stitching made in (2), above, until the hole is completely darned.

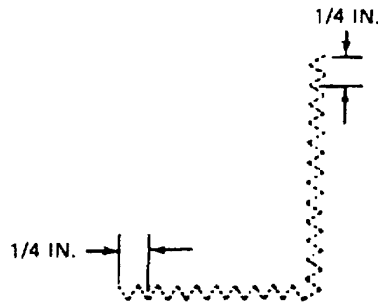


- (4) If applicable, restencil informational data or identification marks as outlined in WP 0015 00, SEARING AND WAXING.
- 3. Zig-Zag Sewing. (Refer to Table 1 and Table 2.) Airdrop items, except parachute canopies, made from textile materials that have sustained cut or tear damage may be repaired by zig-zag sewing provided the applicable damaged area does not have any material missing and the cut or tear is straight or L-shaped. Should the damaged area be irregular shaped or have material missing, the repair will be achieved by either darning or patching, as required. A zig-zag sewing repair will be accomplished with a zig-zag sewing machine, using the following procedures:
  - a. Set the sewing machine to the maximum stitch width.
  - b. Beginning at a point ¼-inch beyond one end of the cut or tear, stitch lengthwise along the damaged area to a point ¼-inch beyond the opposite end of the cut or tear.



**STRAIGHT CUT OR TEAR STITCHING**

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



**SHAPED CUT OR TEAR STITCHING**

- d. If applicable, restencil informational data or identification marks as prescribed in WP 0015 00, SEARING AND WAXING.

**END OF WORK PACKAGE**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**SEARING AND WAXING**

---

**THIS TASK COVERS:**

- Searing
  - Waxing
- 

**Tools**

Knife, Hot, Metal (Item 8, WP 0050 00)  
Pot, Melting, Electric (Item 16, WP 0050 00)

**Materials/Parts**

Beeswax, Technical (Item 1, WP 0059 00)  
Wax, Paraffin (Item 43, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Unpacked.

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**CAUTION**

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

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**NOTE**

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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 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.

**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**





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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**MARKING AND RESTENCILLING**

---

**THIS TASK COVERS:**

- Marking
  - Restencilling
  - Remarking and Restencilling
- 

**Tools**

Brush, Stenciling (Item 4, WP 0050 00)  
Knife (Item 7, WP 0050 00)  
Machine, Stencil Cutting (Item 11, WP 0050 00)

**Materials/Parts**

Ink, Marking, Parachute, Strata-Blue (Item 17, WP 0059 00)  
Marker, Felt Tip, Black (Item 20, WP 0059 00)  
Pen, Ballpoint (Item 24, WP 0059 00)  
Stencilboard, Oiled (Item 26, WP 0059 00)

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**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Laid out on packing table or other suitable area.

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**NOTE**

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

**REMARKING AND RESTENCILING**

Remark or restencil 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**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**PARACHUTE CANOPY**

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**THIS TASK COVERS:**

- Repair
  - Replace
- 

**Equipment Condition**

Cleaned (WP 0008 00).  
Inspected (WP 0009 00).  
Unpacked, canopy laid flat.

**Personnel Required**

92R (10) Parachute Rigger

**References**

WP 0050 00, MAC

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**REPAIR**

Refer to individual component/assembly repairs and replacement procedures and MAC, WP 0050 00.

**REPLACE**

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

**END OF WORK PACKAGE**



**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**ATTACHING LOOP (BRIDLE LOOP)**

**THIS TASK COVERS:**

- Repair
- Replace

**Tools**

Knife (Item 7, WP 0050 00)  
 Pot, Melting, Electric (Item 16, WP 0050 00)  
 Sewing Machine, Heavy-Duty (Item 21, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
 Inspected (WP 0009 00).  
 Unpacked, canopy laid flat.

**Materials/Parts**

Marker, Felt-Tip, Black (Item 20, WP 0059 00)  
 Thread, Nylon, Size 3, OD (Item 38, WP 0059 00)  
 Webbing, Nylon, Type VIII, OD (Item 50, WP 0059 00)

**Reference**

WP 0011 00; WP 0012 00; WP 0013 00; WP 0014 00

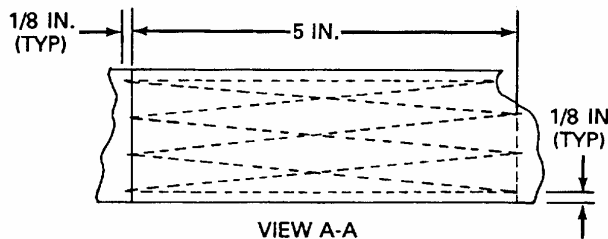
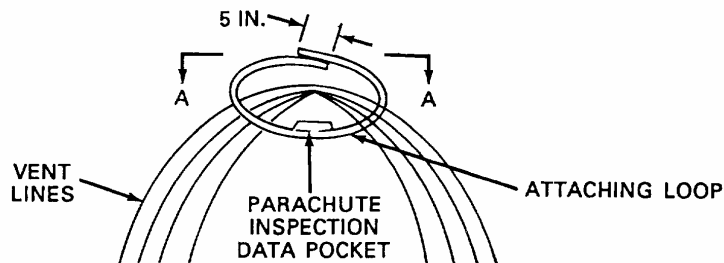
**REPAIR**

Restitch broken or loose stitching over the original stitching by following the original stitch pattern as closely as possible using the procedures detailed in WP 0014 00 sewing procedures.

**REPLACE**

Replace a damaged or missing attachment loop as follows:

1. Cut a 30-inch length of 1 3/4-inch wide, type VIII, nylon webbing and sear the ends.
2. Pass one end of the webbing length through the canopy vent lines and join the webbing ends together above the vent lines with a 5-inch long overlap. Ensure the webbing encircles all the canopy vent lines.



3. Secure the overlapped webbing ends together by stitching a 5-inch long four-point WW-stitch formation,  $\frac{1}{8}$ -inch in from each side edge. Overstitch each webbing end by  $\frac{1}{8}$ -inch. Stitching will be made in accordance with WP 0014 00, SEWING PROCEDURES, using a heavy-duty sewing machine and size 3 nylon thread. Stitching will be 5 to 8 stitches per inch.
4. Remove the original canopy attaching loop (bridle loop) from around the canopy vent lines cutting loop the webbing, as required.

NOTE

G-11A model parachutes that have been converted to G-11Bs may contain an original bridal loop with a parachute inspection data pocket.

5. If the original parachute inspection data pocket (log record pocket) is serviceable, remove the pocket from the damaged attaching loop (bridle loop) by cutting the tacking which secures the pocket to the loop webbing.
6. Install the pocket on the replacement attaching loop (bridle loop) according to original installation details, and the applicable tacking specifics detailed in WP 0014 00, BASTING AND TEMPORARY TACKING.

**END OF WORK PACKAGE**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**VENT REINFORCEMENT BAND (UPPER LATERAL BAND)**

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**THIS TASK COVERS:**

- Repair
- 

**Tools**

Knife (Item 7, WP 0050 00)  
Knife, Hot Metal (Item 8, WP 0050 00)  
Pot, Melting, Electric (Item 16, WP 0050 00)  
Sewing Machine, Medium-Duty (Item 23, WP 0050 00)  
Shears (Item 25, WP 0050 00)

**Materials/Parts**

Beeswax, Technical (Item 1, WP 0059 00)  
Marking, Aid (Item 21/22, WP 0059 00)  
Thread, Nylon, Size E (Item 41/42, WP 0059 00)  
Wax, Paraffin (Item 43, WP 0059 00)  
Webbing, Nylon, Tubular, Type I, 1-IN., OD (Item 47, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
Inspected (WP 0009 00).  
Unpacked, canopy laid flat.

**References**

WP 0014 00, WP 0015 00

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**REPAIR**

1. Restitch broken or loose medium using a medium sewing machine and size E nylon thread according to sewing procedures in WP 0014 00. Stitch over original stitch pattern. Lock each row of stitches two-inches at each end.
2. Splicing. Repair as follows:

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**NOTE**

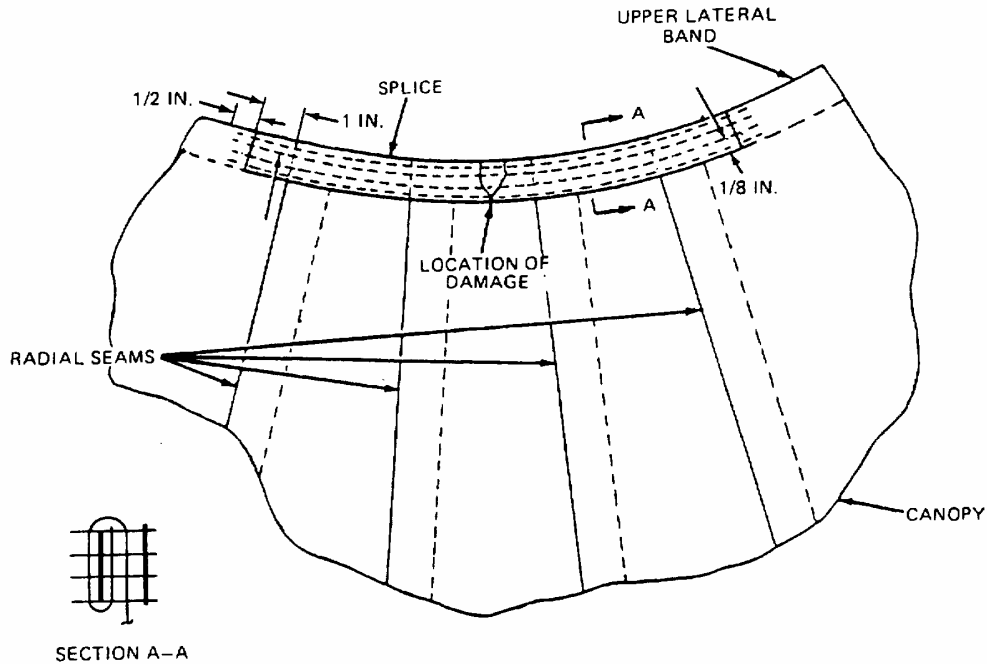
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Vent reinforcement bands may be spliced only once and will not be replaced.

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

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

- (5) Center webbing on damaged area. Using a medium-duty sewing machine and size E nylon thread, sew webbing in place with four continuous rows of stitching  $\frac{1}{8}$ -inch from edge of webbing, and 7 to 11 stitches per inch.
- (6) Overstitch ends of webbing by  $\frac{1}{2}$ -inch.

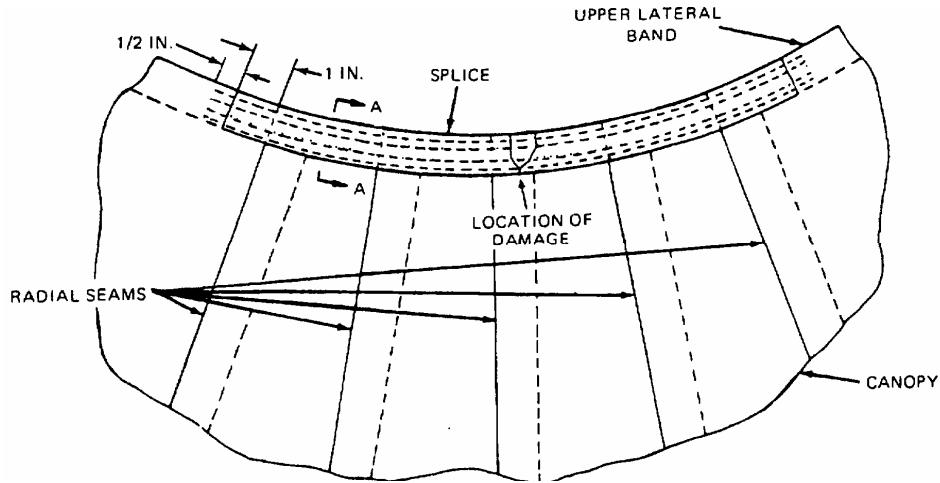


**Damage Between Radial Seams**

- (7) Reposition vent lines and sew them in place according to WP 0044 00.
- b. Damage extending into radial seam. Repair as follows:
- (1) Mark vent line position and cut stitching of vent line attached to damaged radial seam and the stitching of two vent lines on each side of damaged seam.
  - (2) Move lines to one side.
  - (3) Smooth canopy around damaged area.
  - (4) Cut a piece of 1-inch tubular nylon webbing long enough to extend 1-inch beyond outside edge of second radial seam on each side of damaged area.
  - (5) Wax ends of webbing (WP 0015 00, SEARING AND WAXING).
  - (6) Center webbing over damaged area.



- (7) Using a medium-duty sewing machine and size E nylon thread, sew webbing in place with four continuous rows of stitching,  $\frac{1}{8}$ -inch from edge of webbing, then another  $\frac{1}{8}$ -inch from the those lines of stitching, 7 to 11 stitches per inch.
- (8) Overstitch ends of webbing by  $\frac{1}{2}$ -inch.



- (9) Reposition vent lines and sew in place according to WP 0044 00, canopy line.

**END OF WORK PACKAGE**



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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**GORE SECTION**


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**THIS TASK COVERS:**

- Repair
- 

**Tools**

Brush, Stenciling (Item 4, WP 0050 00)  
 Knife (Item 7, WP 0050 00)  
 Needle, Tacking (Item 13, WP 0050 00)  
 Sewing Machine, Darning (Item 20, WP 0050 00)  
 Sewing Machine, Light-Duty (Item 22, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
 Inspected (WP 0009 00).  
 Unpacked, parachute laid out on table.

**Materials/Parts**

Cloth, Nylon, Parachute Mending, Adhesive (Item 8, WP 0059 00)  
 Cloth, Nylon, Parachute, Type II, 1.6 Oz. (Item 9, WP 0059 00)  
 Cloth, Nylon, Parachute, Type III, 1.6Oz (Item 10, WP 0059 00)  
 Marking Aid (Item 21/22, WP 0059 00)  
 Pushpins (Local Purchase)  
 Thread, Nylon, Size E (Item 41/42, WP 0059 00)

**References**

WP 0014 00 and WP 0016 00

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**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 two-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.
  - a. Limitations. The following limitations apply to the 100-foot cargo parachute.

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**CAUTION**


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

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**NOTE**


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When repairing parachute canopies, cloth nylon, parachute, 1.6 Oz., type II (twill weave) or type III (ripstop nylon) may be used in lieu of each other.

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

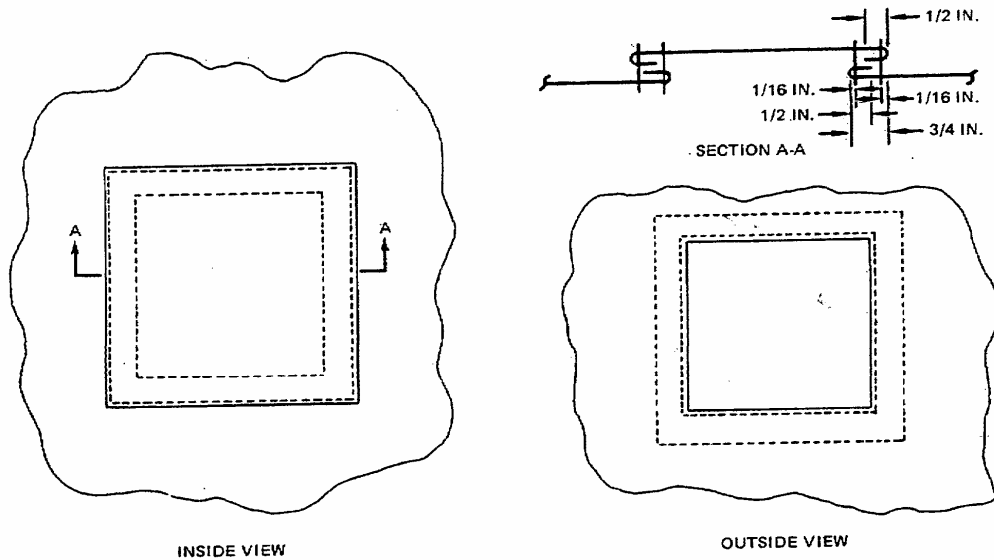
- (2) There is no limitation to the number of patches or size of patch to each canopy gore section or gore panel. However, determination should be made of the most economical method to be used, i.e., two or more patches versus one large patch or one large patch versus a section replacement. A patch applied to a parachute canopy may extend from radial seam to radial seam.
- b. Making a basic patch. A basic patch is used to repair damaged cloth when the affected area is no closer than 1-inch from a radial seam or lower lateral band. Should a damaged area be closer than 1-inch to the cited areas, a miscellaneous patch will be made as detailed in paragraph c., below. There are two methods that may be used to apply a basic patch and the procedures for performing each method are outlined in paragraphs a. and b. as follows:

**NOTE**

Sewn patches on the canopy will be applied to the inside and may be square or rectangular 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 applicable item repair paragraph for proper procedures.

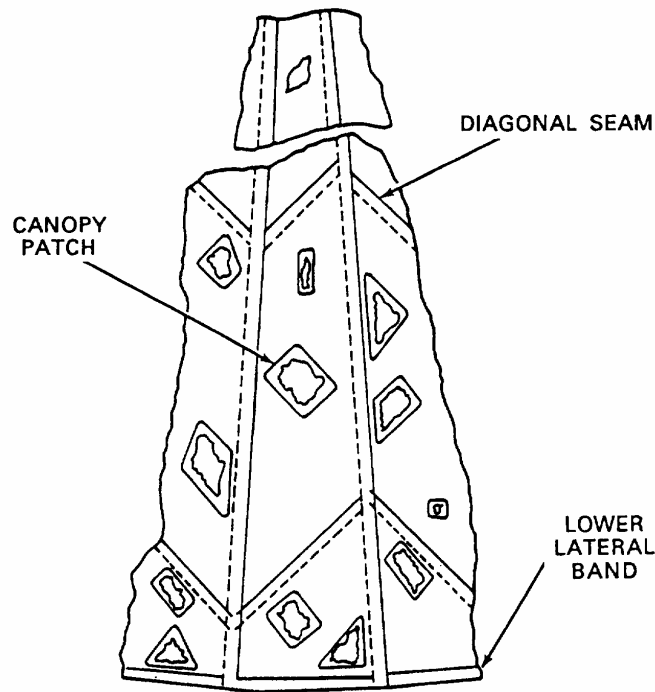
- c. Sewn patches. The primary method of applying a basic patch is by sewing. When using this method of patching on a parachute canopy, the patch will be applied to the inside of the canopy. Apply a sewn patch as follows:



- (1) Place the reparable item on a repair table, smooth the fabric around the damaged area and secure the item to the table with pushpins. Do not pin the damaged area.
  - (2) Using an authorized marking aid of contrasting color, mark a square or rectangle around the area to be patched and ensure one side of marked square is parallel to warp or filling of the material.
  - (3) Cut the damaged area fabric along lines made in step (2) above.
  - (4) Further cut the fabric diagonally at each corner to allow a ½-inch foldback in the raw edges.
  - (5) Make a ½-inch foldback on each raw edge.
  - (6) Pin and baste each foldback to complete prepared hole. Basting will be performed using procedures in WP 0014 00, SEWING PROCEDURES.
  - (7) Using authorized material, mark and cut a patch 2½-inches wider and longer than inside measurements of prepared hole.
  - (8) Center patch material over prepared hole and ensure warp or filling of patch material matches warp or filling of fabric being patched.
  - (9) Pin patch material in position.
  - (10) Make a ½-inch fold under on each edge of patch material and baste patch to prepared area. Basting will be performed using procedures in WP 0014 00, SEWING PROCEDURES.
  - (11) Remove pushpins securing item to the repair table and secure patch by stitching, using the applicable details in the illustrations on the following pages and the stitching specifics outlined in Table 2, WP 0014 00.
  - (12) Make first row of stitching completely around patch.
  - (13) Turn the canopy over and make a second row of stitching around prepared hole. Stitching will be performed in accordance with WP 0014 00.
  - (14) If applicable, restencil informational data or gore number according to procedures in Marking and Restenciling, WP 0016 00.
- d. The parachute mending cloth patch. A second method of applying a basic patch is by use of a 36-inch wide adhesive nylon parachute mending cloth. Patching limitations as outlined PATCHING LIMITATIONS detailed above, shall be adhered to. Apply a parachute mending cloth patch as follows (refer to the illustration on the following page):

**NOTE**

Age life for the nylon parachute mending cloth, prior to application, is three years from the date of adhesive coating which is marked on each roll of mending cloth.



- (1) Lay out the canopy with the damaged area exposed.
- (2) To facilitate the application of the mending cloth patch, place a ½- by 20-inch smooth wooden board or similar smooth, hard-finished, rigid material (except paper board) under the damaged area.
- (3) Trim the ragged, frayed, or severely burned areas of the canopy cloth to provide a smooth area for patch application.
- (4) Using an authorized marking aid of contrasting color, mark a square, triangle, or rectangle, as applicable, around the damaged area.
- (5) Measure and cut lengths of the mending cloth to achieve the shape and size of the intended patch. Cut the patch to provide an overlap of the damaged area using the specifications in table 3. Round-off the corners of the patch. Patches will be prepared in duplicate to allow for application on the inside and outside of the canopy.
- (6) Remove the paper backing from the adhesive side of the mending cloth by forming a crease; score the paper with a fingernail, and peel the paper from the adhesive coating. Ensure the mending cloth is not damaged when scoring the paper backing.
- (7) Smooth the canopy material adjacent to the damaged area on the canopy outside; place the formed mending cloth patch over the damaged area.

- (8) Using the edge of a packing paddle (or a roller), apply pressure to smooth the patch on.
- (9) Apply the duplicate-shaped patch to the damaged area on the inside of the canopy, using the procedures in steps 6. and 7., above.

**Table 3. Mending Cloth Patching Specifications**

DAMAGED AREA SIZE	PATCH MINIMUM SIZE
1-inch to 1½-inches	2-inches
1½-inches to 2-inches	3½-inches
2-inches to 3-inches	4½-inches
3-inches to 5-inches	9-inches
5-inches to 7-inches	10-inches
7-inches to 12-inches	15½-inches
12-inches to 15 ½-inches	19½-inches

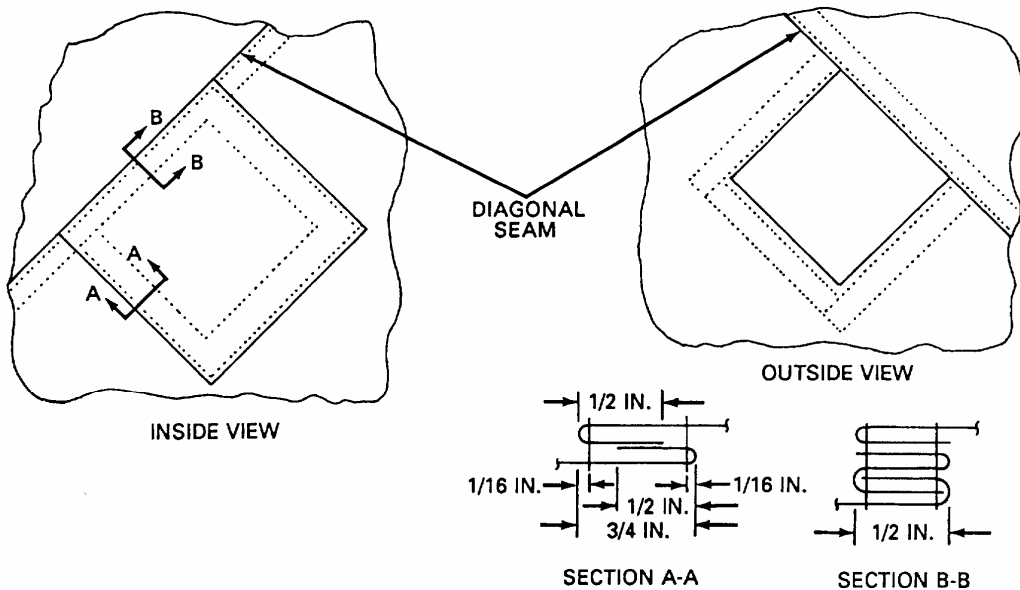
- e. Applying a miscellaneous canopy patch. A miscellaneous canopy patch, which may be irregularly shaped, is used to repair damaged canopy material when the location of the damaged area requires the patch to extend into (or over) a seam, reinforcement, or lateral band. Ascertain the type of patch required for the canopy, using the details in the illustrations that follow the canopy patch procedures detailed below. Apply a miscellaneous patch to a gore section as follows:

**NOTE**

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

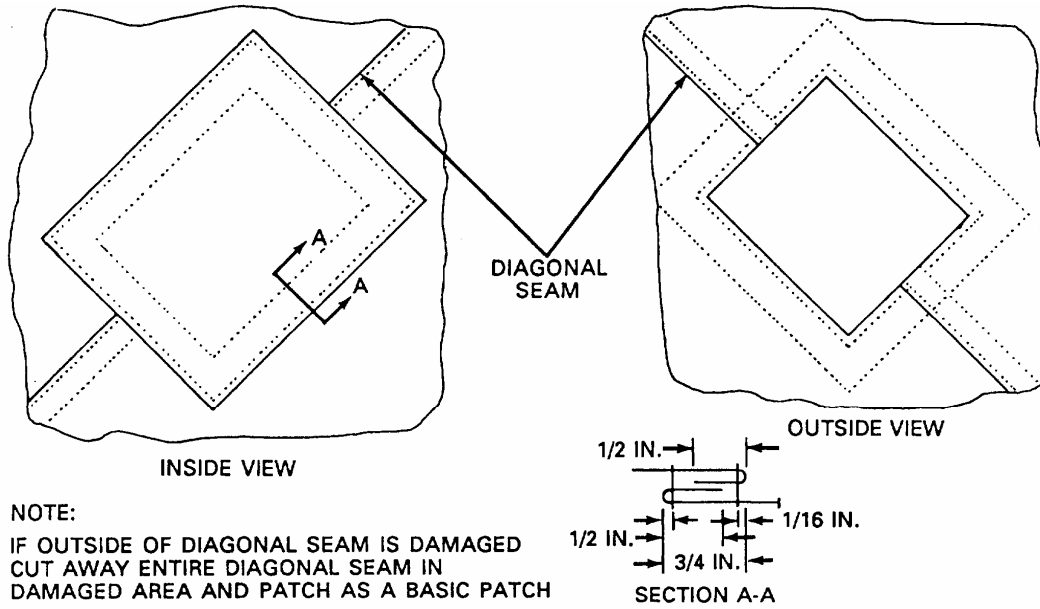
- f. Place the canopy inside out on a repair table; smooth the fabric around the damaged area, and secure the damaged gore section to the table with pushpins. Do not pin the damaged area of the gore section.
- g. As required, cut the applicable stitching to remove or lay aside items that may interfere with the patching process.
- h. Using an authorized marking aid of contrasting color, mark a rectangle or triangle around the damaged area. Make the mark ½-inch from any adjacent seam, reinforcement, or lateral band. Ensure that one side of the marked rectangle or triangle is parallel to the warp or filling of the canopy material.
- i. Prepare the damaged area by cutting along the marks made in c., above. Also make a diagonal cut at each corner of the formed hole to permit a ½-inch foldback of each raw edge.

- j. To complete hole preparation, make a ½-inch foldback of each raw edge. Pin and baste each edge foldback; use the procedures in the BASTING AND TEMPORARY TACKING paragraph detailed above.
  - k. Using the same type of material as in the original canopy construction, mark and cut a patch 2½-inches wider and longer than the inside measurements of the prepared hole.
  - l. Center the patch material over the prepared hole. Ensure the warp or filling of the patch material matches the warp or filling of the material to be patched. Pin the patch material in position.
  - m. Make a ½-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 the BASTING AND TEMPORARY TACKING paragraph detailed above.
  - n. Remove the pushpins securing the canopy to the repair table and secure the patch by stitching according to the details illustrated below, and using the stitching specifics outlined in tables 1 and 2.
  - o. Make the first row of stitching completely around the edges of the patch 1/16 inch from the edge. Turn the canopy right-side-out and make a second row of stitching around the edges of the prepared hole 1/16 inch from the edge. Stitching will be performed in accordance with the STITCHING AND RESTITCHING paragraph detailed in WP 0014 00.
  - p. Reposition the canopy items removed or laid aside in step b., to their original location and secure each item to the canopy by restitching according to the applicable WP and the STITCHING AND RESTITCHING paragraph detailed in WP 0014 00.
4. Restenciling. As required, restencil identification markings using procedures in WP 0016 00, MARKING AND STENCILLING.

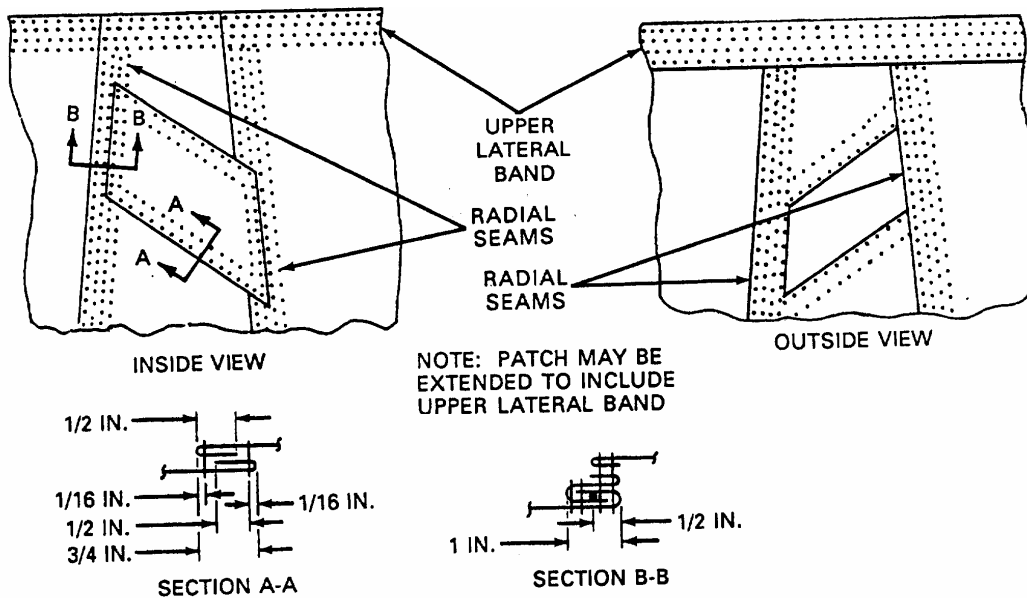


**Rectangular Patch Including a Diagonal Seam**

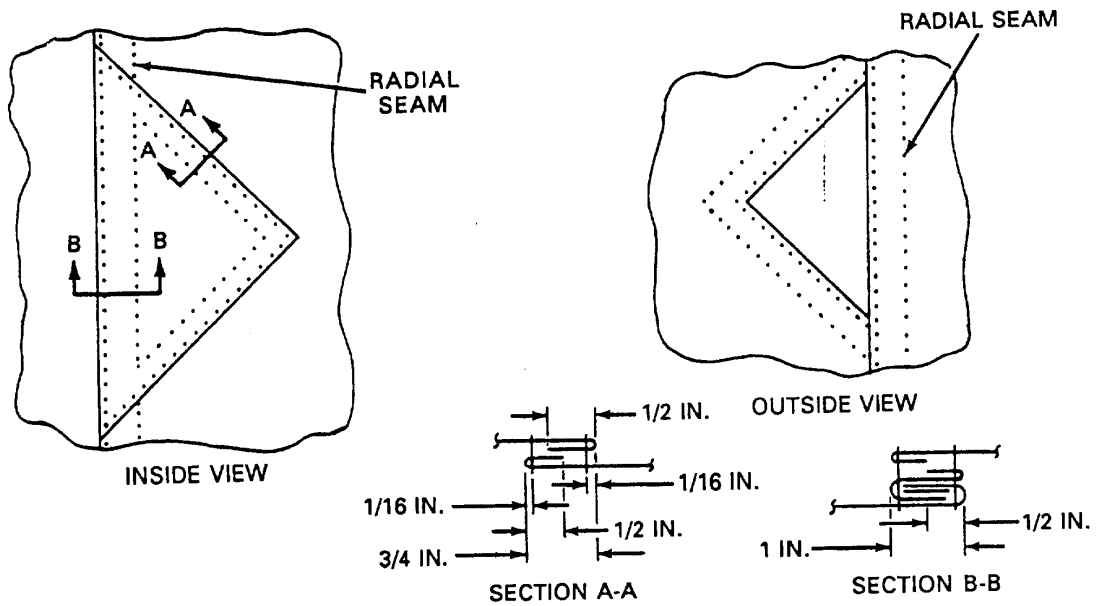




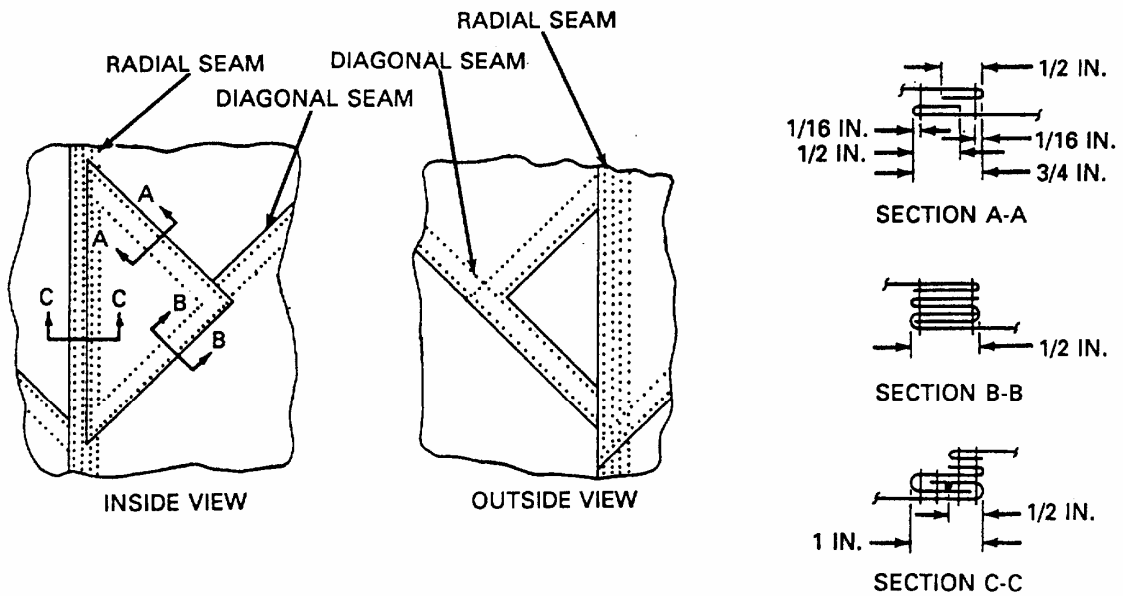
**Rectangular Patch Crossing a Diagonal Seam**



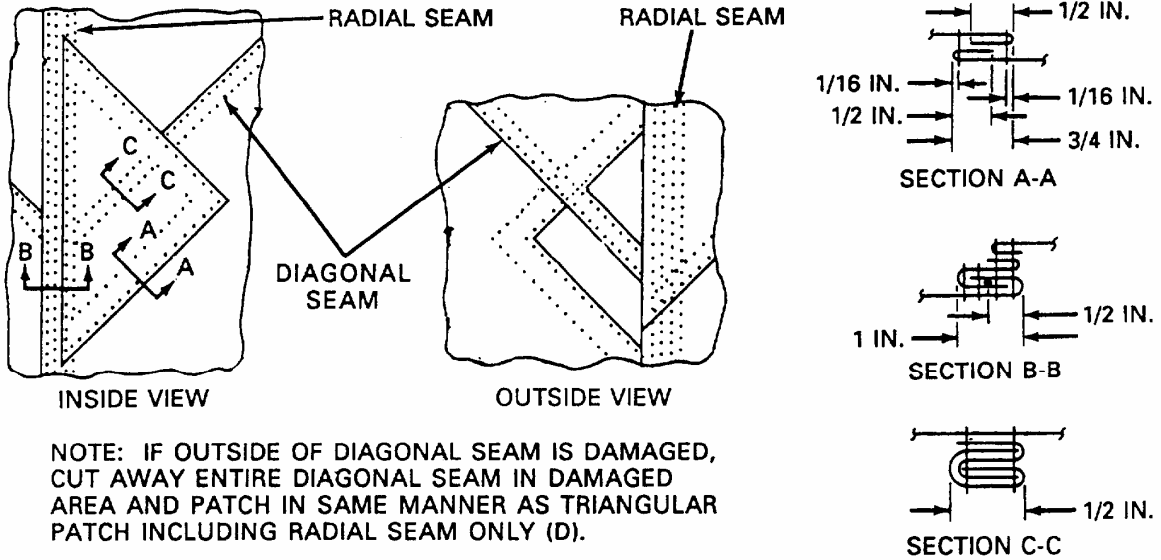
**Irregular Shaped Patch Including Two Radial Seams, Continuous Line Canopy**



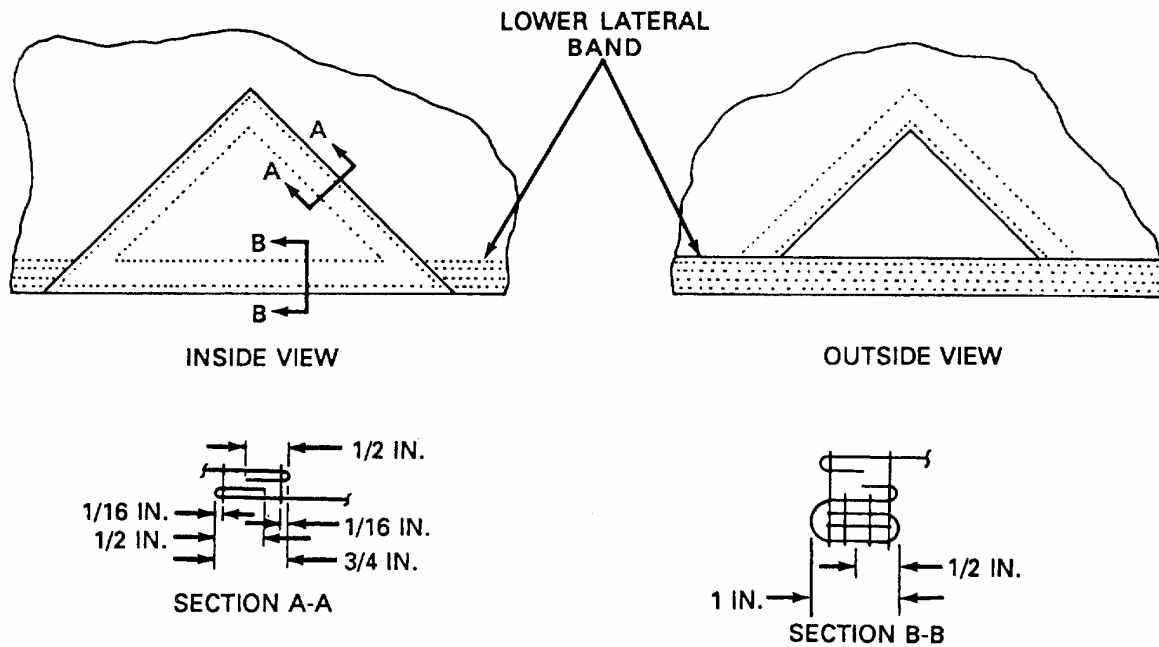
Triangular Patch Including Radial Seam, Non-continuous Line Canopy



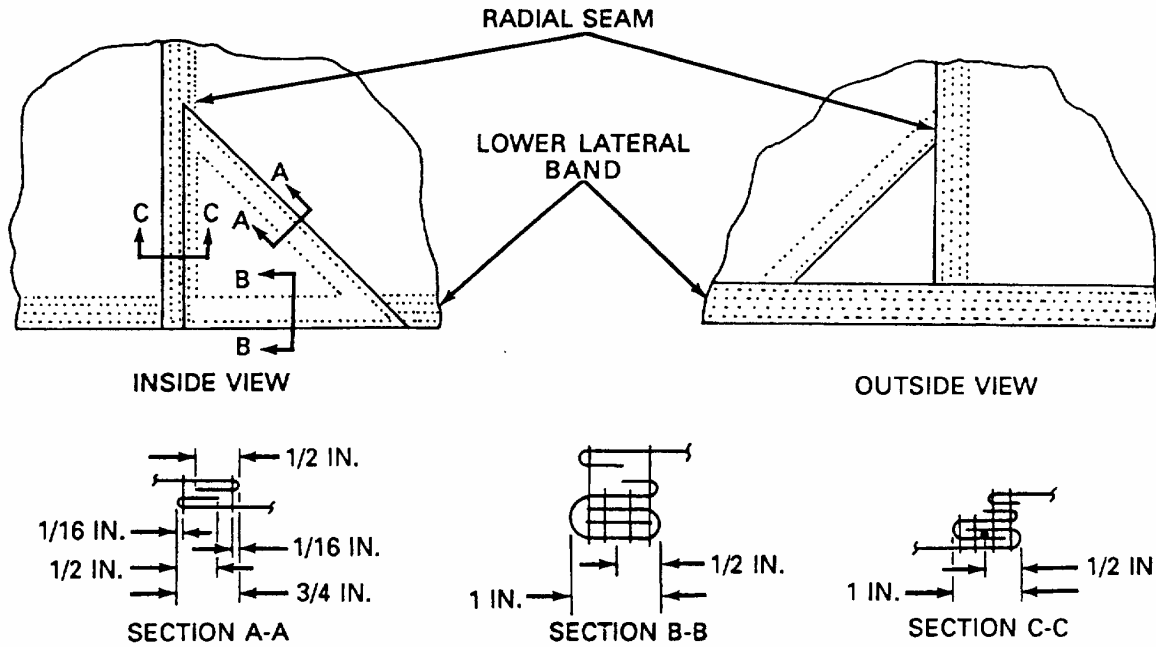
Triangular Patch Including a Radial Seam and a Diagonal Seam, Continuous Line Canopy



Triangular Patch Crossing Diagonal Seam and Including Radial Seam, Continuous Line Canopy



Triangular Patch Including Lower Lateral Band



Triangular Patch Including Radial Seam and Lower Lateral Band, Continuous Line Canopy

END OF WORK PACKAGE

---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**CANOPY LINE**

---

**THIS TASK COVERS:**

- Repair
- 

**Tools**

Sewing Machine, Medium-Duty zig-zag (Item 25, WP 0050 00)

**Materials/Parts**

Cord, Nylon, Type III (Item 12/13, WP 0059 00)  
 Thread, Nylon, Size E (Item 41/42, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
 Inspected (WP 0009 00).  
 Unpacked, canopy laid out flat  
 on repair table.

**References**

WP 0012 00

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**GENERAL**

A canopy line is a length of nylon cord that extends from a point of attachment on a connector link assembly on one side of the canopy, up through a canopy radial seam channel, across the canopy vent, and down through a canopy radial seam to a connector link assembly on the opposite side of the canopy. As a result of the routing, a canopy line length is divided into segments that are referred to as suspension line, radial line, and vent line. The procedures that follow include the repair and replacement of individual segments of the canopy line and the entire canopy.

**REPAIR**

1. Restitching.
  - a. Stitch and restitch with thread, nylon, size E, that is contrasting in color to the fabric being stitched or original thread being restitched. If contrasting color thread is not available, thread of matching color may be used, providing all other specifications are met.
  - b. Zig-zag restitching should extend at least  $\frac{1}{4}$  inch into undamaged stitching at each end, when possible.
  - c. Restitch directly over the original stitching and follow the original stitch pattern as closely as possible.

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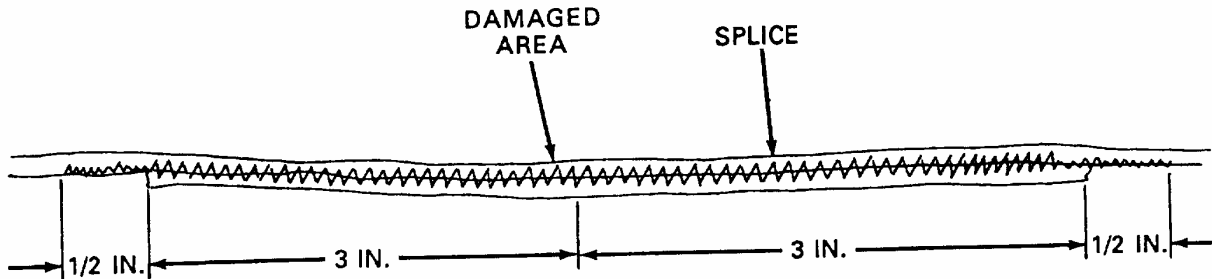
**CAUTION**

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The radial line portion of a canopy line will not be spliced. Whenever a canopy line is to be spliced, the splice will be located either above the upper lateral band or below the lower lateral band.

2. Splicing. A suspension line or vent line may be spliced one time as follows:

- a. Cut a length of type III nylon cord long enough to extend 3-inches beyond each side of damaged area.
- b. Sear and wax each end of cord  $\frac{1}{2}$ -inch in accordance with WP 0015 00, SEARING AND WAXING.
- c. Center cord length over damaged area.
- d. Using a medium duty zig-zag sewing machine and size E nylon thread, secure splice by stitching a  $\frac{3}{16}$ -inch wide row of stitching full length of splice, extending stitching  $\frac{1}{2}$ -inch beyond each end. Stitching will be 7 to 11 stitches per inch.



END OF WORK PACKAGE

---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**PATCHING RADIAL SEAM**

---

**THIS TASK COVERS:**

- Inspect
  - Repair
- 

**Tools**

Sewing Machine, Light-Duty (Item 22, WP 0050 00)

**Materials/Parts**

Cloth, Parachute, Nylon, 1.6 Oz., Type II (Item 9, WP 0059 00)  
 Cloth, Parachute, Nylon, 1.6 Oz., Type III (Item 10, WP 0059 00)  
 Thread, Nylon, Size E (Item 40/41, WP 0059 00)

**Equipment Condition**

Unpacked, canopy laid out flat on repair table.

**References**

WP 0006 00 and WP 0014 00

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**Personnel Required**

92R (10) Parachute Rigger

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**INSPECTION**

Inspect the radial seam in accordance with Table 1, PMCS, WP 0006 00.

**REPAIR**

1. Preparation for Patching. Prepare the radial seam for patching as follows:
  - a. Place the canopy on a repair table with the damaged side of the radial seam facing up.
  - b. As required, cut the applicable stitching to remove or lay aside items that may interfere with the patching process.
  - c. Smooth the canopy material surrounding the damaged area and secure the undamaged portion of the seam to the table with pushpins. Do not pin the damaged area of the seam.
  - d. Using authorized material, bias-cut a rectangular patch 3 ½- inches wider and 4 inches longer than the damaged area. If one piece of material is not long enough to achieve the required size, join additional pieces of bias-cut material with ½-inch wide over-lapping the seams.

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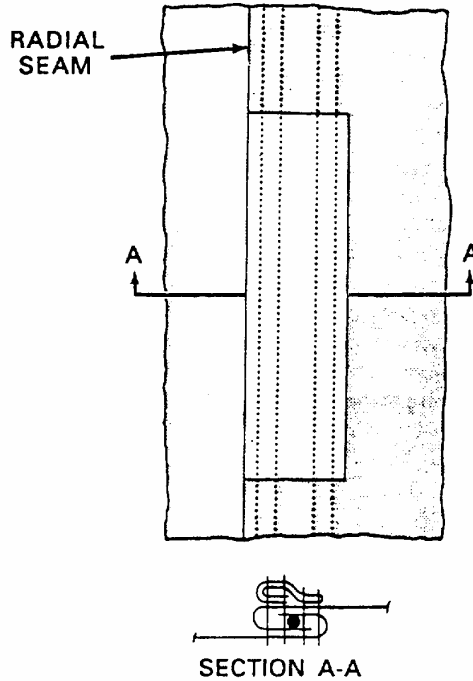
**NOTE**

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Patch material for a damaged area that does not exceed 1-inch need not be bias-cut.

2. Patching Radial Seam. There is no limit to the length of a miscellaneous patch made on a canopy radial seam. In addition, a radial seam may be patched on both the inside and the outside of a canopy, as required. Patch a damaged radial seam as follows (refer to illustration on the following page):
  - a. Fold the patch material lengthwise and align the raw edges.
  - b. Make a foldunder on each edge of the patch material and baste each foldunder using the SEWING PROCEDURES in WP 0014 00.

- c. Make a 1-inch foldunder on each end of the patch material and baste each foldunder using the SEWING PROCEDURES in WP 0014 00.



- d. Center the patch lengthwise over the damaged area with the folded edges facing down.
- e. Secure the patch to the canopy with pushpins and baste the patch to the canopy using the SEWING PROCEDURES in WP 0014 00.
- f. Remove the pins securing the canopy to the repair table.
- g. Secure the patch to the radial seam by stitching, using the SEWING PROCEDURES in WP 0014 00, size E nylon thread, and 7 to 11 stitches per inch.
- h. Sew the radial seam patch with four rows of stitching, restitch directly over the original stitching and follow the original stitch pattern as closely as possible.
- i. When applicable, repeat the stitching procedures in steps g. through h., above, on the opposite side of the radial seam channel.
- j. Reposition in their original locations the items removed or laid aside in step 1b. Reattach each item to the canopy by restitching in accordance with the applicable WP and the SEWING PROCEDURES in WP 0014 00.

**END OF WORK PACKAGE**



---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**RADIAL LINE REINFORCEMENT TAPE**

---

**THIS TASK COVERS:**

- Repair
- 

**Tools**

Knife (Item 7, WP 0050 00)  
Knife, Hot Metal (Item 8, WP 0050 00)  
Sewing Machine, Zig-Zag (Item 24, WP 0050 00)  
Shears (Item 25, WP 0050 00)  
Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Tape, Nylon, Type III, ½ IN., OD (Item 33, WP 0059 00)  
Thread, Nylon, Size E (Item 40/41, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

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**Equipment Condition**

Cleaned (WP 0008 00).  
Inspected (WP 0009 00).  
Unpacked, canopy laid out flat  
on repair table.

**References**

WP 0014 00

**REPAIR**

Stitch and restitch (SEWING PROCEDURES, WP 0014 00) with size E, nylon thread of contrasting color to the original stitching material, when possible. Zig-Zag restitching should extend ¼-inch into undamaged stitching at each end. Restitch directly over the original stitching. Follow the original stitch pattern as closely as possible.

**END OF WORK PACKAGE**



**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**REEFING LINE CUTTER BRACKET**

**THIS TASK COVERS:**

- Repair
- Replace

**Tools**

Needle, Tacking (Item 13, WP 0050 00)

**Equipment Condition**

Unpacked, canopy laid out flat on repair table.

**Materials/Parts**

Thread, Cotton, Ticket No. 8/7 (Item 36, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

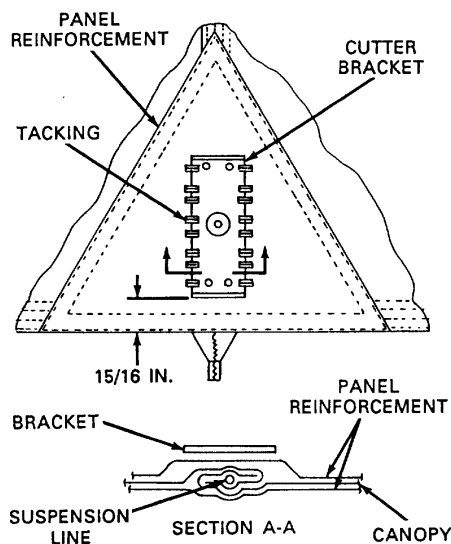
**REPAIR**

Replace broken or loose tacking by retacking according to original tacking details using two turns double, ticket No. 8/7 waxed cotton thread at each tacking point. Secure tacking ends at each tacking point with a square knot. Trim tie ends to 1/2-inch.

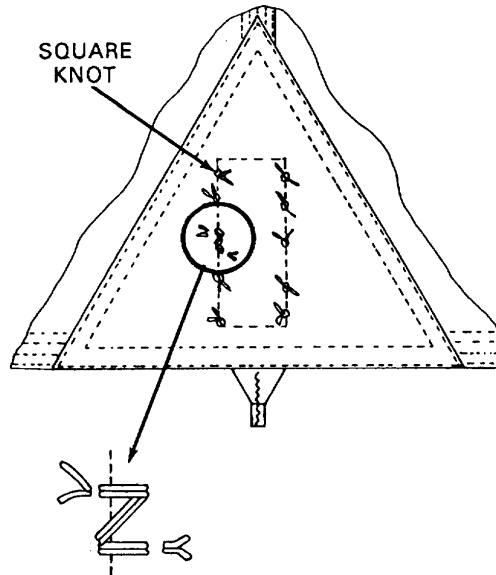
**REPLACE**

Replace a damaged or missing reefing line cutter bracket with a serviceable item from stock. Install the reefing line cutter bracket on the canopy skirt as follows:

1. If applicable, remove the original bracket by cutting the tacking securing each side of the bracket to the canopy panel reinforcement.
2. Position a serviceable bracket in the original bracket location on the canopy outside and ensure the flange containing the 7/8-inch diameter hole is located at the upper end of the bracket position.
3. Holding the bracket in position, begin handtacking the bracket at one top corner hole with two turns double, ticket No. 8/7 waxed cotton thread.



4. The tack will be made by passing the tacking needle from the inside of the canopy up through the canopy material and the bracket corner hole, out over the bracket side edge, and back down through the canopy material to the canopy inside.
5. Repeat the tacking routing to complete the second turn and secure the tacking ends on the canopy inside with a square knot.



6. Handtack the opposite top corner hole and each of the two bottom corner holes using the procedures in steps 3. through 5., above.
7. Beginning at the first hole next to a corner tacking point, handtack the applicable bracket side edge by passing the tacking needle with a length of double ticket No. 8/7 waxed cotton thread from the inside of the canopy up through the canopy material and the bracket hole, out over the bracket side edge, and back down through the canopy material to the canopy inside.
8. Direct the tacking needle to the next free hole in the bracket side edge and pass the needle up through the canopy material and the bracket hole out over the bracket side edge, and back down through the canopy material to the canopy inside.
9. Move the needle back to the first side edge hole and repeat the procedure in step 7.
10. Further repeat the procedure in step 8., finishing on the canopy inside to complete two turns of tacking through each hole.
11. Secure the tie ends with a square knot.
12. For making the remaining five double-hole tackings along the bracket side edges, repeat the procedures in steps 7. through 11.
13. Trim all tie ends to ½-inch.

**END OF WORK PACKAGE**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**CUTTER BRACKET PANEL REINFORCEMENT**


---

**THIS TASK COVERS:**

- Repair
  - Replace
- 

**Tools**

Knife (Item 7, WP 0050 00)  
 Needle, Tacking (Item 13, WP 0050 00)  
 Sewing Machine, Light-Duty (Item 22, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Unpacked, canopy laid out flat on repair table.

**Materials/Parts**

Cloth, Nylon, Duck, Type III (Item 6/7, WP 0059 00)  
 Marking Aid (Item 21/22, WP 0059 00)  
 Thread, Cotton, Ticket No. 8/4 (Item 35, WP 0059 00)  
 Thread, Nylon, Size E (Item 41/42, WP 0059 00)

**References**

WP 0014 00; WP 0024 00

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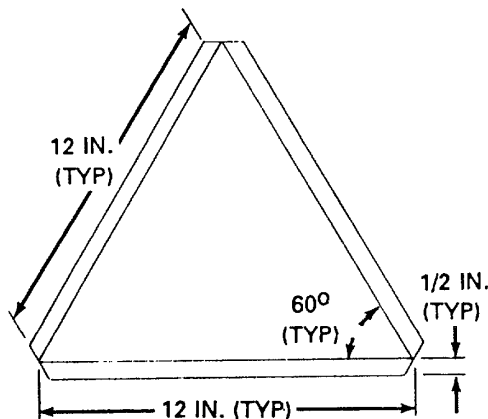
**REPAIR**

Restitch broken or loose stitching according to original construction details and in accordance with WP 0014 00, SEWING PROCEDURES.

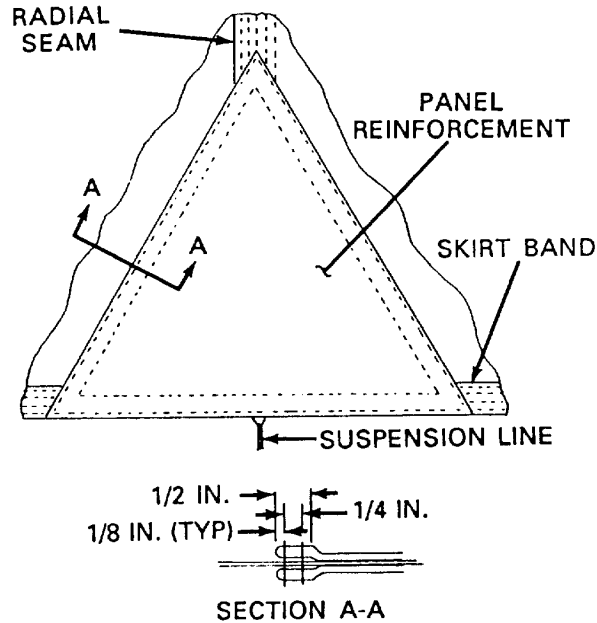
**REPLACE**

Replace a damaged cutter bracket panel reinforcement by fabricating as follows:

1. Remove the cutter bracket from original panel reinforcement by cutting the tacking securing the bracket to the reinforcement. Retain the bracket for further use, if serviceable.
2. Remove the inside and the outside panel reinforcements from the canopy skirt by cutting the stitching which secures the two pieces of reinforcement material to the canopy.
3. Cut two 13-inch wide triangular-shaped pieces of Type III, 7.25-ounce nylon duck cloth.
4. Make a ½-inch wide turnunder on each edge of one piece of cloth and trim the cloth piece to conform to the details in the illustration below.



5. Position the folded cloth piece in the original reinforcement location on the inside of the canopy skirt and temporarily handtack the cloth to the canopy material using temporary tacking procedures in WP 0014 00, SEWING PROCEDURES.
6. Using the procedures in steps 4. and 5., above, position the second cloth piece in the original reinforcement location on the outside of the canopy skirt.
7. Secure the two panel reinforcements to the canopy by stitching two rows of stitching along each edge according to the details in the illustration below.



8. Stitching will be made in accordance with WP 0014 00, SEWING PROCEDURES.
9. Remove the temporary tacking made in steps 5. and 6., above.
10. Attach a serviceable cutter bracket to the panel reinforcements using the procedures in WP 0024 00, REEFING LINE CUTTER BRACKET.

**END OF WORK PACKAGE**

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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**POCKET BAND**


---

**THIS TASK COVERS:**

- Repair
  - Replace
- 

**Tools**

Knife (Item 7, WP 0050 00)  
 Knife, Hot Metal (Item 8, WP 0050 00)  
 Sewing Machine, Light-Duty (Item 22, WP 0050 00)  
 Sewing Machine, Zig-Zag (Item 24, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Cord, Nylon, Type III (Item 12/13, WP 0059 00)  
 Marking, Aid (Item 21/22, WP 0059 00)  
 Thread, Nylon, Size E (Item 32/33, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
 Inspected (WP 0009 00).  
 Unpacked, laid flat on repair table.

**References**

WP 0014 00; WP 0015 00

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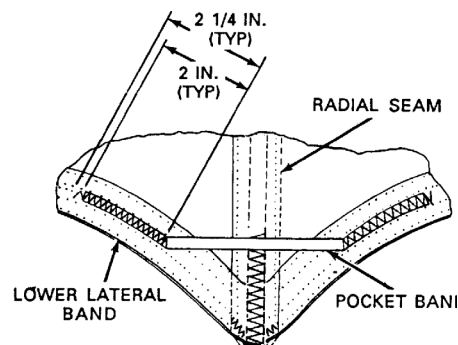
**REPAIR**

Stitch and restitch (WP 0014 00, SEWING PROCEDURES) with size E nylon thread that matches the color of the original stitching, when possible. Lock all zig-zag stitching by over stitching at least ½-inch. Restitch directly over the original stitch pattern; follow the original stitch pattern as closely as possible.

**REPLACE**

Replace an unserviceable pocket band by fabricating a new one as follows:

1. Using a marking aid, mark canopy at each end of original pocket band.
2. Cut stitching on both ends of the original pocket band and remove pocket band from canopy skirt.
3. Cut a 6 <sup>3</sup>/<sub>8</sub>-inch length of type III nylon cord and sear ends (WP 0015 00, SEARING AND WAXING).
4. Position tape length in original pocket band location.
5. Using a zig-zag sewing machine and size E nylon thread, secure each end of replacement pocket band by stitching a 1/8-inch wide by 2 ¼-inch long row of double-throw zig-zag stitching, 7 to 11 stitches per inch, and in accordance with the details in the illustration below.



**END OF WORK PACKAGE**





## UNIT MAINTENANCE

### 100-FOOT DIAMETER CARGO PARACHUTE

#### REEFING RING AND REEFING RING RETAINER

#### THIS TASK COVERS:

- Repair
- Replace

#### Tools

Knife (Item 7, WP 0050 00)  
 Knife, Hot Metal (Item 8, WP 0050 00)  
 Sewing Machine, Zig-Zag (Item 24, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

#### Materials/Parts

Cord, Nylon, Type III (Item 12/13, WP 005000)  
 Marking, Aid (Item 21/22, WP 0050 00)  
 Thread, Nylon, Size E (Item 41/42, WP 0050 00)

#### Personnel Required

92R (10) Parachute Rigger

#### Equipment Condition

Unpacked, laid flat on repair table.

#### References

WP 0014 00, WP 0015 00

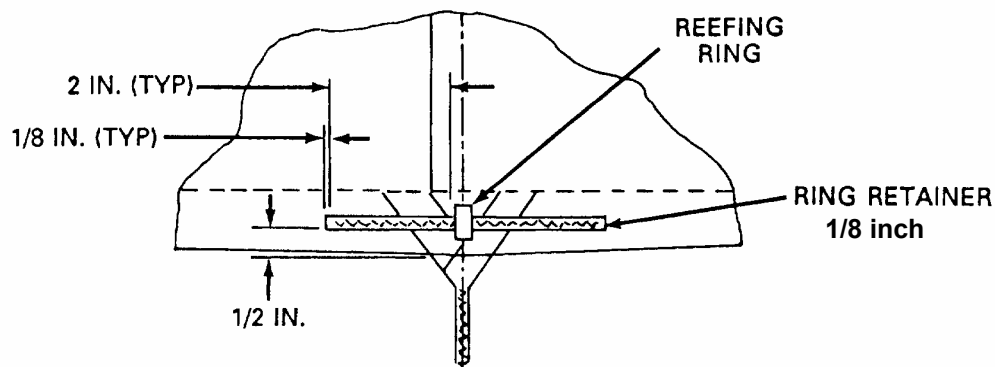
#### REPAIR

Restitch broken or loose stitching on the reefing ring retainer according to original construction details in accordance with WP 0014 00, SEWING PROCEDURES.

#### REPLACE

Replace serviceable or missing reefing ring with a serviceable item from stock. Replace a damaged or missing reefing ring retainer by fabricating as follows:

1. If applicable, remove the original reefing ring by cutting the stitching which secures the ring retainer to the inside of the canopy skirt band.
2. Cut a 5-inch length of type III nylon cord and sear the ends (WP 0015 00, SEARING AND WAXING).
3. Center the cord length in a serviceable reefing ring and position the cord length on the inside of the skirt reinforcement tape (lower lateral band) in the original ring retainer location.
4. Secure each end of the ring retainer with a 1/8-inch wide by 2-inch long row of double-throw zig-zag stitching according to the details in the illustration below, and using the specifics in WP 0014 00, SEWING PROCEDURES.



END OF WORK PACKAGE



---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**V-TAB**

---

**THIS TASK COVERS:**

- Inspect
- 

**Tools**

Sewing Machine, Light-Duty (Item 22, WP 0050 00)  
Sewing Machine, Light-Duty Zig-Zag (Item 24, WP 0050 00)  
Shears (Item 25, WP 0050 00)  
Yardstick (Item 26, WP 0050 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Unpacked, laid flat on repair table.

**Materials/Parts**

Marking, Aid (Item 21/22, WP 0059 00)  
Thread, Nylon, Size E (Item 41/42, WP 0059 00)  
Webbing, Nylon, Type I (Item 48/49, WP 0059 00)

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**INSPECT**

Inspect the V-tabs in accordance with WP 0006 00, PMCS.

**END OF WORK PACKAGE**



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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**SKIRT REINFORCEMENT (LOWER LATERAL BAND)**

---

**THIS TASK COVERS:**

- Repair
- 

**Tools**

Knife (Item 7, WP 0050 00)  
Knife, Hot Metal (Item 8, WP 0050 00)  
Sewing Machine, Medium-Duty (Item 23, WP 0050 00)  
Sewing Machine, Zig-Zag (Item 24, WP 0050 00)  
Shears (Item 25, WP 0050 00)  
Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Thread, Nylon, Size E (Item 41/42, WP 0059 00)  
Webbing, Nylon, 1-IN. Wide, Tubular (Item 47, WP 0059 00)

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**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Unpacked, laid flat on repair table.

**References**

WP 0014 00, WP 0015 00, and WP 0017 00

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**NOTE**

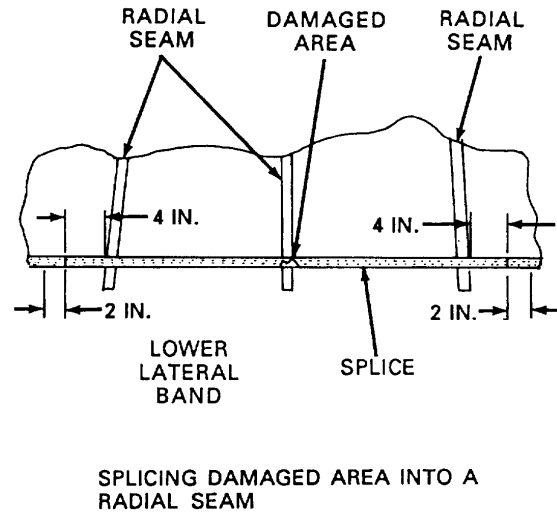
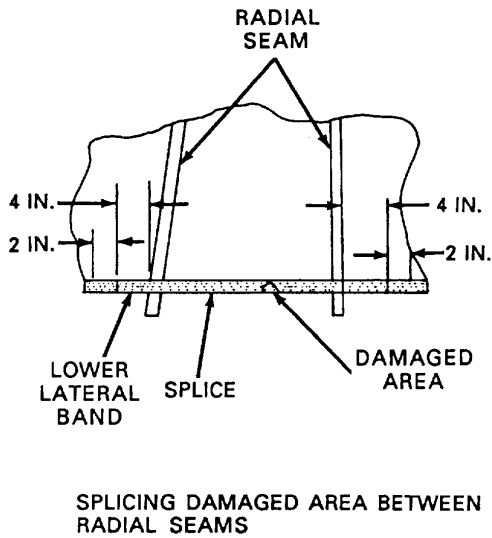
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The skirt reinforcement tape may have one splice between any two suspension lines. If the damage is located in a previously spliced area, the earlier splice will be removed before attempting a second splice repair.

**REPAIR**

1. Stitching and Restitching.
  - a. Stitch and restitch (WP 0014 00, SEWING PROCEDURES) with size E nylon thread that contrasts the color of the original stitching and material, when possible.
  - b. Lock all straight stitching by backstitching at least 2-inches. Zig-zag restitching should extend ¼-inch into undamaged stitching at each end.
  - c. Restitch directly over the original stitching. Follow the original stitch pattern as closely as possible.
2. Splicing. Splice lower lateral band as follows:
  - a. With damaged side of lower lateral band facing up and affected areas of canopy smoothed out, remove previous splice, if required.
  - b. As required, cut and remove original stitching that secures pocket band end to lower lateral band. Fold pocket band loose end away from repair area.

- c. Cut a length of 1-inch wide tubular nylon webbing long enough to extend 4-inches beyond each side of damaged area. Sear or wax each end of tape (WP 0015 00, SEARING AND WAXING).
3. Center webbing length on damaged area using a medium-duty sewing machine and size E nylon thread, sew webbing in place with four continuous rows of stitching 1/8-inch from the edge of webbing, then 2 inside rows of stitching another 1/8-inch from the first rows. Sew at 7-11 stitches per inch.



4. Overstitch each webbing end by 1/2-inch. Stitching will be 7 to 11 stitches per inch.
5. Reattach pocket band, if required WP 0017 00, PARACHUTE CANOPY.

**END OF WORK PACKAGE**

## UNIT MAINTENANCE

### 100-FOOT DIAMETER CARGO PARACHUTE CONNECTOR LINK

#### THIS TASK COVERS:

- Inspect
- Repair
- Replace

#### Tools

File, Flat (Item 6, WP 0050 00)  
Mallet, Rawhide (Item 12, WP 0050 00)  
Screwdriver, Flat Tip (Item 17, WP 0050 00)  
Separator, Connector Link (Item 18, WP 0050 00)

#### Personnel Required

92R (10) Parachute Rigger

#### Equipment Condition

Unpacked, laid flat on repair table.

#### Materials/Parts

Cloth, Abrasive (Item 2, WP 0059 00)

#### References

WP 0006 00

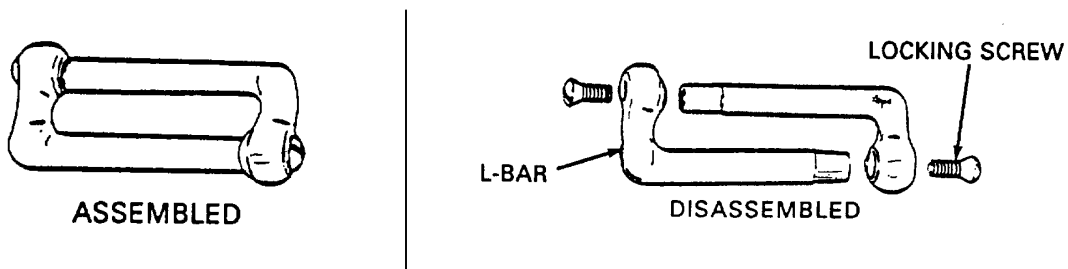
### INSPECTION

Inspect connector link assemblies in accordance with Table 1, PMCS, WP 0006 00.

### REPAIR

Repair 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 a crocus cloth.
2. Replacing a locking screw. Replace a damaged or missing locking screw on a parachute connector link with a serviceable item from stock.

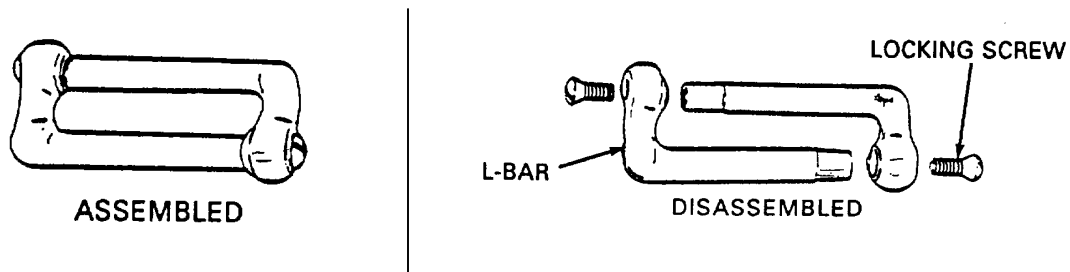


### REPLACE

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

1. Using suitably sized flat-tip (slotted-head) screwdriver, remove the locking screws from the ends of replacement L-bar parachute connector link assembly and disassemble the link (refer to the illustrations above).
2. Using suitably sized flap-tip (slotted-head) screwdriver, remove the two locking screws from the damaged original parachute connector link assembly.

3. Disassemble the link assembly, using a link separator, if necessary. If the connector link contains suspension lines, ensure the lines are not allowed to slide off the damaged link during the disassembly process.



4. As applicable, position an L-bar of the replacement link assembly adjacent to the disassembled original link assembly and slide the suspension lines from the damaged link onto the replacement link L-bar.
5. If required, pass the remaining L-bar link through the attaching loop of the adjoining component.
6. Fit the replacement link L-bar together and ensure L-bar leg engagement by tapping the end of each L-bar with a rawhide mallet.
7. As applicable, trace the suspension lines from the connector link assembly to the canopy skirt to ensure the lines are properly installed and in the correct sequence.

**END OF WORK PACKAGE**



---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**SUSPENSION RISER**


---

**THIS TASK COVERS:**

- Repair
  - Replace
- 

**Tools**

Brush, Stencilling (Item 4, WP 0050 00)  
 Knife (Item 7, WP 0050 00)  
 Knife, Hot Metal (Item 8, WP 0050 00)  
 Sewing Machine, Heavy-Duty (Item 21, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Ink, Marking, Parachute, Strata-Blue (Item 17, WP 0059 00)  
 Stencil Board, Oiled (Item 26, WP 0059 00)  
 Thread, Nylon, Size 6 (Item 39/40, WP 0059 00)  
 Webbing, Nylon, Tubular, 1-IN. (Item 47, WP 0059 00)  
 Webbing, Nylon, Type XII (Item 52, WP 0059 00)  
 Webbing, Nylon, Type XVIII, 1-IN. (Item 53, WP 0059 00)

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**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

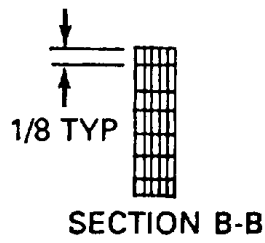
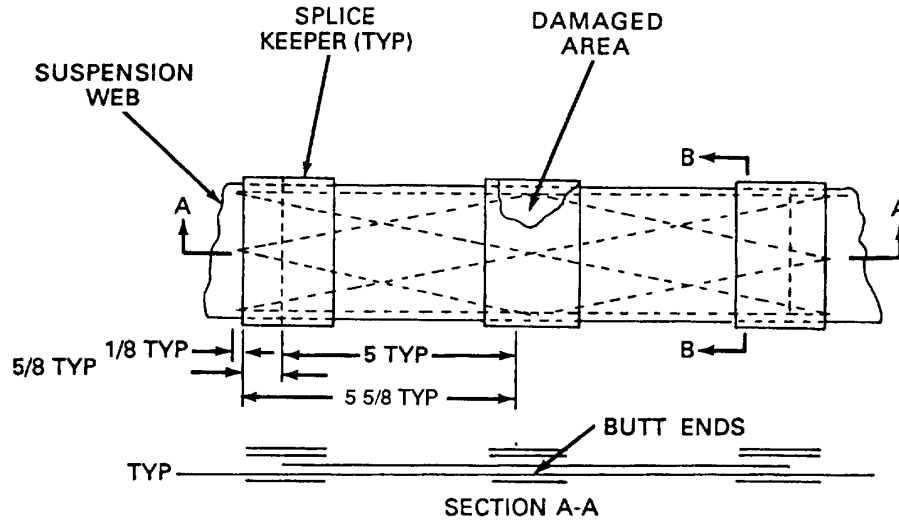
Unpacked, laid flat on repair table.

**References**

WP 0014 00, WP 0016 00

**REPAIR**

1. Restitching. Restitch broken or loose stitching according to original construction details using the specifics in WP 00014 00, SEWING PROCEDURES.
2. Restencil. As required, restencil identification markings using the procedures in WP 0016 00, MARKING AND RESTENCILLING.
3. Splicing. A suspension riser that is constructed of either 1-inch wide tubular nylon or type XVIII nylon webbing may be spliced. The material used for splicing must be the same material as the riser being spliced. Splicing may be made even though the webbing has been cut completely through. Each suspension riser web is limited to one splice and each riser is limited to three splices for the entire riser. Splice a damaged suspension riser web as follows:
  - a. Lightly sear the damaged area to prevent the damaged webbing from fraying.
  - b. Cut a piece of type XVIII, 1-inch wide nylon webbing, or 1-inch wide tubular nylon webbing, whichever is applicable, so it will extend at least 5-inches beyond the damaged area on each side.
  - c. Cut three 3 ½-inch cut lengths of type XII, 1 <sup>23</sup>/<sub>32</sub>-inch wide nylon webbing.
  - d. Take the type XII, 1 <sup>23</sup>/<sub>32</sub>-inch wide nylon webbing in 3 ½-inch cut lengths and make a fixed keeper in the center of the splice over the damaged area, and at each end of the splice. The keepers at the ends of the splice shall be positioned so as to extend <sup>5</sup>/<sub>8</sub>-inch beyond the end of the splice.
  - e. Secure the splice by stitching with two three-point W-W stitch patterns using a heavy-duty sewing machine and size 6 nylon thread, 5 to 8 stitches per inch, according to details in the illustration on the following page.



**REPLACE**

Replace an unserviceable suspension riser with a serviceable item from stock.

**END OF WORK PACKAGE**

---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**PARACHUTE INSPECTION DATA POCKET**

---

**THIS TASK COVERS:**

- Repair
  - Replace
- 

**Tools**

Needle, Tacking (Item 13, WP 0050 00)  
Sewing Machine, Heavy-Duty (Item 21, WP 0050 00)  
Sewing Machine, Zig-Zag (Item 24, WP 0050 00)

**Materials/Parts**

Thread, Cotton, Ticket No. 8/7 (Item 36, WP 0059 00)  
Thread, Nylon, Size E (Item 41/42, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned. (WP 0008 00)  
Inspected (WP 0009 00)  
Unpacked, laid flat on repair table.

**References**

WP 0014 00

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**NOTE**

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The inspection data pocket is located on the bridle loop of the older model G-11Bs that were previously G-11As, and on a riser of the G-11B, G-11C, and G-11Ds.

**REPAIR**

Stitch and restitch with a heavy-duty sewing machine using size E nylon thread which matches the color of original stitching. Lock all straight stitching by backstitching at least ½-inch. Restitch directly over the original stitching, following original stitch pattern as closely as possible, according to the specifics in Table 2, STITCHING AND RESTITCHING SPECIFICATIONS, WP 0014 00. Retacking will be performed using a tacking needle and two turns of double, ticket No. 8/7 waxed cotton thread at each tacking point.

**REPLACE**

Replace an unserviceable or missing parachute inspection data pocket with a serviceable item from stock. Tack in place at original tacking points using the specifics in REPAIR, above.

**END OF WORK PACKAGE**



---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**CENTERLINE**

---

**THIS TASK COVERS:**

- Repair
  - Replace
- 

**Tools**

Brush, Stenciling (Item 4, WP 0050 00)  
Sewing Machine, Heavy-Duty (Item 21, WP 0050 00)

**Materials/Parts**

Ink, Marking, Strata-Blue (Item 17, WP 0059 00)  
Stencilboard, Oiled (Item 26, WP 0059 00)  
Thread, Nylon, Size 6 (Item 39, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned. (WP 0008 00)  
Inspected (WP 0009 00)  
Unpacked, laid flat on repair table.

**References**

WP 0014 00, WP 0016 00

---

**REPAIR**

1. Restitching. Stitch and restitch with a heavy-duty sewing machine using size 6 nylon 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. Stitching will be in accordance with WP 0014 00, SEWING PROCEDURES, and Table 2, WP 0014 00, STITCHING AND RESTITCHING SPECIFICATIONS.
2. Restencil. As required, restencil identification marks using the procedures in WP 0016 00, MARKING AND RESTENCILLING.

**REPLACE**

Replace an unserviceable center line with a serviceable one from stock.

**END OF WORK PACKAGE**



---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**DEPLOYMENT BAG**

---

**THIS TASK COVERS:**

- Inspect
  - Service
  - Repair
  - Replace
- 

**Personnel Required**

92R (10) Parachute Rigger

**References**WP 0006 00, WP 0008 00, and WP  
0009 00**Equipment Condition**Unpacked. Detached from canopy.

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**INSPECT**

Refer to WP 0006 00, PMCS, and WP 0009 00, INSPECTION, for inspection procedures.

**SERVICE**

Refer to WP 0008 00, CLEANING AND DRYING, for cleaning procedures.

**REPAIR**

Refer to individual repair procedures.

---

**CAUTION**

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When performing a repair on a 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.

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**NOTE**

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Due to environmental concerns, the manufacturing process of cotton materials is extremely limited. Cotton d-bags will no longer be supported. Use cotton bags until unrepairable and replace with nylon d-bags.

**END OF WORK PACKAGE**





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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**DEPLOYMENT BAG PANELS AND FLAPS**


---

**THIS TASK COVERS:**

- Repair
- 

**Tools**

Brush, Stencilling (Item 4, WP 0050 00)  
 Sewing Machine, Darning (Item 20, WP 0050 00)  
 Sewing Machine, Heavy-Duty (Item 21, WP 0050 00)  
 Sewing Machine, Medium-Duty (Item 23, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Unpacked. Detached from canopy.

**References**

WP 0014 00, WP 0016 00

**Materials/Parts**

Cloth, Cotton Duck, Type I (Item 3, WP 0059 00)  
 Cloth, Nylon Duck, Type III (Item 6, WP 0059 00)  
 Ink, Marking (Item 17, WP 0059 00)  
 Marking Aid (Item 21/22, WP 0059 00)  
 Thread, Nylon, Size 3 (Item 37/38, WP 0059 00)  
 Thread, Nylon, Size E (Item 41/42, WP 0059 00)

---

**REPAIR**

1. Restitching. Restitch broken or loose stitching by following the original stitch pattern and the specifics in WP 0014 00, SEWING PROCEDURES.
2. Restencil. As required, restencil identification marks using the procedures in WP 0016 00, MARKING AND RESTENCILLING.
3. Darning. Darn a hole or tear which does not exceed  $\frac{3}{4}$ -inch in length or diameter and which is accessible using the procedures in WP 0014 00, SEWING PROCEDURES, and a darning sewing machine with size E nylon thread. There is no limit to the number of times a flap or panel may be darned.
4. Patching. Patch a hole or tear which exceeds  $\frac{3}{4}$ -inch in length or diameter using the procedures in WP 0014 00, SEWING PROCEDURES, the specifics in Table 2, STITCHING AND RESTITCHING SPECIFICATIONS, WP 0014 00, and the following patching criteria:

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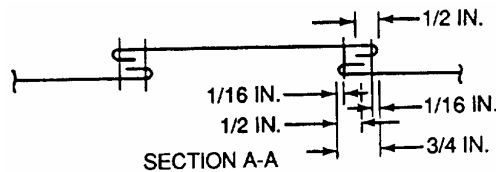
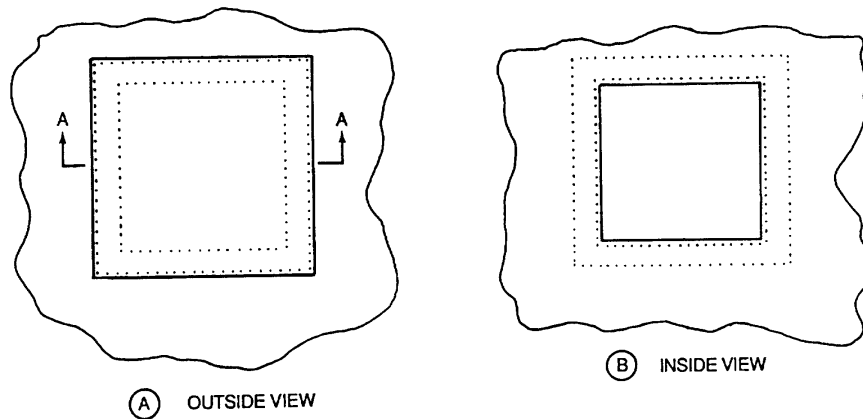
**NOTE**


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A deployment bag cover will not be patched.

- a. Bag body. There is no limit to the number of patches that may be applied to the deployment bag body. However, each damaged area must be accessible and there must be at least 1  $\frac{1}{4}$ -inches of undamaged material remaining on all sides of the affected area. In addition, a patch will not exceed 5 inches in length or width. Patch material will be of type I 17.55-ounce cotton duck cloth, or type III 7.25-ounce nylon duck cloth. Proceed as follows:
  - (1) Smooth fabric around the damaged area, and secure with pushpins. Do not pin damaged area.
  - (2) Using a marking aid of contrasting color, mark a square or rectangle around the area to be patched and ensure one side of marked square or rectangle is parallel to warp or filling of fabric.

- (3) Cut damaged area fabric along lines made in (2), above. Further cut fabric diagonally at each corner to allow a 1/2-inch foldback in raw edges.
- (4) Make a 1/2-inch foldback on each raw edge. Pin and baste each foldback to complete prepared hole. Basting will be performed using the BASTING AND TEMPORARY TACKING procedures in WP 0014 00, SEWING PROCEDURES.
- (5) Using cotton or nylon cloth, mark and cut a patch 2 1/2-inches wider and longer than inside measurements of the prepared hole. Ensure that patch material is marked and cut along the warp or filling of fabric.
- (6) Center patch material over prepared hole. Pin patch material in position.
- (7) Make a 1/2-inch foldunder on each edge of patch material and baste patch to prepared area. Basting will be performed using the BASTING AND TEMPORARY TACKING procedures in WP 0014 00, SEWING PROCEDURES.
- (8) Remove pushpins securing the item to repair table and secure the patch on the nylon bag, using a medium-duty sewing machine and size E nylon thread. Stitching will be 7 to 11 stitches per inch. For the cotton bag, use a heavy-duty sewing machine and size 3 nylon thread. Stitching will be 5 to 8 stitches per inch.



- b. Suspension line protector flap. There is no limit to the size or number of patches that may be applied to the suspension line protector flap. Patch material will be of type III 8.25-ounce cotton duck cloth (no longer available), or type III 7.25-ounce nylon duck cloth. Use the patching procedure detailed in the BAG BODY paragraph detailed above.

END OF WORK PACKAGE

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**DEPLOYMENT BAG EDGE BINDING**

**THIS TASK COVERS:**

- Repair

**Tools**

Knife (Item 7, WP 0050 00)  
 Sewing Machine, Medium-Duty (Item 23, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Tape, Cotton,  $\frac{3}{4}$ -IN. Wide, Type III (Item 30, WP 0059 00)  
 Tape, Nylon,  $\frac{3}{4}$ -IN. Wide, Type III (Item 34, WP 0059 00)  
 Thread, Nylon, Size E (Item 41/42, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

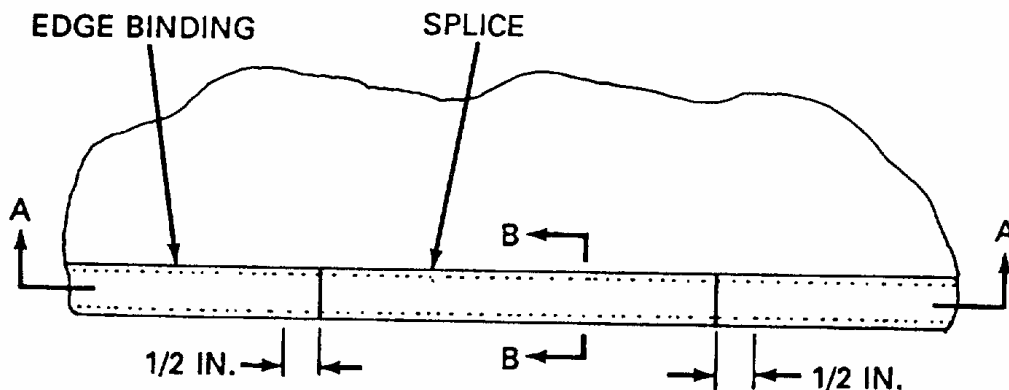
Cleaned. (WP 0008 00)  
 Inspected. (WP 0009 00)  
 Laid out on work table.

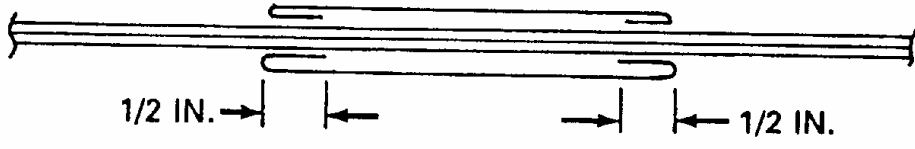
**References**

WP 0014 00

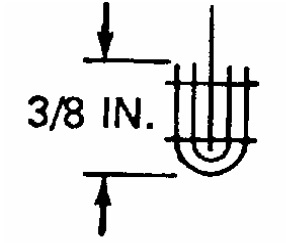
**REPAIR**

1. **Stitching.** Stitch and restitch broken or loose stitching with size E 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 in accordance with WP 0014 00, SEWING PROCEDURES, and Table 2, STITCHING AND RESTITCHING SPECIFICATIONS, WP 0014 00.
2. **Splicing.** Splice an edge binding an unlimited number of times as follows:
  - a. Cut a length of  $\frac{3}{4}$ -inch wide type III nylon tape (for the nylon bag) or cotton tape (for the cotton bag) 2-inches longer than the damaged area.
  - b. Make a  $\frac{1}{2}$ -inch fold under on each end of tape length.
  - c. Center and fold the tape lengthwise over the damaged area.
  - d. Secure the splice by making two rows of stitching over the original stitching, the full length of the splice, to a point  $\frac{1}{2}$  inch beyond each end of the splice material according to the details in the figure below. Use a medium-duty sewing machine and size E nylon thread. Stitching shall be 7 to 11 stitches per inch.





SECTION A-A



SECTION B-B

END OF WORK PACKAGE

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**GROMMET**

**THIS TASK COVERS:**

- Repair
- Replace

**Tools**

File (Item 6, WP 0050 00)  
 Mallet (Item 12, WP 0050 00)  
 Pliers, Lineman (Item 15, WP 0050 00)  
 Set, Chuck and Die (Item 19, WP 0050 00)  
 Sewing Machine, Medium-Duty (Item 23, WP 0050 00)  
 Sewing Machine, Darning (Item 20, WP 0050 00)

**Materials/Parts**

Cloth, Abrasive (Item 2, WP 0059 00)  
 Thread, Nylon, Size E (Item 41/42, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned. (WP 0008 00)  
 Inspected. (WP 0009 00)

**References**

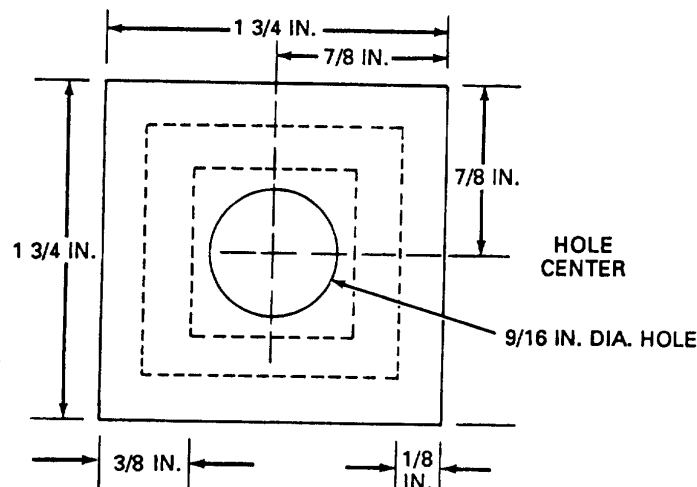
WP 0014 00

**REPAIR**

1. Repair grommet as follows:
2. Remove burrs, rough spots, rust, or corrosion from an installed grommet by filing or by buffing with a crocus cloth.
3. Reseat a loose grommet using the procedures listed in the REPLACE procedures detailed below.
4. If fabric area around original grommet has been damaged, repair area by darning using darning procedures in WP 0014 00, SEWING PROCEDURES. If darning does not provide an adequate repair, construct a 2  $\frac{3}{4}$  by 2  $\frac{3}{4}$ -inch reinforcement cloth and fold under  $\frac{1}{2}$ -inch on all sides.
5. After removing original grommet (use the procedures detailed in REPLACE, below), sew cloth to inside with size E nylon thread, 7 to 11 stitches per inch, one row of stitches  $\frac{1}{8}$ -inch from outside edge and the second row  $\frac{3}{8}$ -inch from outside edge.

**NOTE**

Outside dimensions given after  $\frac{1}{2}$ -inch fold under on all sides.



**REPLACE**

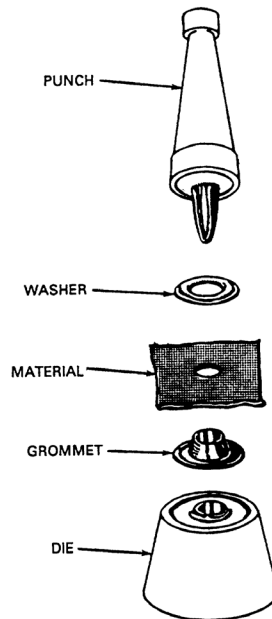
Proceed as follows:

1. Remove original grommet as follows:
  - a. Using a suitable type tool, lift edge of original washer at one point.
  - b. Grip lifted washer edge with lineman pliers and roll washer edge back to lift washer from original grommet. Remove original grommet from material.
2. Grommet installation by hand-held method.
  - a. Insert barrel of replacement grommet through accommodating hole in material and ensure grommet flange is located on same side of material as original grommet.
  - b. Position grommet on die with barrel facing up and place the washer over grommet barrel.

**NOTE**

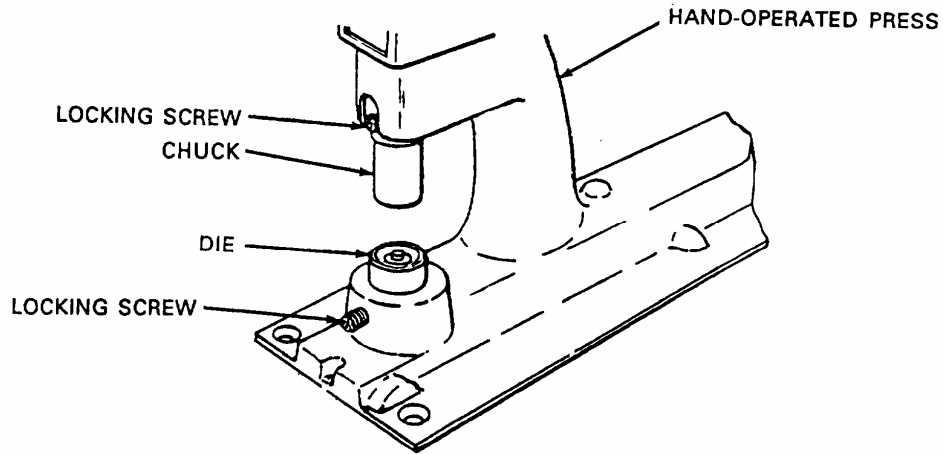
When installing a flat grommet by the hand-held method, ensure the grommet barrel and washer are aligned to preclude off-center setting of the grommet.

- c. Using a punch and a rawhide mallet or other non-steel impact device, spread grommet barrel by hammering until barrel collar is rolled down smooth on washer. If grommet barrel splits during hammer process, remove and replace installed grommet with a serviceable item from stock, repeating procedures in paragraph 1., above.
- d. Check seating of grommet. If grommet can be turned by hand, repeat step c. until grommet is firmly seated.

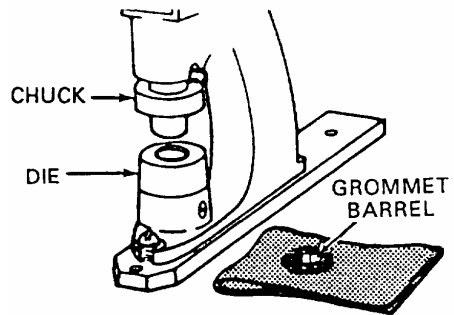


3. Grommet installation by hand-operated press.

- a. Install 1/4-inch chuck and die in hand operated press, securing locking screws with hex wrench.

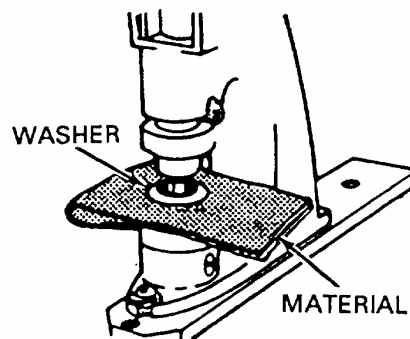


- b. Insert barrel of replacement grommet through hole in material. Ensure grommet flange is on same side of material as original grommet.



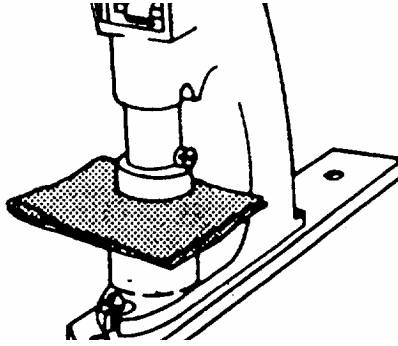
**Grommet Barrel Inserted in Material Hole**

- c. Position grommet on die in press with barrel facing up, place replaced washer over barrel.



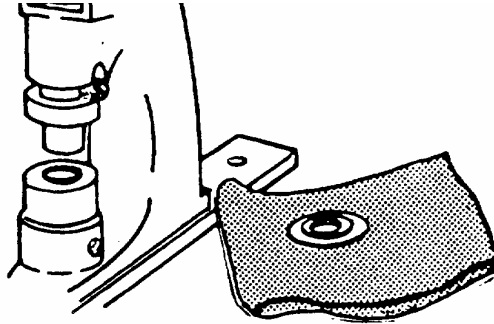
**Washer Placed Over Grommet Barrel**

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



**Press Activated to Seat the Grommet**

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



**Grommet Installation Completed**

**END OF WORK PACKAGE**



---

**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**DEPLOYMENT BAG LOCKING STOW LOOP**


---

**THIS TASK COVERS:**

- Repair
  - Replace
- 

**Tools**

Knife (Item 7, WP 0050 00)  
 Pot, Melting, Electric (Item 16, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Sewing Machine, Heavy-Duty (Item 21, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Marking, Aid (Item 21/22, WP 0059 00)  
 Thread, Nylon, Size 6 (Item 39, WP 0059 00)  
 Wax, Paraffin (Item 43, WP 0059 00)  
 Webbing, Cotton, Type VIII, OD, 1 3/4-IN. Wide (Item 45, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

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

**References**

WP 0014 00, WP 0015 00

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**REPAIR**

Stitch and restitch broken or loose stitching with size 6 nylon thread, which matches the color of the original stitching. Lock all straight stitching by backstitching at least 1/2-inch. Restitch directly over the original stitching following the original stitch pattern as closely as possible. Stitch according to WP 0014 00, SEWING PROCEDURES.

**REPLACE**

Replace damaged locking stow loops on the cotton bag by fabricating as follows:

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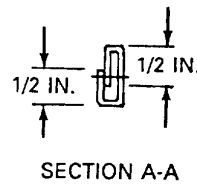
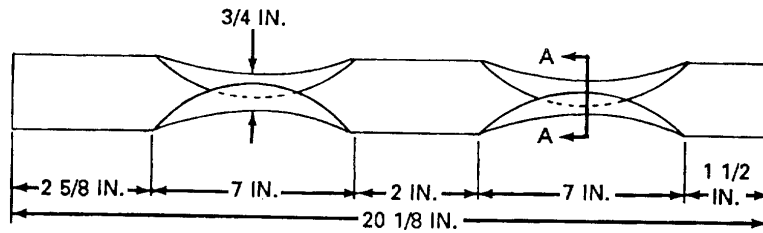
**NOTE**


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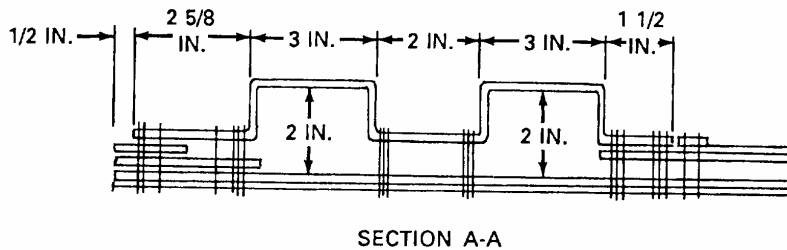
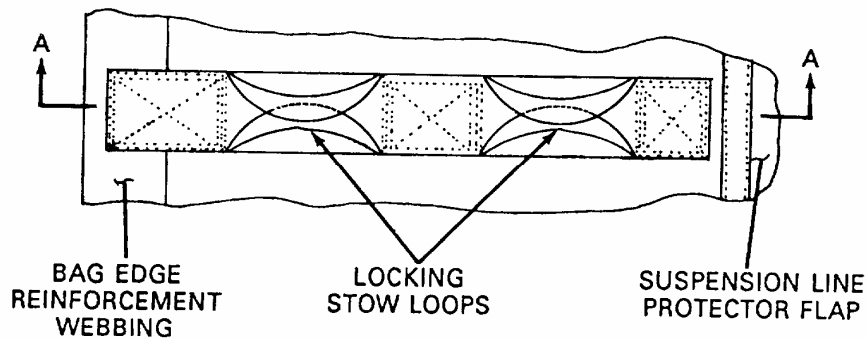
Replacement of locking stow loops on the nylon bag is not authorized.

1. Cut and remove the stitching which secures the original loop webbing length between points 1-inch back from the edge of the suspension line protector flap.
2. Remove the original locking stow loops by cutting the loop webbing length at the points specified in REPAIR, above.
3. Cut a 20 1/8-inch length of 1 3/4-inch wide, type VIII cotton webbing and wax the ends (WP 0015 00, SEARING AND WAXING).
4. Using a suitable marking aid, mark the webbing length at points 2 5/8, 9 5/8, 11 5/8, and 18 5/8-inches from one end.
5. Between the 2 5/8- and 9 5/8-inch marks, roll 1/2-inch of each webbing edge into the center of the webbing width and allow the webbing edges to overlap.

- Secure the overlapped webbing edges to the webbing length by stitching a single row of stitching according to the details in the illustration below. Use a heavy-duty sewing machine with size 6 nylon thread. Stitching will be 5 to 8 stitches per inch in accordance with WP 0014 00, SEWING PROCEDURES.

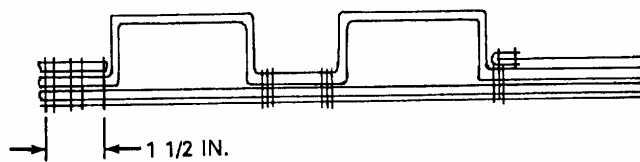
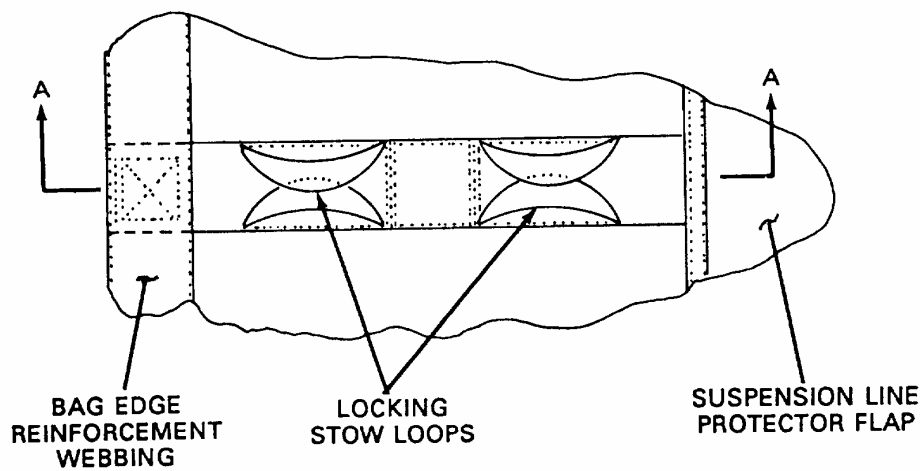


- Repeat the procedure in steps 5 and 6, above, for the 7-inch long webbing area between the 11 5/8- and 18 5/8-inch marks made in 4., above.
- Position the webbing length in the original loop webbing location on the deployment bag.
- Form the locking stow loops and secure the webbing length by stitching according to the details in the illustration below, using a heavy-duty sewing machine with size 6 nylon thread. Stitching will be 5 to 8 stitches per inch, in accordance with WP 0014 00, SEWING PROCEDURES.



10. Altering Loop Size. If the locking stow loops on a cotton deployment bag do not conform to the dimensions shown in the illustrations on the previous page, the loops may be enlarged by alteration as follows:

- a. Cut and remove the stitching from the inside of the front loop to the bag edge reinforcement webbing and from the inside of the edge of the suspension line protector flap. Ensure no material damage is incurred during the cutting process.
- b. To ensure the loop webbing does not pull away from the deployment bag, stitch a 1 ½-inch square, single-X box stitch formation, with one double end through the bag edge reinforcement webbing and the end of the locking stow loop webbing. Refer to the details in the illustration below. Use a heavy-duty sewing machine and size 6 nylon thread. Stitching will be 5 to 8 stitches per inch, in accordance with WP 0014 00, SEWING PROCEDURES.



SECTION A-A

END OF WORK PACKAGE



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**UNIT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**DEPLOYMENT BAG BRIDLE**


---

**THIS TASK COVERS:**

- Inspect
  - Service
  - Repair
  - Replace
- 

**Tools**

Knife (Item 7, WP 0050 00)  
 Needle, Tacking (Item 13, WP 0050 00)  
 Pot, Melting, Electric (Item 16, WP 0050 00)  
 Sewing Machine, Heavy-Duty (Item 21, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Marking, Aid (Item 21/22, WP 0059 00)  
 Thread, Nylon, Size 6 (Item 39, WP 0059 00)  
 Wax, Paraffin (Item 43, WP 0059 00)  
 Webbing, Nylon, Type VIII, 1 ¾-IN. Wide (Item 50, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

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

**References**

WP 0006 00, WP 0008 00, WP 0009 00, WP 0014 00, and WP 0016 00

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**INSPECT**

Inspect a deployment bag bridle in accordance with Table 1., WP 0006 00, PMCS, and WP 0009 00, INSPECTION.

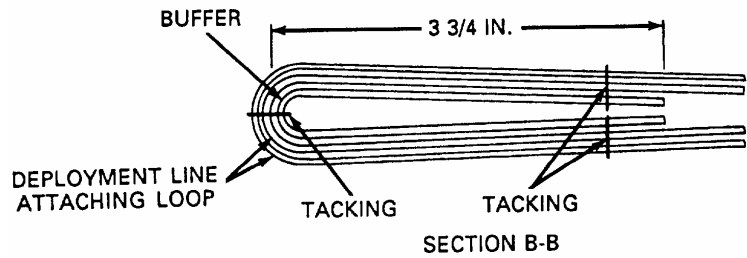
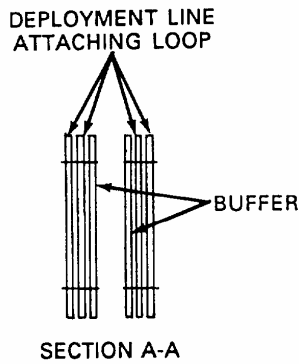
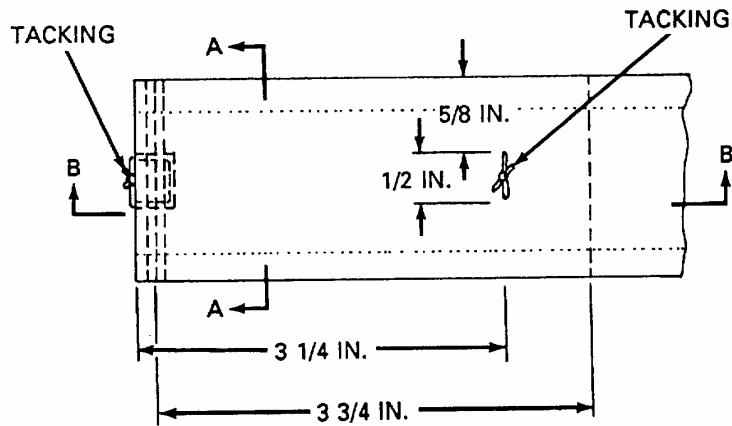
**SERVICE**

Service a deployment bag bridle by cleaning the bridle webbing in accordance with WP 0008 00, CLEANING AND DRYING.

**REPAIR**

1. Restitching. Restitch broken or loose stitching according to original construction details. Using a heavy-duty sewing machine and size 6 nylon thread, which matches the color of the original stitching. Lock all straight stitching by backstitching at least ½-inch. Restitch directly over original stitching following the original stitch pattern as closely as possible. Stitch according to WP 0014 00, SEWING PROCEDURES.
2. Retacking. Replace broken or loose tacking which secures the buffer in the deployment line attaching loop by retacking according to original tacking details, using one turn double ticket No. 8/7 waxed cotton thread at each of three tacking points. Secure the tacking ends at each tacking point with a surgeon's knot and locking knot. Trim tie ends to ½-inch.
3. Replacing a loop buffer. Replace a damaged or missing deployment line attaching loop buffer on the cotton deployment bag bridle by fabricating as follows:
  - a. If applicable, remove the original buffer by cutting the tacking securing the buffer within the attaching loop. Ensure the loop material is not damaged during the cutting process.
  - b. Cut a 7 ½-inch length of 1 ¾-inch wide, type VIII, nylon webbing and wax the ends.
  - c. Double the webbing length and position the folded webbing in the original buffer location within the bridle deployment line attaching loop.

- d. Secure the buffer to the loop webbing by handtacking at three points according to the details in illustration detailed below, using one turn double, ticket No. 8/7 waxed cotton thread at each tacking point. Secure each of the tacking ends with a surgeon's knot and locking knot. Trim tie ends to 1/2-inch.



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

**REPLACE**

Replace an unserviceable deployment bag bridle with a serviceable item from stock.

**END OF WORK PACKAGE**

**CHAPTER 4**

**DIRECT SUPPORT MAINTENANCE INSTRUCTIONS**  
**FOR**  
**PARACHUTE, CARGO TYPE:**  
**100-FOOT DIAMETER, MODEL**  
**G-11B, G-11C, AND G-11D**





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**DIRECT SUPPORT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**SEWING PROCEDURES**

---

**THIS TASK COVERS:**

- Basting and Temporary Tacking
  - Stitching and Restitching
  - Darning
  - Zig-Zag Sewing
- 

**Tools**

Specified in paragraph applicable to the item being repaired.

**Personnel Required**

92R (10) Parachute Rigger

**Materials/Parts**

Specified in paragraph applicable to the item being repaired.

**Equipment Condition**

Unpacked. Cleaned canopy with defects recorded.

**References**

DA PAM 738-751; WP 0042 00

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**NOTE**

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

**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. When basting, do not tie knots at any point in the thread length. Also, the sewing should be done with two stitches per inch.
3. Temporary tacking will usually be done using a length of size E nylon thread (Item 41/42, WP 0059 00). However, an alternate type thread may be specified within the paragraph applicable to the item.
4. Immediately upon completion of a repair, remove previously made basting or temporary tacking stitches.

**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. Zig-zag stitching does not require locking; however, zig-zag 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**

<b>CODE SYMBOL</b>	<b>SEWING MACHINE</b>
LD	SEWING MACHINE, INDUSTRIAL: General sewing; 301 stitch; light-duty; NSN 3530-01-177-8590.
MD ZZ	SEWING MACHINE, INDUSTRIAL: Zig-zag; 308 stitch; medium-duty; NSN 3530-01-181-1421.
LD ZZ	SEWING MACHINE, INDUSTRIAL: Zig-zag; 308 stitch; light-duty; NSN 3530-01-181-1420.
HD	SEWING MACHINE, INDUSTRIAL: General sewing; 301 stitch; heavy-duty; NSN 3530-01-177-8588.
MD	SEWING MACHINE, INDUSTRIAL: General sewing; 301 stitch; medium-duty; NSN 3530-01-177-8591.
DN	SEWING MACHINE, INDUSTRIAL: Darning; lock stitch; NSN 3530-01-177-8589.
LHD	SEWING MACHINE, INDUSTRIAL: 301 stitch; light, heavy-duty; NSN 3530-01-186-3079.
ND	SEWING MACHINE, INDUSTRIAL: 301 stitch; double needle; NSN 3530-01-182-2873.

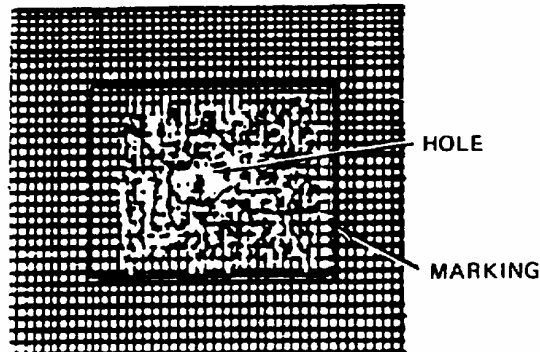
**Table 2. Stitching and Restitching Specifications**

<b>COMPONENT</b>	<b>RECOMMENDED SEWING MACHINE (CODE SYMBOL)</b>	<b>STITCHES PER INCH</b>	<b>THREAD SIZE</b>
The 100-Foot-Diameter Cargo Parachute			
Gore Section	LD	7 to 11	E
Canopy Line	MD ZZ	7 to 11	E
Radial Line	MD ZZ	7 to 11	E
Suspension line	MD ZZ	5 to 8	3
Radial Line Reinforcement Tape	LD	7 to 11	E
V-Tab	LD ZZ	7 to 11 7 to 11	E E

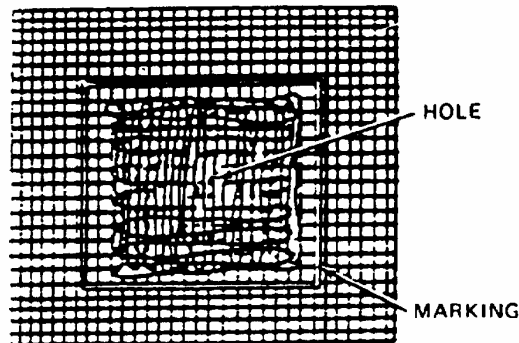
- a. Other parachute items. Stitching and restitching on other parachute items constructed from cloth, canvas, and webbing should be accomplished with thread that matches the color of the original stitching, when possible. Backstitching at least ½-inch should lock all straight stitching. Restitching should be locked by overstitching each end of the stitch formation by ½-inch. Zig-zag stitching does not require locking; however, zig-zag restitching should extend at least ¼-inch into undamaged stitching at each end, when possible. Restitching should be made directly over the original stitching, following the original stitch pattern as closely as possible.
2. Darning. (Refer to Tables 1 and Table 2.) Darning is a sewing procedure used to repair limited size holes, rips, and tears in assorted airdrop items constructed from textile material such as parachute canopy gore sections, and the cloth, and reinforcement webbing of packs. A darning repair may be made either by hand or 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. Darning of previously patched material can be performed provided darning size limitations prescribed in the paragraph applicable to the item are not exceeded. A darning repair will be performed using the following procedures, as appropriate:

a. Machine darning. Proceed as follows:

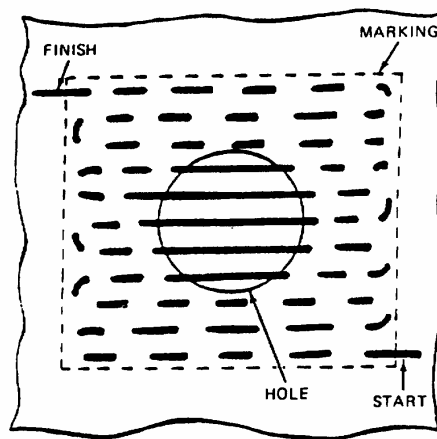
- (1) Using an authorized marking aid of contrasting color, mark a square around the damaged area and ensure the marking is at least ¼-inch back from each edge of the damaged area. The marking will be made with the warp and the filling of the material.
- (2) Darn the damaged area by sewing the material in a back-and-forth manner, using size A or E nylon thread, allowing the stitching to run with the warp or filling of the fabric.



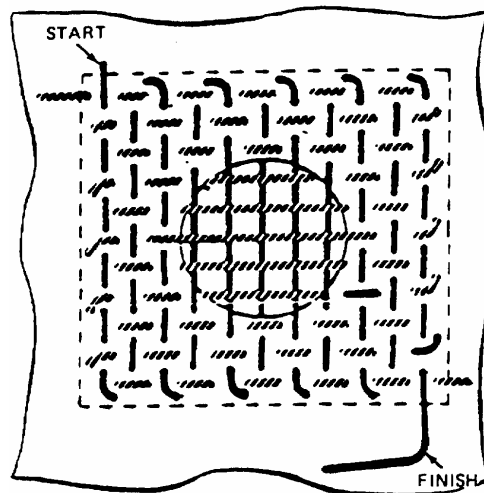
- (3) Turn the material and stitch back and forth across the stitching made in (2) above until the hole or tear is completely darned.



- (4) If applicable, restencil informational data, gore number(s), or identification marks using the criteria in WP 0042 00, MARKING AND STENCILLING.
- b. Hand darning. When repair of a hole or tear is made by hand darning, the darn should match the original weave of the damaged material as closely as possible. Hand darning will be performed as follows:
- (1) 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 edge of the damaged area. The marking will be made with the warp and the filling of the material.
  - (2) Using a darning needle and a length of size A or E nylon thread, begin darning at one corner of the marked area. Working in the direction of the fabric warp or filling, pass the needle and thread back and forth, through the material until the opposite diagonal corner of the marked area is reached.



- (3) Turn the material and weave the needle and thread back and forth across the stitching made in (2), above, until the hole is completely darned.



(4) If applicable, restencil informational data or identification marks as outlined in WP 0042 00, MARKING AND STENCILLING.

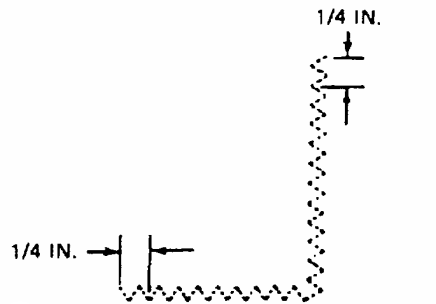
3. Zig-Zag Sewing. (Refer to Table 1 and Table 2.) Airdrop items, except parachute canopies, made from textile materials that have sustained cut or tear damage may be repaired by zig-zag sewing provided the applicable damaged area does not have any material missing and the cut or tear is straight or L-shaped. Should the damaged area be irregular shaped or have material missing, the repair will be achieved by either darning or patching, as required. A zig-zag sewing repair will be accomplished with a zig-zag sewing machine, using the following procedures:

- a. Set the sewing machine to the maximum stitch width.
- b. Beginning at a point ¼-inch beyond one end of the cut or tear, stitch lengthwise along the damaged area to a point ¼-inch beyond the opposite end of the cut or tear.



**STRAIGHT CUT OR TEAR STITCHING**

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



**L-SHAPED CUT OR TEAR STITCHING**

- d. If applicable, restencil informational data or identification marks as prescribed in WP 0042 00, MARKING AND RESTENCILLING.

**END OF WORK PACKAGE**



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**DIRECT SUPPORT MAINTENANCE  
100-FOOT DIAMETER CARGO PARACHUTE  
SEARING AND WAXING**

---

**THIS TASK COVERS:**

- Searing
  - Waxing
- 

**Tools**

Knife, Metal, Hot (Item 8, WP 0050 00)  
Pot, Melting, Electric (Item 16, WP 0050 00)

**Materials/Parts**

Beeswax, Technical (Item 1, WP 0059 00)  
Wax, Paraffin, (Item 43, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Unpacked.

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**CAUTION**

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

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**NOTE**

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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 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.

**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**





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**DIRECT SUPPORT MAINTENANCE  
100-FOOT DIAMETER CARGO PARACHUTE  
MARKING AND RESTENCILLING**

---

**THIS TASK COVERS:**

- Marking
  - Restencilling
  - Remarking and Restencilling
- 

**Tools**

Brush, Stencilling (Item 4, WP 0050 00)  
Knife (Item 7, WP 0050 00)  
Machine, Stencil Cutting (Item 11, WP 0050 00)

**Materials/Parts**

Ink, Marking, Parachute, Strata-Blue (Item 17, WP 0059 00)  
Marker, Felt Tip, Black (Item 20, WP 0059 00)  
Pen, Ball Point (Item 24, WP 0059 00)  
Stencilboard, Oiled (Item 26, WP 0059 00)

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**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Laid out on packing table or other suitable area.

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**NOTE**

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

**REMARKING AND RESTENCILING**

Remark or restencil 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**

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**DIRECT SUPPORT MAINTENANCE  
100-FOOT DIAMETER CARGO PARACHUTE  
GORE SECTION**

---

**THIS TASK COVERS:**

- Replace
- 

**Tools**

Brush, Stencilling (Item 4, WP 0050 00)  
 Knife (Item 7, WP 0050 00)  
 Needle, Tacking (Item 13, WP 0050 00)  
 Sewing Machine, Darning (Item 20, WP 0050 00)  
 Sewing Machine, Light-Duty (Item 22, WP 0050 00)  
 Shears (Item 25, WP 0050 00)  
 Yardstick (Item 26, WP 0050 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
 Inspected (WP 0009 00).  
 Unpacked, parachute laid out on table.

**Materials/Parts**

Cloth, Nylon, Parachute Mending, Adhesive (Item 8, WP 0059 00)  
 Cloth, Nylon, Parachute, Type II, 1.6 Oz. (Item 9, WP 0059 00)  
 Cloth, Nylon, Parachute, Type III, 1.6 Oz. (Item 10, WP 0059 00)  
 Marking Aid (Item 21/22, WP 0059 00)  
 Pushpins (Local Purchase)  
 Thread, Nylon, Size E (Item 41/42, WP 0059 00)

**References**

WP 0006 00, WP 0040 00, and  
 WP 0042 00

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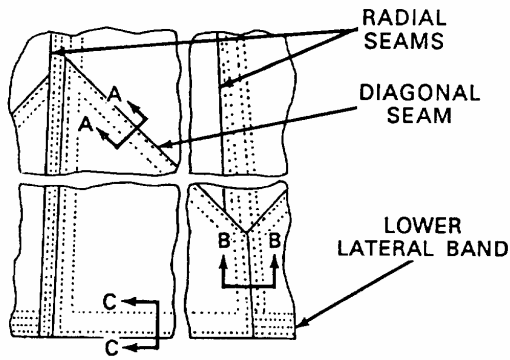
**REPLACE**

Replace a gore section that is damaged beyond repair by fabricating a replacement section, in accordance with the following procedures:

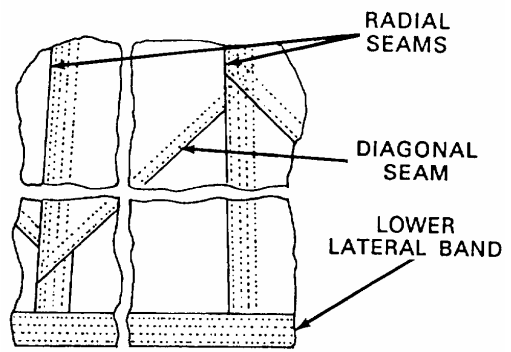
NOTE

When repairing parachute canopies, cloth nylon, parachute, 1.6 Oz., type II (twill weave) or type III (ripstop nylon) may be used in lieu of each other.

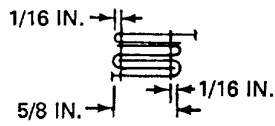
1. Inspection. Inspect the canopy in accordance with Table 1, PMCS, WP 0006 00. To determine the extent of canopy damage, proceed as follows:
  - a. Invert the canopy on a repair table and locate the damaged section.
  - b. As required, remove or lay aside items that may interfere with the section replacement process by cutting the stitching securing the items to the canopy.
  - c. Smooth out the damaged gore section and secure surrounding canopy material to the repair surface by placing pushpins through seams or lateral bands as far above and below the damaged section as necessary. Ensure that all adjacent seams or lateral bands are straight and the damaged section is not distorted.
  - d. Any gore sections that are damaged beyond repair by patching may be replaced individually by the normal procedure, by the modified method, or in multiples, as described in the following paragraphs, using the details in following illustrations.



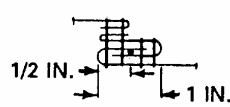
INSIDE VIEW



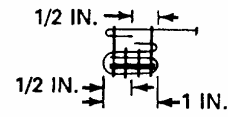
OUTSIDE VIEW



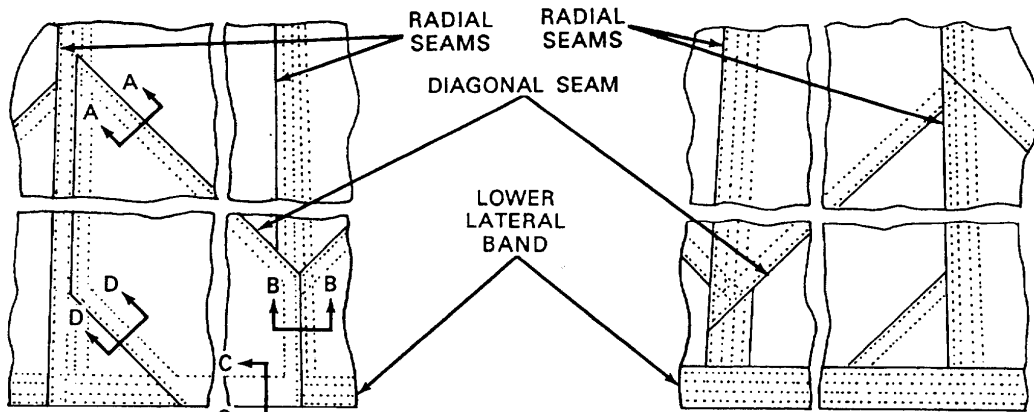
SECTION A-A



SECTION B-B

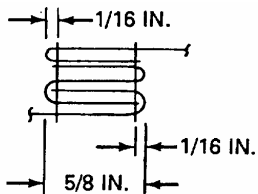


SECTION C-C

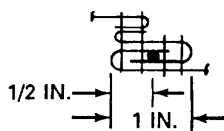


INSIDE VIEW

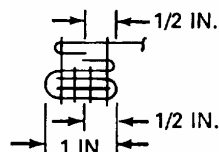
OUTSIDE VIEW



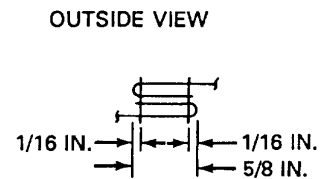
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

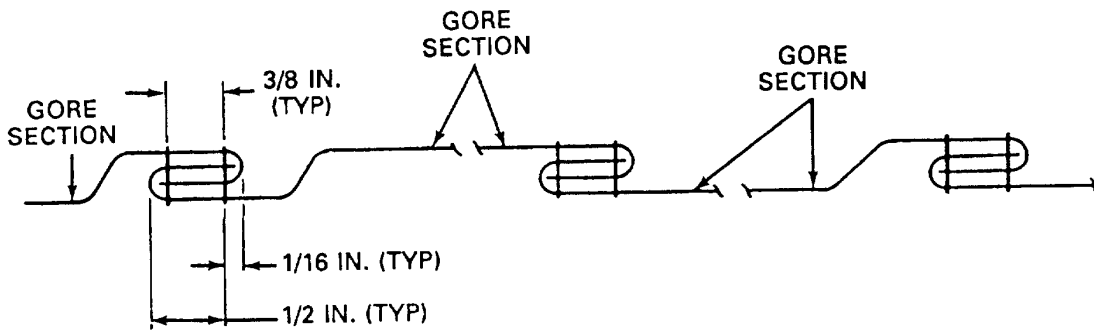
2. Normal gore section replacement. Gore sections are normally replaced as follows:
  - a. Remove the damaged section by cutting the section material at a point ½-inch in from the inside edge of each adjacent seam or lateral band.
  - b. Cut the remaining fabric diagonally at each corner to allow the raw edges to be folded back.
  - c. Fold each raw edge back by ½-inch and pin and baste each folded edge to complete area preparation. Basting will be performed according to the basting and temporary tacking procedures in WP 0040 00, SEWING PROCEDURES.
  - d. Position a piece of serviceable parachute cloth, equal to the material used in original gore section construction, over the prepared area.
  - e. Cut the cloth piece to a size that will cover the entire prepared area. Allow as many salvaged edges of the cloth piece to remain as possible. Also allow at least 3-inches of extra fabric to remain on each raw edge.
  - f. Fold under each salvaged edge of the cloth piece to a width equal to the width of adjacent seams and align the cloth folded edges with the outside edges of adjacent seams or bands. Secure the seams or bands with pushpins.
  - g. Fold the raw edges of the cloth pieces as follows:
    - (1) Fold under the raw edges located adjacent to a lateral band and align the folded edges with the outside edges of the lateral band. Secure the aligned edges to the applicable lateral band with pushpins.
    - (2) Fold under the raw edges located along radial seams that have four rows of stitching and align the folded edges with the center of the radial seams. Secure the folded edges to the radial seams with pushpins.
    - (3) Secure the situated replacement section cloth to the canopy material by basting along each of the folded edges. Basting will be made according to the basting and temporary tacking procedures in WP 0040 00, SEWING PROCEDURES.
    - (4) Remove the pushpins from the edges of the replacement section and secure the section material to the canopy inside by stitching, according to the details in the illustration below. Use the stitching procedures in WP 0040 00, SEWING PROCEDURES, with size E nylon thread, and 7 to 11 stitches per inch.
    - (5) Turn the canopy right side out and trim the raw edges of the section material to a point ½-inch from the stitching made in step (4), above.
    - (6) On the canopy outside, stitch completely around the prepared area using the stitching criteria in step (4), above.
    - (7) Reposition the item(s) removed or laid aside to their original location(s) and reattach each item to the canopy by restitching according to the applicable WP and WP 0040 00. Use size E nylon thread, and 7 to 11 stitches per inch.
    - (8) Stencil informational data or other markings on the replacement section using the procedures in WP 0042 00, MARKING AND RESTENCILLING.
3. Modified gore section replacement. If a gore section that is located next to the lower lateral band on a bias-constructed canopy does not have damage extending into a corner that is bounded by the lower lateral band and a radial seam, the section may be replaced using a modified method as follows:

- a. When removing the damaged section, cut the section material diagonally across the corner. Allow the corner material of the original section to remain intact and also allow a sufficient amount of material to remain to preclude the replacement section overlapping the pocket band.
- b. Except for the procedure in step (a), complete the section replacement using the applicable procedures outlined in the NORMAL GORE SECTION REPLACEMENT paragraph, above, and the details in the illustration below.

NOTE

When replacing a gore section on a bias-constructed canopy using the modified replacement method, it is not necessary to remove the V-tab from the radial seam located alongside the damaged section.

4. Multiple gore section replacement. If two or more adjacent sections with a bias-constructed gore require replacement, cut and remove all affected sections, including the joining diagonal seams as prescribed in the NORMAL GORE SECTION REPLACEMENT paragraph, above. Prepare the material for the replacement sections and join the replacement sections together with 1/2-inch wide overlapping the seams (see illustration below). Install the joined replacement sections using the applicable procedures in the NORMAL GORE SECTION REPLACEMENT paragraph, above.



**END OF WORK PACKAGE**

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**DIRECT SUPPORT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**CANOPY LINE**

---

**THIS TASK COVERS:**

- Replace
- 

**Tools**

Pot, Melting (Item 16, WP 0050 00)  
Sewing Machine, Medium-Duty (Item 23, WP 0050 00)  
Sewing Machine, Medium-Duty, Zig-Zag (Item 25, WP 0050 00)

**Materials/Parts**

Beeswax, Technical (Item 1, WP 0059 00)  
Cord, Nylon, Type III (Item 12/13, WP 0059 00)  
Marking Aid (Item 21/22, WP 0059 00)  
Thread, Nylon, Size E (Item 41/42, WP 0059 00)  
Wax, Paraffin (Item 43, WP 0059 00)  
Webbing, Nylon, Type I, <sup>9</sup>/<sub>16</sub>-IN. Wide (Item 48, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
Inspected (WP 0009 00).  
Unpacked, canopy laid out flat  
on repair table.

**References**

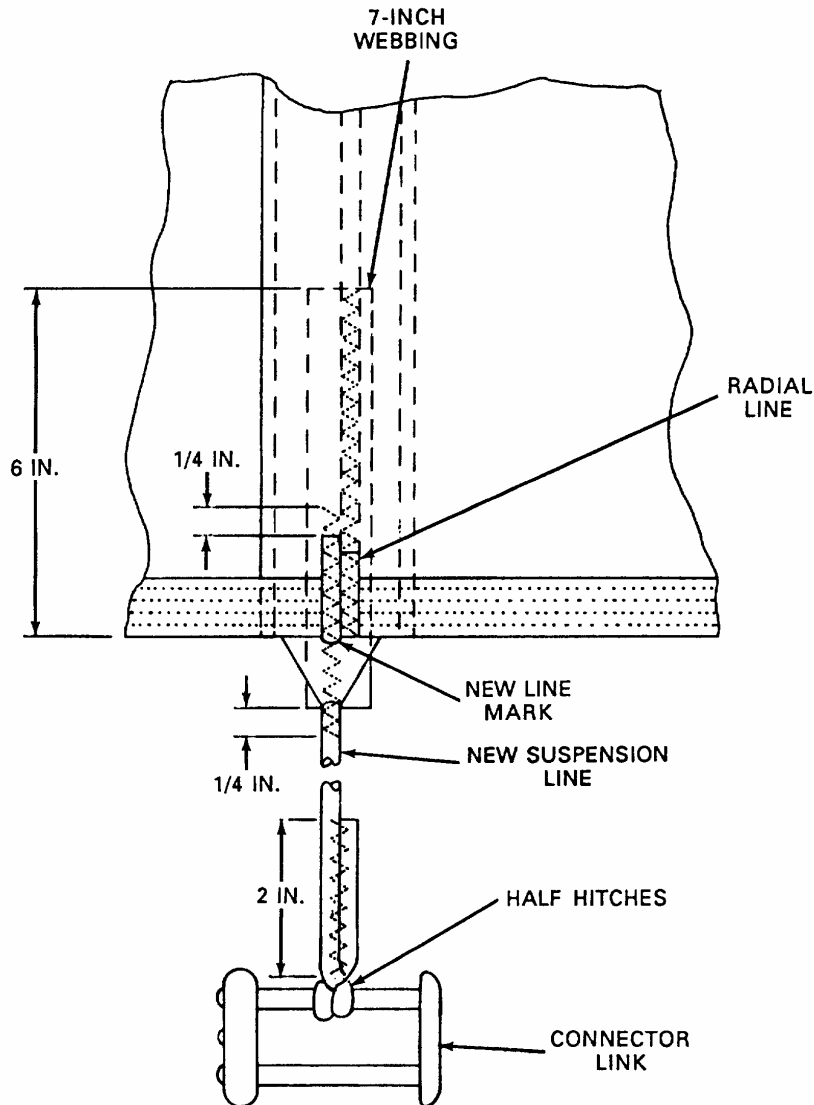
WP 0045 00

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**REPLACE**

1. Replacing a suspension line. When a suspension line portion of a canopy line is damaged beyond the limitations for splicing, or the core threads are damaged to any extent, the suspension line will be replaced. Replace a damaged suspension line from the lower lateral band to the attaching connector link assembly by fabricating as follows:
  - a. Place the canopy assembly in proper layout on a suitable work surface and trace the affected suspension line from the point of attachment at the lower lateral band to the respective connector link assembly.
  - b. Remove the lower radial line reinforcement tape at the canopy skirt by cutting the stitching securing the tape length to the canopy.
  - c. Further cut the stitching securing the V-tab and original suspension line together.
  - d. Remove the original suspension line by cutting the line length at the applicable connector link assembly and at the lower edge of the lower lateral band, just above the V-tab.
  - e. Secure the loose end of the radial line using temporary tacking or pushpins.

- f. Cut a length of type III nylon cord 36-inches longer than the length of the original suspension line.

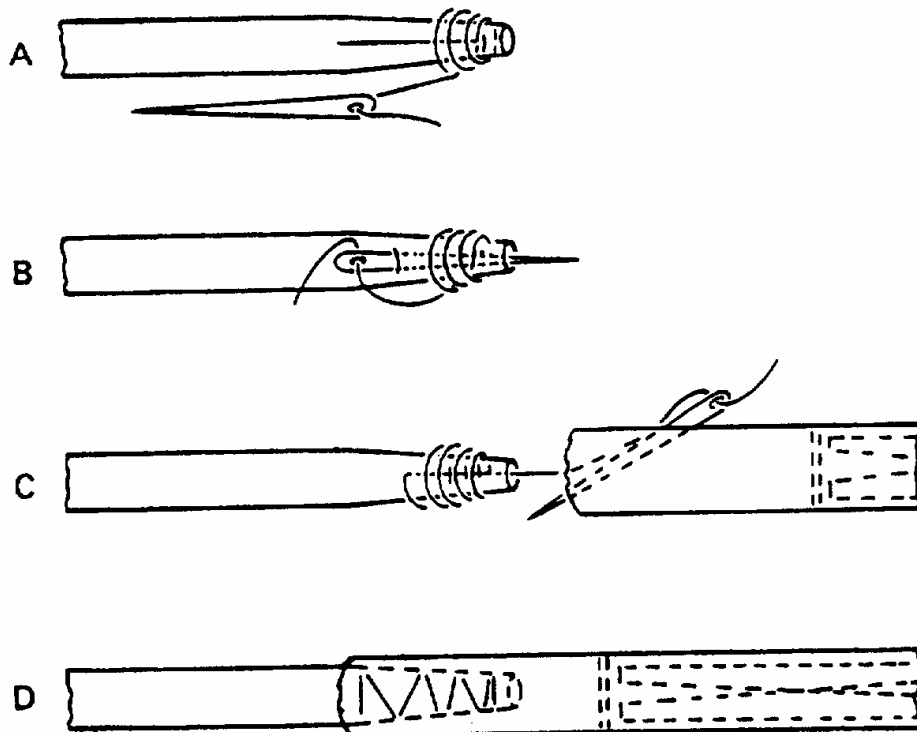


- g. Position one end of the cord length on the applicable connector link assembly in the original suspension line location.
- h. Secure the cord end to the connector link with two half-hitches, leaving a 6-inch long tie free end.
- i. Trace the replacement line length and an adjacent suspension line from the connector link assembly to the canopy skirt and allow both lines to settle under equal tension.
- j. Using a suitable marking aid, mark the replacement line at the point of intersection with the lower edge of the lower lateral band.
- k. After marking, apply slight tension to the replacement line and adjacent suspension line to check the accuracy of the mark.



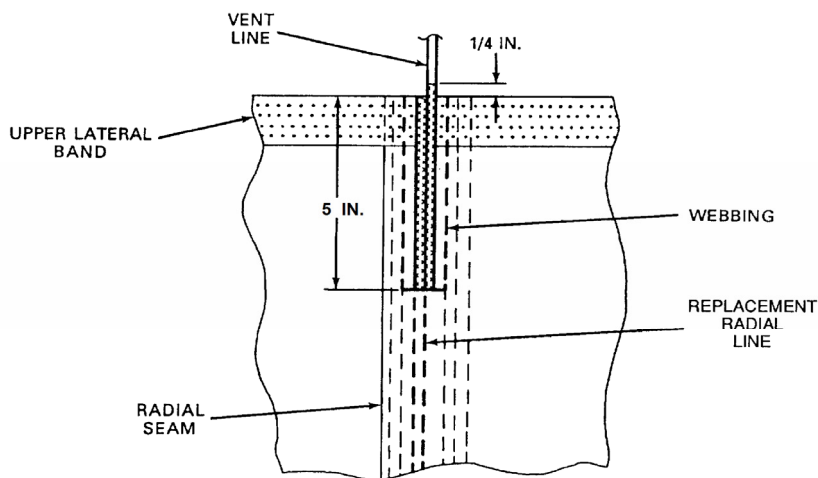
- l. At a point 6-inches above the mark, cut the replacement line length and sear the cut end.
- m. Pass the waxed line end up through the original attaching V-tab and temporarily secure the line end to the V-tab with a bow knot.
- n. Remove one end of the applicable pocket band by cutting the stitching securing the pocket band end to the lower lateral band.
- o. Position the loose pocket band end above the secured end and temporarily secure the loose end to the lateral band using a pushpin.
- p. Remove one end of the applicable reefing ring retainer by cutting the stitching securing the retainer end to the lower lateral band.
- q. Position the loose retainer end above the secured end and temporarily secure the loose end to the lower lateral band using a pushpin. Ensure the reefing ring is not removed from the retainer during the retainer cutting and relocating process.
- r. Cut a 5-inch length of  $\frac{9}{16}$ -inch wide, type I nylon webbing and wax each end by  $\frac{1}{4}$ -inch.
- s. Place the 5-inch webbing length lengthwise on the original radial seam on the canopy inside, then align the lower end of the webbing length with the upper edge of the lower lateral band.
- t. Untie the replacement suspension line at the V-tab and place the upper end of the line length adjacent to the original radial line on the outside of the radial seam.
- u. Align the mark made in step j., above, with the lower edge of the lower lateral band and secure the line end and 5-inch webbing length to the canopy skirt with temporary tacking or pushpins.
- v. Working on the outside of the canopy skirt, secure the upper end of the replacement suspension line to the V-tab and original radial seam by making a  $\frac{1}{8}$ -inch wide row of double-throw zig-zag stitching from a point  $\frac{1}{4}$ -inch below the V-tab to a point  $\frac{1}{4}$ -inch beyond the end of the replacement line. Use size E nylon thread, and 7 to 11 stitches per inch.
- w. Beginning at the lower edge of the lower band outside, secure the 5-inch webbing length and original radial line loose end to the radial seam by making a 6-inch long row of  $\frac{3}{16}$ -inch wide double-throw zig-zag stitching. Stitching will be made using size E nylon thread, 7 to 11 stitches per inch with a medium-duty zig-zag sewing machine.
- x. Remove temporary tacking or pushpins installed in steps d. and t., above.
- y. Reinstall the lower radial line reinforcement tape removed in step b., above, by restitching over the area of the original stitching and the procedures in WP 0045 00, RADIAL LINE REINFORCEMENT TAPE. Stitching will be made using size E nylon thread, 7 to 11 stitches per inch, with a medium-duty zig-zag sewing machine.
- z. Reinstall the loose ends of the reefing ring retainer, with reefing ring, and pocket band removed in steps n. through q., above, by restitching according to applicable WP.
- aa. Working at the point of attachment to the connector link assembly and beginning at a point 2-inches above the half-hitches made in step g., above, secure the tie free end to the replacement line body by stitching a 2-inch long row of  $\frac{3}{16}$ -inch wide double-throw zig-zag stitching toward the connector link assembly.
- bb. Finish the stitch formation as close as possible to the securing knots and trim the remaining tie free end to  $\frac{1}{4}$ -inch of zig-zag stitching. Stitching will be made using size E nylon thread, and 7 to 11 stitches per inch.

2. Replacing a radial line. When a radial line portion of a canopy line is damaged, the affected radial line will be replaced by fabricating as follows:
  - a. Place the canopy in proper layout on a suitable work surface.
  - b. Remove the upper, intermediate, and lower radial line reinforcement tapes from the applicable radial line radial seam by cutting the stitching securing the tape lengths to the canopy. Further cut the stitching securing the V-tab and suspension line together.
  - c. Using a suitable marking aid, mark the damaged radial line at the lower edge of the lower lateral band.
  - d. Using the procedures in the REPLACING THE SUSPENSION LINE paragraph, step n. through q., remove and temporarily secure one end of the applicable pocket band and reefing ring retainer.
  - e. Working below the canopy skirt, pull approximately 10-inches of the original radial line from the radial seam and cut the line length at a point 6-inches above the mark made in c., above.
  - f. Slide back the sheath cover of the cut radial line end to expose the line core threads and cut 1-inch of the exposed core threads. Return the sheath cover back to the original position.
  - g. Cut a 49-foot length of type III nylon cord and wax or sear one end.
  - h. Insert the waxed or seared end of the cord into the sheath cover of the original radial line and secure the two line ends together with whip stitching.



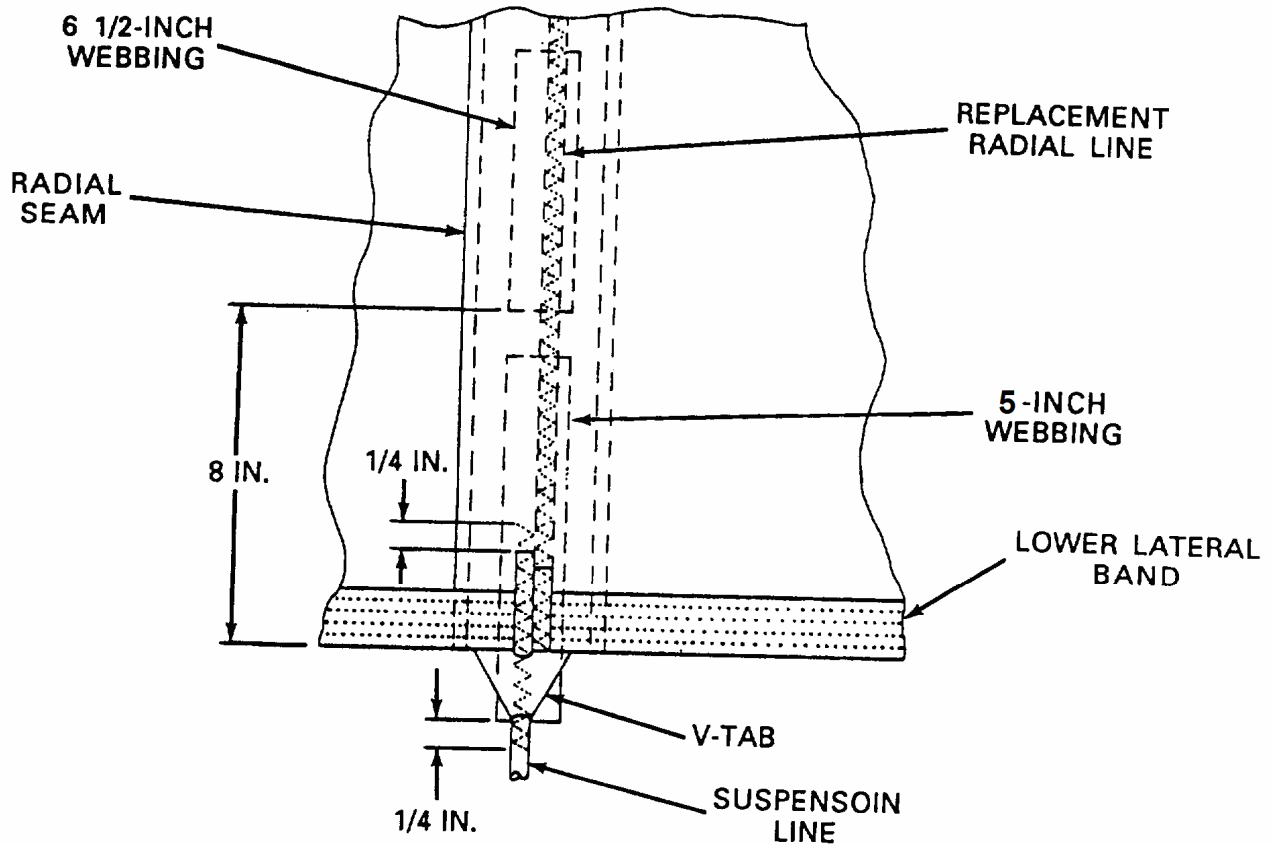
- i. Working at the canopy vent and using a suitable marking aid, mark the original radial line at the upper edge of the upper lateral band.

- j. Pull approximately 10-inches of the damaged radial line from the upper end of the radial seam and cut the line length at a point 6-inches below the mark made in i., above.
- k. Pull the original radial line up through the radial seam until the attached replacement line length extends 2-inches beyond the upper edge of the upper lateral band.
- l. Cut the replacement radial line length even with the upper edge of the upper lateral band. Temporarily secure the line end to the upper lateral band with tacking or pushpins.
- m. Cut a 5-inch length of  $\frac{9}{16}$ -inch wide, type I nylon webbing and wax each end by  $\frac{1}{4}$ -inch.
- n. Place the 5-inch webbing length lengthwise on the original radial seam on the canopy inside, then align the upper end of the webbing length with the lower edge of the upper lateral band.
- o. Secure the webbing length in position using temporary tacking or pushpins.
- p. Place the loose end of the original vent line on the radial seam outside, adjacent to the replacement radial line.
- q. Align the mark made in step i., above, with the upper edge of the upper lateral band.
- r. Secure the vent line loose end and the upper end of the replacement radial line to the radial seam using temporary tacking or pushpins.
- s. Working on the outside of the canopy top, secure the 5-inch long webbing and ventline by making a row of  $\frac{1}{8}$ -inch wide double-throw zig-zag stitching from  $\frac{1}{4}$ -inch above the upper lateral band to the end of the vent line. Stitching will be made using size E nylon thread, 7 to 11 stitches per inch with a medium-duty zig-zag sewing machine.
- t. Beginning at a point 6-inches below the upper lateral band upper edge, secure the upper end of the replacement radial line by stitching a 6-inch long row of  $\frac{3}{16}$ -inch wide double-throw zig-zag stitching to the upper edge of the upper lateral band. Stitching will be made using a medium-duty zig-zag sewing machine and size E nylon thread, 7 to 11 stitches per inch.
- u. Remove temporary tacking or pushpins installed in steps n. and o., above.



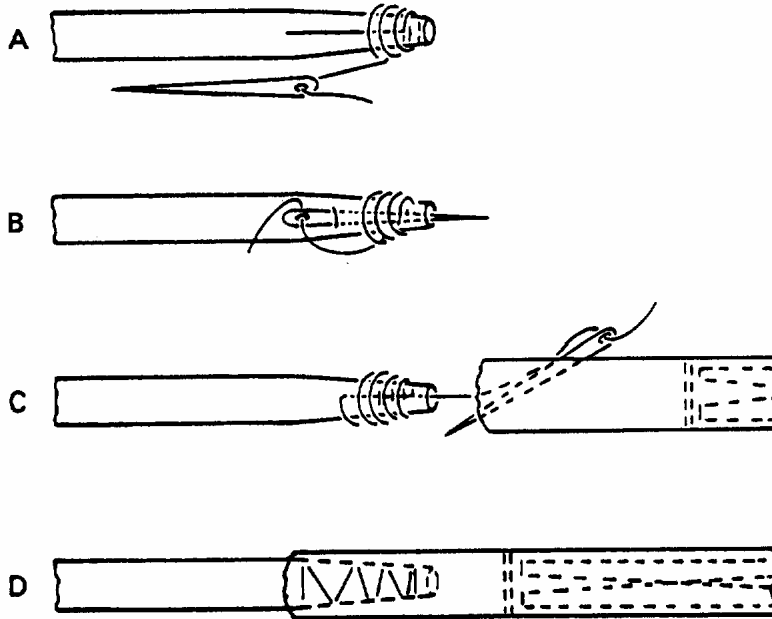
- v. Working at the lower lateral band, pick up the loose end of the replacement radial line and an adjacent radial line and allow both lines to settle under equal tension.

- w. Using a suitable marking aid, mark the replacement line length at the lower edge of the lower lateral band.
- x. Cut the replacement radial line length at the mark made in step w. above, wax or sear the cut upper end of the original radial line, then temporarily secure the line loose end to the lower lateral band with tacking or pushpins.
- y. Pass the waxed or seared line end up through the V-tab, and position the line end of the canopy outside adjacent to the replacement radial line. The mark made in step c., above, should be aligned with the lower edge of the lower lateral band.
- z. Secure the suspension line end to the radial seam using temporary tacking or pushpins.
- aa. Cut a 6 ½-inch length and a 5-inch length of  $\frac{9}{16}$ -inch wide, type I nylon webbing and wax each webbing end by  $\frac{1}{4}$ -inch.
- bb. Place the 6 ½-inch long webbing lengthwise on the inside of the affected canopy radial seam with the lower edge of the webbing located 8-inches above the lower edge of the lower lateral band.
- cc. Secure the webbing to the radial seam center from the canopy outside with a 6 ½-inch long row of  $\frac{3}{16}$ -inch wide double-throw zig-zag stitching. Stitching will be made using a medium-duty zig-zag sewing machine, size E nylon thread, and 7 to 11 stitches per inch.
- dd. Place the 5-inch long webbing lengthwise on the original radial seam on the canopy inside and align the lower end of the webbing with the upper edge of the lower lateral band.
- ee. Secure the webbing to the radial seam with temporary tacking or pushpins.
- ff. Secure the 5-inch long webbing to the replacement radial line by stitching a  $\frac{3}{16}$ -inch wide row double-throw zig-zag stitching from the upper edge of the lower lateral band to the upper end of the webbing length (refer to illustration below). Stitching will be made using a medium-duty zig-zag sewing machine, size E nylon thread, and 7 to 11 stitches per inch.
- gg. Secure the upper end of the suspension line to the V-tab and radial seam by making a  $\frac{1}{8}$ -inch wide row of double-throw zig-zag stitching from a point  $\frac{1}{4}$ -inch below the V-tab to a point  $\frac{1}{4}$ -inch beyond the end of the suspension line (refer to illustration below). Stitching will be made using a medium-duty zig-zag sewing machine, size E nylon thread, and 7 to 11 stitches per inch.
- hh. Remove the temporary tacking or pushpins installed in steps z. and ee., above.
- ii. Reinstall the upper, intermediate, and lower radial line reinforcement tapes removed in step b., above, by restitching according to the procedures in WP 0045 00, RADIAL LINE REINFORCEMENT TAPE. Stitching will be made using a medium-duty zig-zag sewing machine, size E nylon thread, and 7 to 11 stitches per inch.
- jj. Reinstall the loose ends of the reefing ring retainer, with reefing ring, and pocket band removed in step d., by restitching according to the applicable WP. Stitching will be made using a medium-duty zig-zag sewing machine, size E nylon thread, and 7 to 11 stitches per inch.

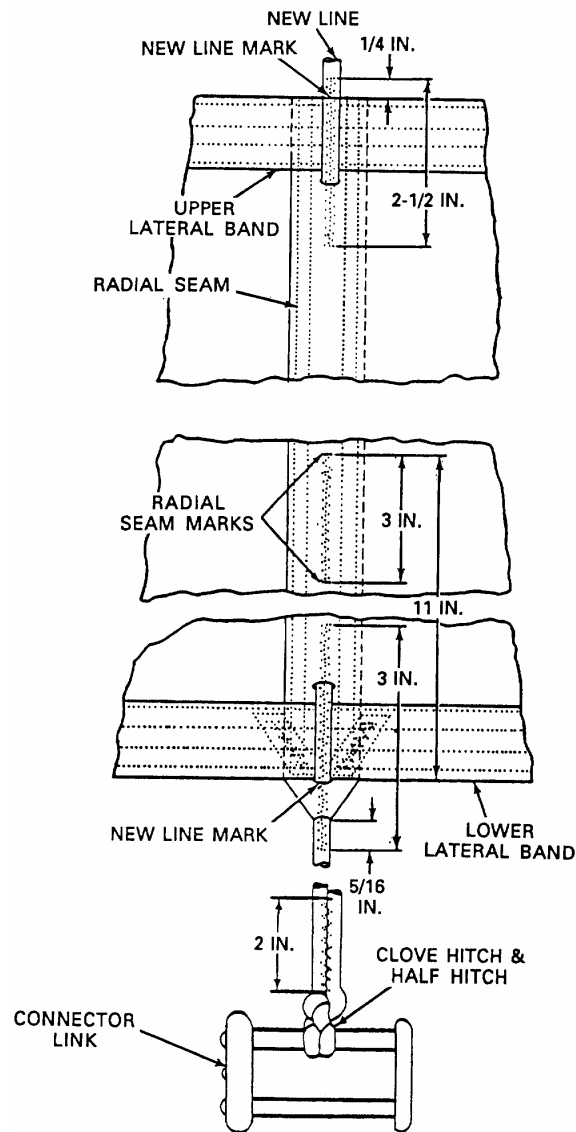


3. Replacing a vent line. When a vent line portion of a canopy line requires more than one splice or has a core thread severed, the vent line will be replaced by fabricating as follows:
  - a. Lay the canopy vent out on a suitable work surface.
  - b. Remove the affected vent line from the canopy vent by cutting the line even with the upper edge of the upper lateral band at two points.
  - c. Secure the loose upper end of each radial line with temporary tacking or pushpins.
  - d. Remove the upper radial line reinforcement tape from each of the two applicable radial lines by cutting the stitching securing the tapes to the canopy.
  - e. Cut a length of type III nylon cord 12-inches longer than the length of the removed original vent line and wax the cord ends.
  - f. Using a suitable marking aid, mark the cord length at a point 6-inches from each end.
  - g. Place one end of the cord length on the outside of one applicable radial seam, adjacent to an original radial line.
  - h. Align the respective 6-inch mark made in step f., above, with the upper edge of the upper lateral band.
  - i. Secure the cord end to the radial seam with temporary tacking or pushpins.

- j. Pass the loose end of the replacement vent line through the canopy bridle loop and position the end of the applicable radial seam on the opposite side of the canopy using the procedures in steps h. and i., above.
  - k. Cut two 5-inch lengths of  $\frac{9}{16}$ -inch wide, type I nylon webbing and wax each webbing end  $\frac{1}{4}$ -inch.
  - l. Place a 5-inch long webbing lengthwise on the inside of each affected radial seam with the upper end of each webbing length aligned with the lower edge of the upper lateral band.
  - m. Ensure each webbing length is centered on the respective radial line and positioned vent line end.
  - n. Secure each webbing length with temporary tacking or pushpins.
  - o. Working on the canopy outside, secure each positioned end of the replacement vent line to the applicable radial seam and 6-inch webbing length by stitching a  $\frac{1}{8}$ -inch wide row of double-throw zig-zag stitching from a point  $\frac{1}{4}$ -inch above the upper lateral band to a  $\frac{1}{4}$ -inch below the lower edge of the applicable vent line end. Stitching will be made using a medium-duty zig-zag sewing machine, size E nylon thread, and 7 to 11 stitches per inch.
  - p. Stitching will be made using the procedures outlined in the REMOVING THE RADIAL LINE paragraph and steps 2t. and 2hh., above.
  - q. Remove temporary tacking or pushpins installed in steps c., i, j., and n., above.
  - r. Reinstall the upper radial line reinforcement tape removed in step n., above, by restitching according to original construction details and WP 0045 00, RADIAL LINE REINFORCEMENT TAPE. Stitching will be made using a medium-duty zig-zag sewing machine, size E nylon thread, and 7 to 11 stitches per inch.
4. Replacing a Canopy Line. Replace an unserviceable canopy line by fabricating as follows:
- a. Cut and remove all stitching that holds canopy line to canopy.
  - b. Remove other items as required, allowing entire line to move freely across lateral bands, through V-tabs, and within radial seams.
  - c. Do not remove V-tabs unless they are damaged.
  - d. Cut off damaged line (hereafter referred to as old line) 24-inches below skirt on each side of canopy.
  - e. Select a spool of type III nylon cord (hereafter referred to as new line) and wax or sear end of new line.
  - f. Insert waxed or seared end of new line into sheath of old line at least 1-inch, and whipstitch, or otherwise temporarily secure ends together (refer to illustration below).
  - g. Grasp cut end of old line at opposite side of canopy skirt and pull old line, working line through V-tabs and channels and across vent, until end of new line extends approximately 10-inches beyond link assembly.
  - h. Cut old line from new line at the whip stitching to include waxed end.



- i. Make certain that approximately 10-inches of new line still extends beyond link assembly, and mark new line at point even with inside edge of link.
- j. Hold adjacent line and new line tightly together at link, and trace both lines from link to canopy skirt under equal tension.
- k. Mark new line where lines reach lower edge of lower lateral band (refer to illustration below).
- l. Check correctness of marking by again applying equal tension to both sides.
- m. Hold adjacent line and new line together at lower lateral band, grasp both lines at upper lateral band, and apply equal tension to both.
- n. Mark line at upper edge of upper lateral band.
- o. Check correctness of marking.
- p. Hold adjacent line and new line tightly together at upper lateral band and trace both lines to opposite side of vent under equal tension.
- q. Mark new line where lines reach upper edge of upper lateral band.
- r. Check correctness of marking.
- s. Hold adjacent line and new line tightly together at upper lateral band, grasp both lines at lower lateral band, and apply equal tension to both lines.
- t. Mark new lines at lower edge of lower lateral band.
- u. Check correctness of marking.



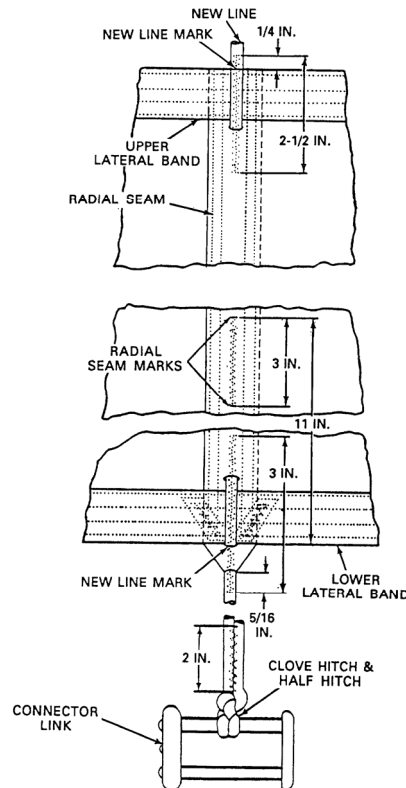
- v. Hold adjacent line and new line tightly together at lower lateral band, and trace both lines from canopy skirt to link assembly under equal tension.
- w. Mark new line at point even with inside edge of link.
- x. Check correctness of marking, and cut new line from spool at a point approximately 10-inches beyond link assembly.
- y. Relieve tension from all lines.
- z. Align marks on new line with lateral bands, and sew new line to canopy at all attaching points in accordance with the illustration below, using a medium-duty zig-zag sewing machine and size E nylon thread, 7 to 11 stitches per inch. On canopies that have a pucker in the radial seams, make certain the radial seam is still correctly puckered after all sewing is completed.



**NOTE**

To provide one-inch pucker at lower lateral band, move mark from bottom of lower lateral band to top edge of lower lateral band. Smooth out canopy material and mark material 11-inches above bottom edge of lower lateral end and sew down toward lower lateral band for 3-inches. Move mark from upper edge of lower lateral band to bottom edge and sew in as shown in the illustration on the previous page. Repeat procedure on opposite side of canopy and then complete sewing of the vent.

- aa. Reposition items removed in step a., above, and sew in place according to the applicable WP.
- bb. Cut away remaining end of old line from link assembly, noting position of line on link.
- cc. Pass end of new line through link assembly in space left by old line, and fold end back over link.
- dd. Align mark on line inside edge of link assembly and tie line to link in accordance with the illustration below.
- ee. Sew line and free end together in accordance with the illustration below.



- ff. Cut off excess end of line close to stitching.

- gg. Compare knots with adjacent knots, and trace line from link assembly to canopy skirt for correctness of attachment and position.
- hh. Attach remaining free end of new line to opposite link assembly by repeating the procedures in steps bb. through gg., above.

**END OF WORK PACKAGE**

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**DIRECT SUPPORT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**RADIAL LINE REINFORCEMENT TAPE**

---

**THIS TASK COVERS:**

- Replace
- 

**Tools**

Knife (Item 7, WP 0050 00)  
Knife, Hot Metal (Item 8, WP 0050 00)  
Sewing Machine, Zig-Zag (Item 24, WP 0050 00)  
Shears (Item 25, WP 0050 00)  
Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Tape, Nylon, Type III, 1/2-IN. Wide (Item 33, WP 0059 00)  
Thread, Nylon, Size E (Item 41/42, WP 0059 00)

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**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Cleaned (WP 0008 00).  
Inspected (WP 0009 00).  
Unpacked, canopy laid out flat  
on repair table.

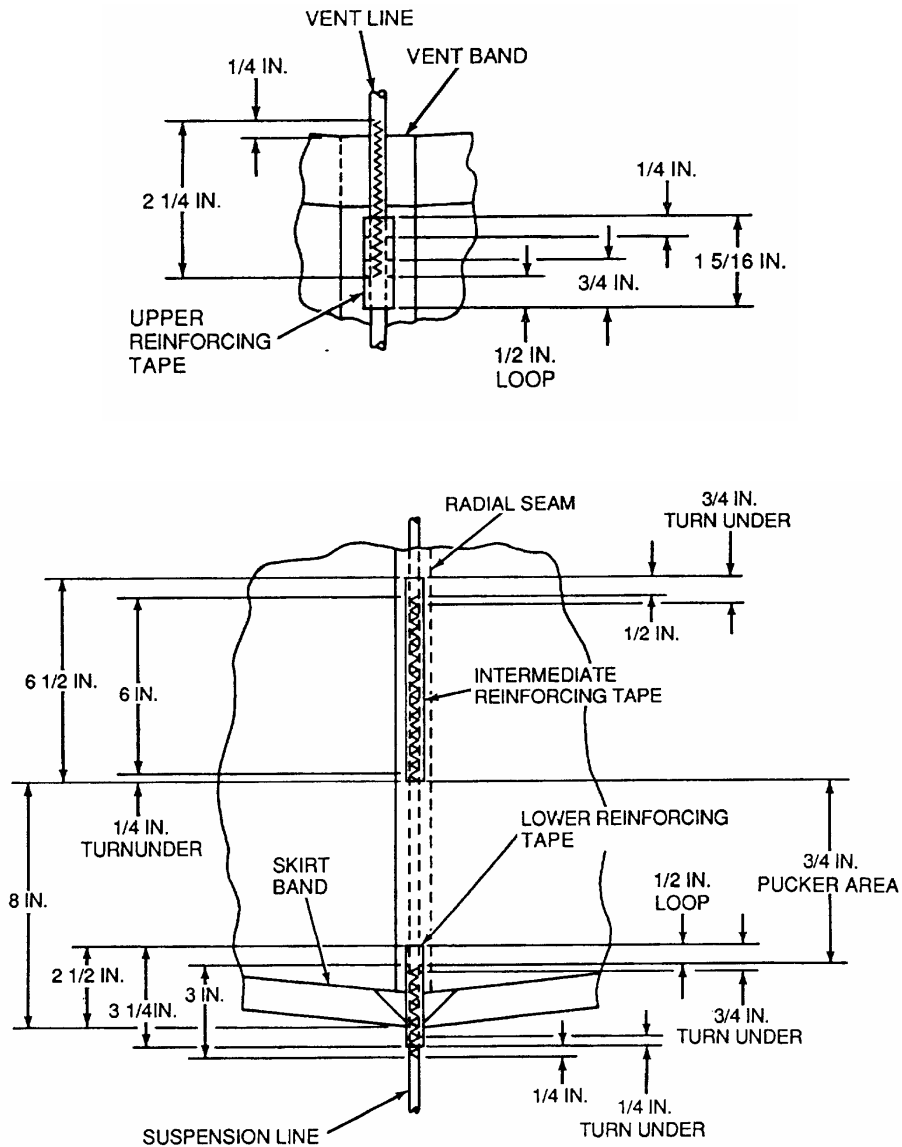
**REPLACE**

Replace a damaged upper, intermediate, or lower radial line reinforcement tape by fabricating using the following procedures:

1. Remove original reinforcement tape by cutting the stitching securing the tape length to the canopy.
2. Cut a length of 1/2-inch wide, type III nylon tape, 1-inch longer than the original tape finished length and sear the ends.
3. Make a 3/4-inch long foldunder on one end of the tape length and a 1/2-inch long foldunder on the opposite end.
4. Position the tape length in the original reinforcement tape location with the foldunders facing down and the 3/4-inch long foldunder directly away from the skirt or vent band (lower or upper lateral band), as applicable (refer to illustration on following page).
5. Secure the tape length to the radial line by stitching a 1/8-inch wide single row of double-throw zig-zag stitching according to the details in (illustration on following page), using size E nylon thread, 7 to 11 stitches per inch, with a zig-zag sewing machine.

**NOTE**

When installing the intermediate and the lower radial line reinforcement tapes at the canopy skirt, ensure a sufficient amount of canopy fabric is allowed between the two zig-zag stitch rows to form a 3/4-inch pucker in the material.



**END OF WORK PACKAGE**

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**DIRECT SUPPORT MAINTENANCE**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**V-TAB**

---

**THIS TASK COVERS:**

- Replace
- 

**Tools**

Sewing Machine, Light-Duty (Item 23, WP 0050 00)  
Sewing Machine, Medium-Duty Zig-Zag (Item 23, WP 0050 00)  
Shears (Item 24, WP 0050 00)  
Yardstick (Item 26, WP 0050 00)

**Materials/Parts**

Marking, Aid (Item 21/22, WP 0059 00)  
Thread, Nylon, Size E (Item 41/42, WP 0059 00)  
Webbing, Nylon, Type I (Item 48/49, WP 0059 00)

**Personnel Required**

92R (10) Parachute Rigger

**Equipment Condition**

Unpacked, laid flat on repair table.

**References**

WP 0040 00; WP 0041 00

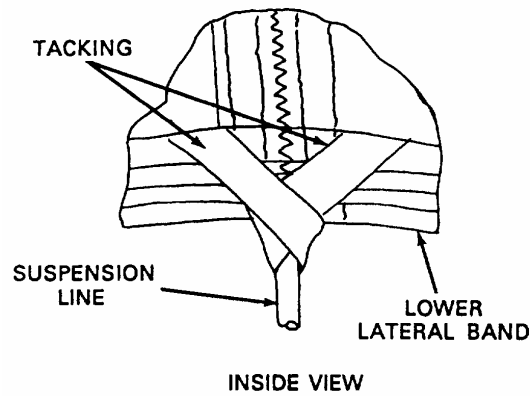
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**REPLACE**

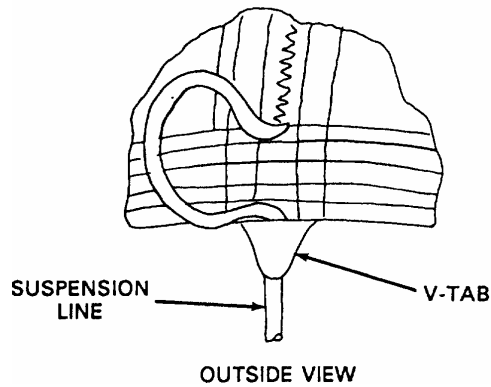
If V-tab requires replacement, proceed as follows:

1. Position the canopy assembly on a repair table or other repair surface and turn the inside of the lower lateral band to the outside to place the damaged V-tab facing up.
2. Using an authorized marking aid of contrasting color, mark the suspension line that is contained within the damaged V-tab at the point where the line intersects the lower edge of the lower lateral band.
3. Remove the affected V-tab from the canopy by cutting the stitching securing the V-tab to the lower lateral band and the suspension line.
4. Using nylon webbing, type I, cut a 5-inch length of material and sear the ends (WP 0041 00, SEARING AND WAXING).
5. Center the material lengthwise under the applicable suspension line, placing the upper edge of the material immediately adjacent to the lower edge of the lower lateral band.
6. Working from opposite directions, pass each end of the material length over the top of the suspension line.
7. Draw the ends snug to develop a tight wrap around the line and to form a V-shaped design on the lower lateral band inside.
8. Secure each end of the replacement V-tab to the lower lateral band inside with temporary tacking. The temporary tacking will be made using the procedures in WP 0040 00, SEWING PROCEDURES .

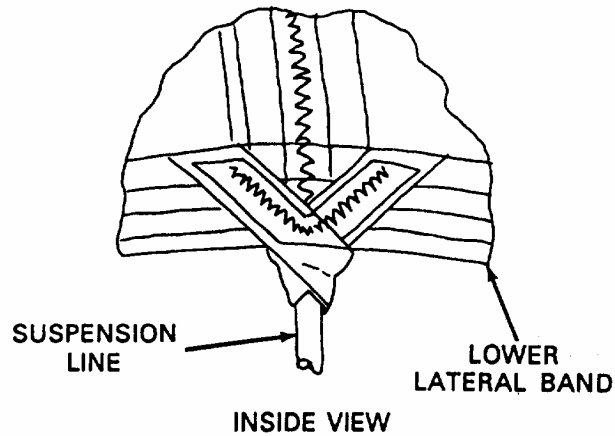
9. Bias-trim each tab end even with the upper edge of the lower lateral band.



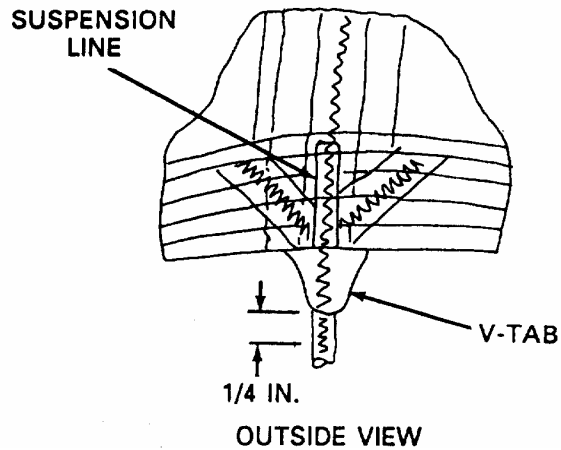
10. Pull a suitable length of the suspension line up through the V-tab on the outside of the lower lateral band and lay the pulled length to one side.



11. Secure the V-tab ends to the lower lateral band inside by stitching a single row of double-throw zig-zag stitching along the center of material, 3/16-inch wide making a V-shaped design.
12. Further stitch a single row of stitching  $\frac{1}{8}$ -inch along the edges of the V-tab ends.



13. Ensure that the pulled suspension line length is held to one side during the stitching process. Ensure the stitching does not extend above the upper edge or below the lower edge of the lower lateral band. Use a light-duty sewing machine, size E nylon thread, and 7 to 11 stitches per inch,
14. Turn the lower lateral band right side out and pull the suspension line length back down through the V-tab. Ensure the mark made in step 2. is aligned with the lower edge of the lower lateral band.
15. Beginning at a point  $\frac{1}{4}$ -inch below the V-tab lower edge, secure the suspension line upper end to the installed V-tab and the canopy skirt outside by stitching a single row of double-throw zig-zag stitching  $\frac{1}{8}$ -inch wide with a medium-duty zig-zag.



**END OF WORK PACKAGE**





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**100-FOOT DIAMETER CARGO PARACHUTE  
PREPARATION FOR STORAGE**

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**THIS WORKPACKAGE COVERS:**

- Storage Criteria
  - General Storage Requirements
  - Storage Specifics for Parachutes
  - Contingency Parachute Stock (Non-Depot)
  - Contingency Parachute Stock (Depot)
  - Parachute Log Record
- 

**INITIAL SETUP:****Personnel Required**

92R(10) Parachute Rigger

**Equipment Condition**

Unpacked.

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**STORAGE CRITERIA**

Administrative storage of the 100-Foot Cargo Parachute will be accomplished in accordance with AR 750-1, and the instructions furnished below.

**GENERAL STORAGE REQUIREMENTS**

To ensure that serviceability standards of the stored airdrop equipment 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.

**CONTINGENCY PARACHUTE STOCK (NON-DEPOT)**

Cargo and cargo extraction parachutes specifically identified as PACKED FOR CONTINGENCY and stored as contingency parachute stock separate from normal parachute stock will be repacked or replaced at an interval not to exceed a 36-months, provided the storage conditions are in accordance with the following criteria:

1. Temperature is between 50°F and 95°F, with only occasional extremes from 40°F to 120°F.
2. Relative humidity is between 25 to 80%.
3. There are no rapid changes of temperature that would cause moisture condensation.
4. Equipment is stored at least 6-inches off the floor, 1-foot away from external walls and 4-feet below the roof or ceiling, with ventilation alleys between stacks on all sides.
5. Stock is protected by covers from exposure to bright sunlight (doors, windows, skylight) and from fluorescent lighting, if within 6-feet distance.
6. Measurements, inspection and records are maintained to show that the criteria are met.
7. Cargo and cargo extraction parachutes packed for non-depot contingency operations will be identified by an entry made on the JUMP, INSPECTION, AND REPACK DATA page of each applicable parachute log record. The statement PACKED FOR CONTINGENCY and the location of the contingency stock will be stamped in the log record using red ink.

JUMP, INSPECTION,				AND REPACK DATA				
DATE			BAG NUMBER	ROUTINE INSPECTION	REPACK	PACKER'S NAME	INSPECTOR'S NAME	UNIT
DAY	MO.	YR.						
21	10	01				Shavel	Venekus	SGT ABNDIV
PACKED FOR CONTINGENCY -								
DATE RECEIVED								

**CONTINGENCY PARACHUTE STOCK (DEPOT)**

Cargo and cargo extraction parachutes specifically identified as PACKED FOR CONTINGENCY and stored as contingency parachute stock separate from normal parachute stock will be repacked or replaced at an interval not to exceed 144-months provided the storage conditions are in accordance with the following criteria:

1. Temperature is between 50°F and 95°F, with only occasional extremes from 40°F to 120°F.
2. Relative humidity is between 25 to 80%

3. There are no rapid changes of temperature which would cause moisture condensation.
4. Equipment is stored at least 6-inches off the floor, 1-foot away from external walls and 4-feet below the roof or ceiling, with ventilation alleys between stacks on all sides.
5. Stock is protected by covers from exposure to bright sunlight (doors, windows, skylight) and from fluorescent lighting, if within 6-feet distance.
6. Measurements, inspection and records are maintained to show that the criteria are met.
7. Cargo and cargo extraction parachutes packed for contingency operations will be identified by an entry made on the JUMP, INSPECTION, AND REPACK DATA page of each applicable parachute log record. The statement PACKED FOR CONTINGENCY and the location of the contingency stock will be stamped in the log record using red ink.

JUMP, INSPECTION,				AND REPACK DATA				
DATE			BAG NUMBER	ROUTINE INSPECTION	REPACK	PACKER'S NAME	INSPECTOR'S NAME	UNIT
DAY	MO.	YR.				PACKER'S NAME	INSPECTOR'S NAME	UNIT
21	10	01				Ghavel	Venckus	82 <sup>nd</sup> ABN DIV
PACKED FOR CONTINGENCY -								
DATE RECEIVED								

**PARACHUTE LOG RECORD**

Using activities receiving cargo and cargo extraction parachutes from contingency stock will enter the date of receipt in each applicable parachute log record (refer to the illustration above). Subsequent repack intervals for these parachutes will be scheduled as specified above. However, under no circumstances will the repack interval exceed 36 months for non depot contingency stock parachutes. For depot contingency stock parachutes, the repack interval will not exceed 144-months.

**END OF WORK PACKAGE**



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**100-FOOT DIAMETER CARGO PARACHUTE  
PREPARATION FOR SHIPMENT**

---

**THIS WORKPACKAGE COVERS:**

- In-Storage Inspection
  - Shipment
- 

**INITIAL SETUP:****Personnel Required**

92R(10) Parachute Rigger

**Equipment Condition**

Unpacked.

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**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 (military) 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.

**END OF WORK PACKAGE**



**CHAPTER 5**

**SUPPORTING INFORMATION**  
**FOR**  
**PARACHUTE, CARGO TYPE:**  
**100-FOOT DIAMETER, MODEL**  
**G-11B, G-11C, AND G-11D**





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**SUPPORTING INFORMATION**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**REFERENCES**


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**THIS WORKPACKAGE COVERS:**

- Scope
  - Publication Indexes
  - Pamphlets
  - Technical Manuals
  - Field Manuals
  - Army Regulations
  - Technical Bulletins
- Forms
  - Air Force Technical Orders
  - Air Force Technical Order Forms
  - Marine Corps Forms
- 

**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
The Army Maintenance Management System (TAMMS) Users Manual, dated 25 February 2005	DA PAM 750-8
Functional Users Manual for The Army Maintenance Management System (Aviation) (TAMMSA)	DA PAM 738-751

**TECHNICAL MANUALS**

General Maintenance of Parachutes and Other Airdrop Equipment	TM 10-1670-201-23/ T.O. 13C-1-41/ NAVAIR 13-1-17
Ancillary Equipment For Low Velocity Air Drop System (LVADS)	TM 10-1670-296-20&P/T.O. 13C7-49-2
Preservation, Packaging, Packing of Military Supplies and Equipment (Vols. 1 and 2)	TM 38-230-1 and TM 38-230-2
Equipment Maintenance Forms and Procedures	TM 4700-15/1
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 4-20.102 (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
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**FORMS**

Parachute Log Record	DA Form 3912
Equipment Inspection & Maintenance Worksheet	DA Form 2404
Report of Discrepancy (Packing Improvement Report)	SF 364
Transportation Discrepancy Report	SF 361
Product Quality Deficiency Report	SF 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
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**



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**SUPPORTING INFORMATION**  
**100-FOOT DIAMETER CARGO PARACHUTE**  
**MAINTENANCE ALLOCATION CHART (MAC)**

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**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

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**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.



**Table 1. MAINTENANCE ALLOCATION CHART  
FOR  
100-FOOT DIAMETER CARGO 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	CARGO PARACHUTE									
01	CANOPY	Inspect Service Repair		3.4 3.0 1.0				A, B, C, D, E		
0101	BRIDLE LOOP	Repair Replace		0.3 0.2				E		
0102	UPPER LATERAL BAND	Repair		0.5				E		
0103	GORE SECTION	Repair Replace		1.5	1.0			E		
0104	CANOPY LINE	Repair Replace		0.7	1.0			E		
0105	VENT LINE	Repair Replace		0.2 0.5						
0106	RADIAL LINE	Replace			0.5					
0107	SUSPENSION LINE	Repair Replace		0.4	0.5					
0108	RADIAL SEAM	Repair		0.4				E		
0109	RADIAL LINE REINFORCEMENT TAPE	Repair Replace		0.5 0.8						
0110	REEFING LINE CUTTER BRACKET	Repair Replace		0.3 0.3				F		

**Table 1. MAINTENANCE ALLOCATION CHART  
FOR  
100-FOOT DIAMETER CARGO 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			
0111	CUTTER BRACKET PANEL REINFORCEMENT	Repair		0.3						
		Replace		0.5						
0112	POCKET BAND	Repair		0.3				E		
		Replace		0.3						
0113	REEFING RING RETAINER	Repair		0.1				E		
		Replace		0.3						
0114	REEFING RING	Replace		0.3				E		
0115	V-TAB	Inspect		0.3	0.4			E		
		Replace								
0116	UPPER AND LOWER LATERAL BANDS	Repair		0.5				E		
0117	CONNECTOR LINK	Repair		0.1				E		
		Replace		0.1						
02	SUSPENSION RISER	Repair		0.3				E		
		Replace		0.1						
0201	PARACHUTE INSPECTION DATA POCKET	Replace		0.1						
03	CENTER LINE	Repair		0.1						
		Replace		0.1						

**Table 1. MAINTENANCE ALLOCATION CHART  
FOR  
100-FOOT DIAMETER CARGO 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			
04	DEPLOYMENT BAG	Inspect Service Repair Replace		0.3 0.1 0.4 0.1					A, B, F	
0401	DEPLOYMENT BAG PANELS/FLAPS	Repair		0.4					E	
0402	DEPLOYMENT BAG EDGE BINDING	Repair		0.3					F	
0403	GROMMET	Repair Replace		0.2 0.3					F	
0404	DEPLOYMENT BAG LOCKING STOW LOOP	Repair Replace		0.3 0.4					E	
05	DEPLOYMENT BAG BRIDLE	Inspect Service Repair Replace		0.3 0.1 0.4 0.1					A, B, E	

**Table 2. TOOLS AND TEST EQUIPMENT  
FOR  
100-FOOT DIAMETER CARGO 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 0066 00	
2	O	Broom, Upright	7920-00-292-4375	
3	O	Brush, Scrub, Household	7920-00-282-2470	H-B-1490
4	O	Brush, Stenciling	7520-00-248-9285	H-B-00621
5	O	Fan, Pedestal	4140-01-278-1527	
6	O	File, Flat	5110-00-249-2848	GGG-F-325
7	O	Knife	5110-00-162-2205	MIL-K-818C
8	O	Knife, Hot Metal	3439-01-197-7656	4025
9	O	Lead, Pig, 5-pounds	9650-00-264-5050	QQ-C-40
10	O	Line Separator	1670-00-092-8660	11-1-3715
11	O	Machine, Stencil Cutting	7490-00-164-0537	A-A-2722
12	O	Mallet, Rawhide	5120-00-293-3397	GGG-H-33
13	O	Needle, Tacking	8315-00-262-3733	FF-N-180
14	O	Paddle, Packing	1670-00-764-6381	11-1-152
15	O	Pliers, Lineman	5120-00-756-1156	GGG-P-471
16	O	Pot, Melting, Electric	5120-00-924-5213	WG441 or MP-4
17	O	Screwdriver, Flat Tip	5120-00-293-0314	GGG-S-121
18	O	Separator, Connector, Link	1670-00-072-4941	MILS43243
19	O	Set, Chuck and Die	5120-00-694-5153	7540756
20	O	Sewing Machine, Darning	Table 2, WP 0014 00	
21	O	Sewing Machine, Heavy-Duty	Table 2, WP 0014 00	
22	O	Sewing Machine, Light-Duty	Table 2, WP 0014 00	
23	O	Sewing Machine, Medium-Duty	Table 2, WP 0014 00	
24	O	Sewing Machine, Medium Duty, Zig-Zag	Table 1, WP 0014 00	
25	O	Shears	5110-00-223-6370	GGG-S-278
26	O	Yardstick	5120-00-985-6610	GGG-Y-0035

**Table 3. REMARKS  
FOR  
100-FOOT DIAMETER CARGO PARACHUTE**

<b>(1) REMARKS CODE</b>	<b>(2) REMARKS</b>
A	Inspect is a technical-rigger type inspection.
B	Service is to clean the equipment.
C	Service is the packing of parachutes.
D	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.
E	Repair by darning, retacking, restitching splice edge binding and repairing grommets. Replacement of parts authorized for unit maintenance.



**SUPPORTING INFORMATION  
100-FOOT DIAMETER CARGO PARACHUTE  
REPAIR PARTS AND SPECIAL TOOLS LIST, INTRODUCTION**

**SCOPE**

This manual lists and authorizes spare and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of organizational, direct support, and general support maintenance of the 100-Foot Diameter, Cargo 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:

**Repair Parts List Work Packages.** Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure, and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.

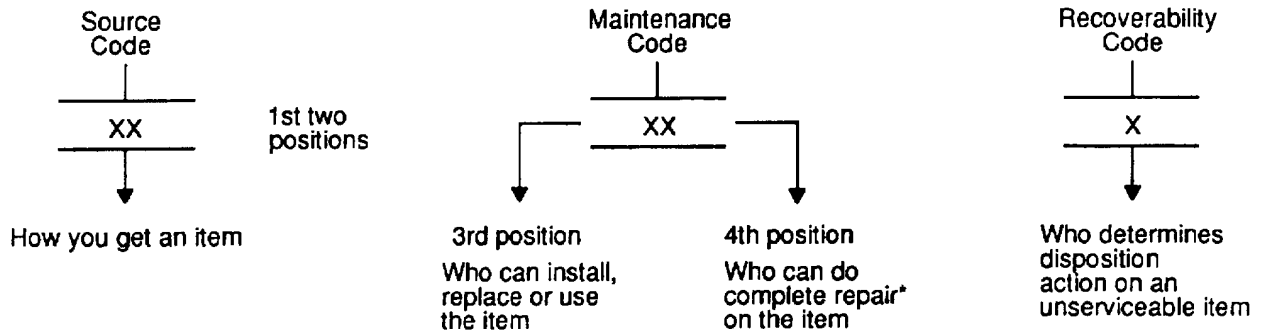
**Special Tools List Work Packages.** Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column.) Tools that are components of common tool sets and/or Class VII are not listed.

**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 refers you to the figure and item number.

**EXPLANATION OF COLUMNS**

**Column 1, Item No.** Indicates the number used to identify items called out in the illustration.

**Column 2, SMR Code.** The Source, Maintenance, and Recoverability (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	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 3 <sup>rd</sup> position of the SMR code.
	<b>NOTE</b>
	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 which is authorized to the maintenance level indicated in the 3 <sup>rd</sup> 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 which is identified by the P/N in the DESCRIPTION and USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3 <sup>rd</sup> 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 3 <sup>rd</sup> 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**

**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 codes 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 one of the following levels of maintenance.

**MAINTENANCE CODE**

**APPLICATION/EXPLANATION**

C -	Crew or operator maintenance done within unit/AVUM maintenance.
O -	Unit level/AVUM maintenance can remove, replace, and use the item.
F -	Direct support/ AVIM maintenance can remove, replace, and use the item.
H -	General support maintenance can remove, replace, and use the item.
L -	Specialized repair activity can remove, replace, and use the item.
D -	Depot 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.

MAINTENANCE CODE	APPLICATION/ EXPLANATION
O -	Unit/AVUM is the lowest level that can do complete repair of the item.
F -	Direct support/AVIM is the lowest level that can do complete repair of the item.
H -	General support is the lowest level that can do complete repair of the item.
L -	Specialized repair activity (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:

RECOVERABILITY CODE	APPLICATION/EXPLANATION
Z -	Non-repairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR Code.

**RECOVERABILITY CODE – continued****APPLICATION/EXPLANATION - continued**

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 not authorized below depot level.
L -	Repairable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (such as, precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

**Column 3, NSN.** The NSN for the item is listed in this column.

**Column 4, CAGEC.** 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.

**Column 5, Part Number.** 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.

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**NOTE**

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When you use an NSN to requisition an item, the item you receive may have a different P/N from the part ordered.

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

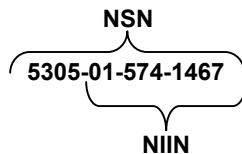
1. The federal item name and, when repaired, a minimum description to identify the item.
2. P/Ns for bulk materials are referenced in this column in the line entry for the to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

**Column 7, QTY.** 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 quantity may change from application to application.

## EXPLANATION OF COLUMNS

### 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, i.e.



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 repair parts list and special tools list work packages.

**ITEM Column.** The item number identifies the item associated with the figure listed in the adjacent FIG. Column. This item is also identified by the NSN listed on the same line.

### 2. Part Number (P/N) Index Work Package.

P/Ns in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which 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 repair parts list and special tools list work packages.

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

### **SPECIAL INFORMATION**

The Usable on Code title appears in the lower right corner of column (5), Description. Usable on codes are shown in the right-hand margin of the description column. Identification of the usable on codes used in the RPSTL are:

<b>Code:</b> DWQ	<b>Used On:</b> 1670-01-016-7841	<b>Model:</b> G-11 B; G-11 C; G-11 D
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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 which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN / P/N index work packages and the bulk material list in the repair parts list work package.

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 repair parts list work package contains only those parts coded "O" in the third position of the SMR code, therefore, there may be a break in the item number sequence.

### **HOW TO LOCATE REPAIR PARTS**

#### **1. When National Stock Number or Part Number is Not Known.**

First. Using the table of contents, determine the assembly group or sub-functional group to which the item belongs. This is necessary since the figures are prepared for functional groups and sub-assembly groups, and lists are divided into the same groups.

Second. Find the item covering the figure covering the functional group or sub-functional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

#### **2. When NSN is Known.**

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that 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 PART NUMBER column of the P/N index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

**END OF WORK PACKAGE**



GROUP 00 100-FOOT DIAMETER CARGO PARACHUTE

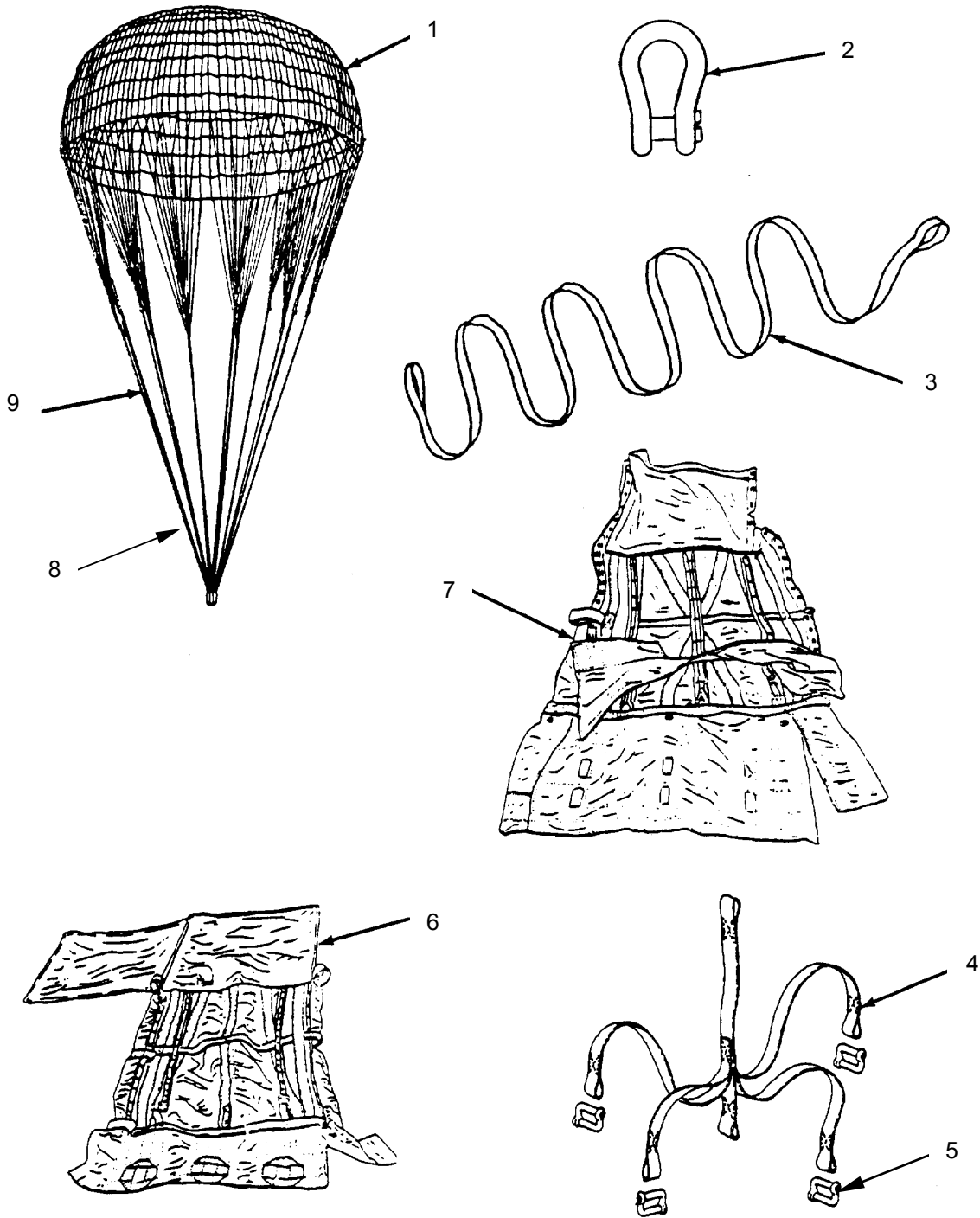


Figure 1. 100-Foot Diameter Cargo Parachute



**GROUP 00 100-FOOT DIAMETER CARGO PARACHUTE  
REPAIR PARTS LIST**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
Group 00, 100-Foot Diameter Cargo Parachute Figure 1, 100-Foot Diameter Cargo Parachute						
1	XAOOO		81337	11-1-2567	Canopy, (PDV), 100-Ft. UOC: DWQ	1
2	PAOZZ	4030-01-027-3380	81337	11-1-1631	Shackle UOC: DWQ	1
3	PAOFF	5340-01-290-5939	81337	11-1-3445	Center Line, 100-Foot UOC: DWQ	1
4	PAOOO	1670-00-377-9388	98750	52D6354	Bridle, Deployment, B UOC: DWQ	
5	PAOZZ	1670-00-217-2421	81349	MS22002-1	Link, Connector UOC: DWQ	
6	PAOOO	1670-01-235-0923	81337	11-1-3019	Deployment Bag Nylon, Para. UOC: DWR	1
7	PAOOO	1670-01-016-5904	81337	11-1-2580	Deployment Bag, Para., Cotton UOC: DWQ	1
8	XAOOO		81337	11-1-2579	Riser Extension, Para. (With Pocket) UOC: DWQ	1
9	PAOOO	1670-00-377-6638	81337	11-1-2568	Riser Extension, Para. (Without Pocket) UOC: DWQ	2
<b>END OF FIGURE</b>						



GROUP 01 CANOPY

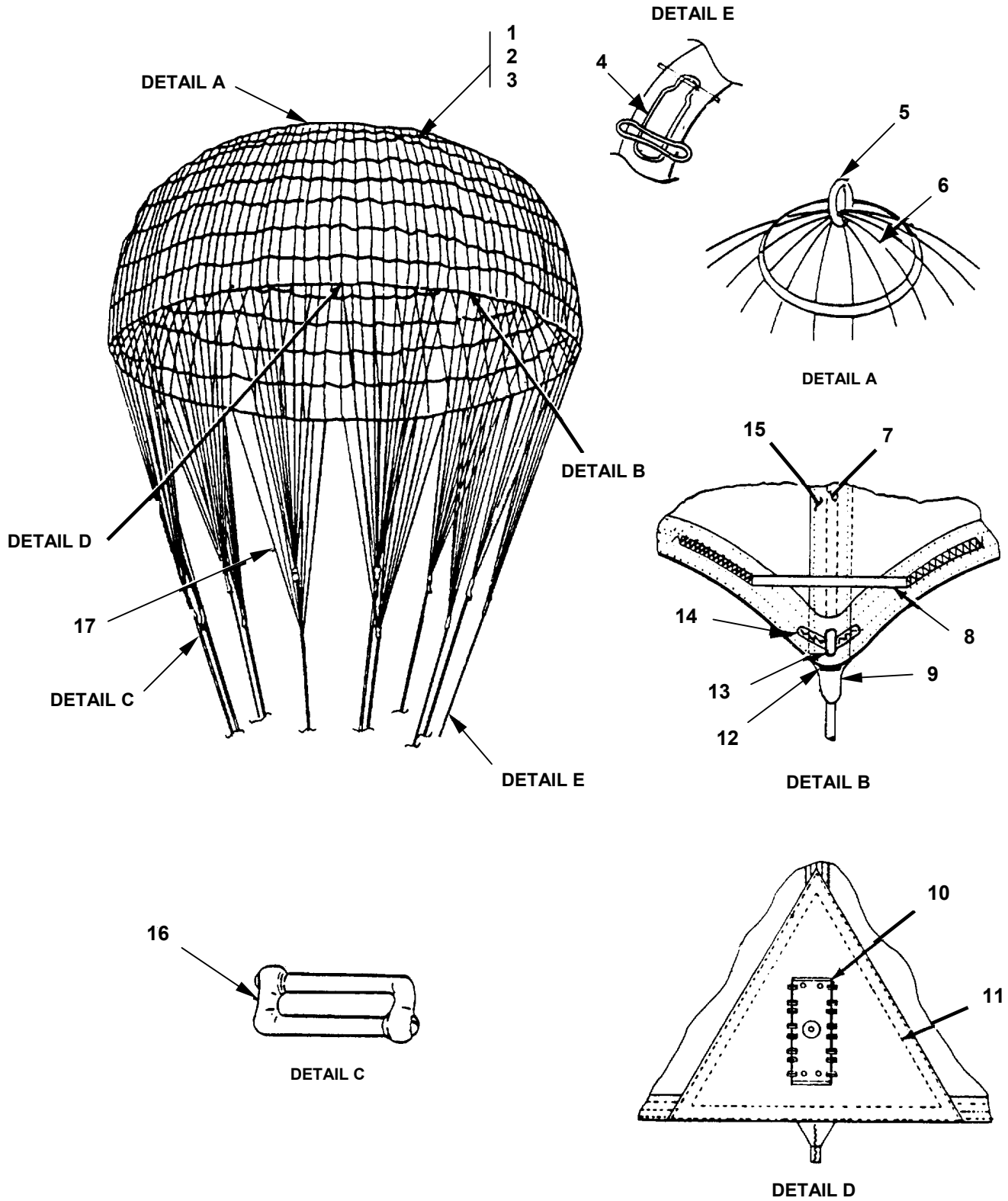


Figure 2. Canopy, 100-Foot Diameter Cargo Parachute Canopy



**GROUP 01 CANOPY  
REPAIR PARTS LIST**

(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 Figure 2, Canopy, 100-Foot Diameter Cargo Parachute Canopy						
1	MFFFF		81337	11-1-2567-1-13	.Section, 36-IN., Make From Cloth, Parachute, Nylon MIL-C-7020, Type II or Type III 1.6 OZ., 60-IN. Wide and Thread, Nylon, V-T-295, Size E, White	13
2	MFFFF		81337	11-1-3018-1-8	.Section, 60-IN. Make From Cloth, Parachute , Nylon, MIL-C-7020, Type II or Type III 1.6 OZ., 60-IN. Wide and Thread, Nylon, V-T-295, Size E, White UOC: DWQ	8
3	MFFFF		81337	11-1-3018-1-7	.Section, 72-IN. Make From Cloth, Nylon, MIL-C-7020, Type II or Type III, 1.6 OZ., 72-IN. Wide and Thread Nylon, V-T-295, Size E UOC: DWQ	7
4	PAOOO	1670-01-018-6756	81337	11-1-2587	..Pocket, Parachute Inspection Data UOC: DWQ	1
5	MOOOO		81337	11-1-2567-19	.Loop, Bridle, Make From Webbing, Cotton, MIL-W-5665, Type X, Class 2B, OD and Thread, Nylon, V-T-295, Size 3, White or Webbing, Nylon, Mil-W-4088, Type VIII, Class 2	1
6	MOOOO		81337	11-1-2567-20V	..Line, Vent Make From Cord, Nylon, MIL-C-5040, Type III and Thread, Nylon, V-T-295, Size E	60

**GROUP 01 CANOPY  
REPAIR PARTS LIST**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
7	MOOOO		81337	11-1-2567-20R	.Line, Radial Make From Cord, Nylon, MIL-C-5040, Type III and Thread, Nylon, V-T-295, Size E	120
8	MOOOO		81337	11-1-2567 DETAIL W	.Pocket Band Make From Cord, Nylon, MIL-C-5040, Type III and Thread, Nylon, V-T-295, Size E UOC: DWQ	116
9	MFFFF		81337	11-1-2567-20S	.Line, Suspension Make From Cord, Nylon, MIL-C-5040, Type III and Thread, Nylon, V-T-295, Size E	120
10	PAOZZ	1670-00-086-7781	81337	11-1-184	.Bracket UOC: DWQ	4
11	MOOOO		81337	11-1-2578	.Panel Reinforcement Make From Cloth, Duck, Nylon 7.25oz, MIL-C-7219, Type III, OG and Thread, Nylon, V-T-295, Size E UOC: DWQ	8
12	MFFFF		81337	11-1-2567 DETAIL T	.V-Tab Make From Webbing Nylon, MIL-W-4088, Type I, Class II, $\frac{9}{16}$ -IN. Wide and Thread, Nylon, V-T-295, Size E	120
13	PAOZZ	1670-00-360-0469	96906	MS27762-1	.Ring-Reefing, Parach UOC: DWQ	116
14	MOOOO		81337	11-1-2567 DETAIL V	.Reefing Ring Retainer Make From Cord, Nylon, MIL-C-5040, Type III and Thread, Nylon, V-T-295, Size E UOC: DWQ	116
15	MFFFF		81337	11-1-2567-18	.Radial Line Reinforcement Make From Tape, Nylon, MIL-T-5038, Type III, $\frac{1}{2}$ -IN., OD and Thread, Nylon, V-T-295, Size E	360

**GROUP 01 CANOPY  
REPAIR PARTS LIST**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
16	PAOZZ	1670-00-217-2421	96906	MS22002-1	.Link, Parachute Conn	12
17	MFFFF		81337	11-1-2567-20	.Line, Canopy Make From Cord, Nylon, MIL- C-5040, Type III and Thread, Nylon, V-T-295, Size E	60
<b>END OF FIGURE</b>						





GROUP 04 DEPLOYMENT BAG

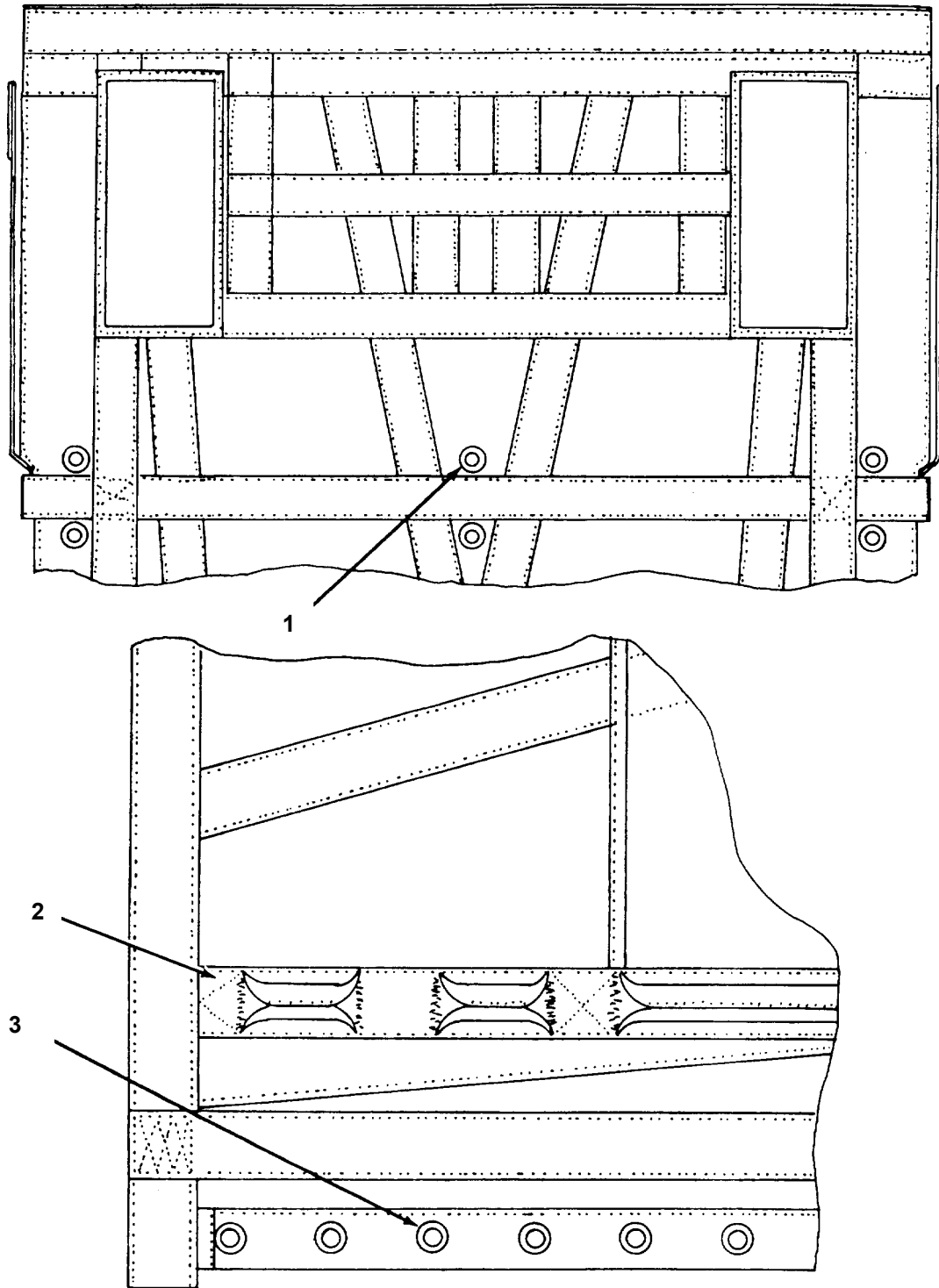


Figure 3. Deployment Bag



**GROUP 04 DEPLOYMENT BAG  
REPAIR PARTS LIST**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
Group 04, Deployment Bag Figure 3, Deployment Bag						
1	PBOOZ	5325-00-291-0277	96906	MS20230B3	.Grommet, Metallic UOC: DWQ	4
2	MOOOO		81337	11-1-2580-15F-F	.Locking Stow Loop Make From Webbing, Cotton, MIL-W-5665, Type VIII, Class 2B, OD and Thread, Nylon, V-T-295, Size 6, White	4
3	PBOOZ	5325-00-231-6590	96906	MS20230B2	.Grommet, Metallic	64
<b>END OF FIGURE</b>						



**GROUP 99 BULK MATERIALS  
REPAIR PARTS LIST**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NO.	(6) DESCRIPTION AND USEABLE ON CODE (UOC)	(7) QTY
<b>Group 99, Bulk Materials</b>						
1	XDOZZ		81349	MIL-C-7219	Cloth, Duck, Type III, 7.25-OZ., OG	V
2	PAOZZ	8305-00-782-2988	81349	MIL-C-7020	Cloth, Parachute, Type II, 1.6-OZ., 36-IN. Wide, OD	V
3	PAOZZ	8305-01-415-8602	81349	MIL-C-7020	Cloth, Parachute, Type III, 1.6-OZ., 60-IN. Wide, OD	V
4	PAOZZ	4020-00-240-2146	81349	MIL-C-5040	Cord, Fibrous, Type III, Nat	V
5	PAOZZ	4020-00-246-0688	81349	MIL-C-5040	Cord, Fibrous, Type III, OD	V
6	PAOZZ	8315-00-255-7673	81349	MIL-C-5038	Tape, Textile, Type III, Textile, ½-IN. Wide, OD	V
7	PAOZZ	8310-00-262-2770	81348	V-T-295	Thread, Type I, Class A, Size E, AG White	V
8	PAOZZ	8310-00-248-9714	81348	V-T-295	Thread, Type I, Class A, Size 3, White	V
9	PAOZZ	8305-00-260-2565	81349	MIL-W-5665	Webbing, Textile, Type VIII, 1 ¾-IN. Wide, Class 2A, OD	V
10	PAOZZ	8305-00-753-6086	81349	MIL-W-5665	Webbing, Textile, Type X, 1 ¾-IN. Wide, Class 2B, Mildew Resistant, OD	V
11	PAOZZ	8305-00-260-6909	81349	MIL-W-4088	Webbing, Textile, Type I, Class II, 9/16-IN. Wide, OD	RL
<b>END OF FIGURE</b>						



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**100-FOOT DIAMETER, CARGO PARACHUTE  
SPECIAL TOOLS LIST**

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*Not Applicable*

**END OF WORK PACKAGE**





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**100-FOOT DIAMETER, CARGO PARACHUTE  
NATIONAL STOCK NUMBER INDEX**


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<b>NATIONAL STOCK NUMBER INDEX</b>		
<b>STOCK NUMBER</b>	<b>FIGURE</b>	<b>ITEM</b>
1670-01-016-5904	1	7
1670-01-018-6756	2	4
4030-01-027-3380	1	2
1670-00-086-7718	2	10
1670-00-217-2421	1	5
1670-00-217-2421	2	16
5325-00-231-6590	3	3
1670-01-235-0923	1	6
4020-00-240-2146	BULK	4
4020-00-246-0688	BULK	5
8310-00-248-9714	BULK	8
8315-00-255-7673	BULK	6
8305-00260-2565	BULK	9
8305-00-260-6909	BULK	11
8310-00-262-2770	BULK	7
5340-01-290-5939	1	3
5235-00-291-0277	3	1
1670-00-360-0469	2	13
1670-00-377-6638	1	9
1670-00-377-9388	1	4
8305-01-415-8602	BULK	3
8305-00-753-6086	BULK	10
8305-00-782-2988	BULK	2
<b>END OF FIGURE</b>		



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**100-FOOT DIAMETER, CARGO PARACHUTE  
PART NUMBER INDEX**


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<b>PART NUMBER INDEX</b>		
<b>PART NUMBER</b>	<b>FIGURE</b>	<b>ITEM</b>
11-1-2567	1	1
11-1-1631	1	2
11-1-3445	1	3
52D6354	1	4
MS22002-1	1	5
11-1-3019	1	6
11-1-2580	1	7
11-1-2579	1	8
11-1-2568	1	9
11-1-2567-1-13	2	1
11-1-3018-1-8	2	2
11-1-3018-1-7	2	3
11-1-2587	2	4
11-1-2567-19	2	5
11-1-2567-20V	2	6
11-1-2567-20R	2	7
11-1-2567 DETAIL W	2	8
11-1-2567-20S	2	9
11-1-184	2	10
11-1-2578	2	11
11-1-2567 DETAIL T	2	12
MS27762-1	2	13
11-1-2567 DETAIL V	2	14
11-1-2567-18	2	15
MS22002-1	2	16
11-1-2567-20	2	17
MS20230B3	3	1
11-1-2580-15F-F	3	2
MS20230B2	3	3
MIL-C-7219	BULK	1
MIL-C-7020	BULK	2
MIL-C-7020	BULK	3
MIL-C-5040	BULK	4
MIL-C-5040	BULK	5
MIL-C-5038	BULK	6
V-T-295	BULK	7
V-T-295	BULK	8
MIL-W-5665	BULK	9
MIL-W-5665	BULK	10
MIL-W-4088	BULK	11
<b>END OF INDEX</b>		



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**100-FOOT DIAMETER, CARGO PARACHUTE  
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST**


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**SCOPE**

This work package lists expendable and durable items that you will need to operate and maintain the 28-Foot Diameter, Cargo Extraction Parachute. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items) or CTA 8-100, Army Medical Department Expendable/Durable Items.

**EXPLANATION OF COLUMNS**

**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 3, 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.** This is the NSN assigned to the item; use it to request or requisition the item.

**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 Measure (U/M).** This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

**Table 1. Expendable/Durable Supplies and Materials List**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) UNIT OF MEASURE
1	O	9160-00-253-1171	Beeswax, Technical, 1-Lb (81348) C-B-191	LB
2	O	5350-00-221-0872	Cloth, Abrasive, Ferric Oxide and Quartz (81348) P-C-458	EA
3	O	8305-00-170-9268	Cloth, Cotton, Duck, Type I, 17.6-OZ., No. 8, OD, (81348) CCC-C-419	FT
4	O	8305-01-014-1318	Cloth, Cotton, Muslin, Type III, 3.6-OZ., OD (81348) CCC-C-4279	YD
5	O	8305-00-433-5986	Cloth, Cotton, Muslin, Type III, 3.8-OZ., OD (81349) MIL-C-4279	YD
6	O	8305-01-173-4436	Cloth, Nylon, Duck, Type III, 7.25-OZ., SG (81349) MIL-C-7219	YD
7	O	8305-00-171-1203	Cloth, Nylon, Duck, Type III, 8.25-Oz, OD (81348) CCC-C-419	FT

**100-FOOT DIAMETER, CARGO PARACHUTE  
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST**

<b>Table 1. Expendable/Durable Supplies and Materials List</b>				
<b>(1) ITEM NUMBER</b>	<b>(2) LEVEL</b>	<b>(3) NATIONAL STOCK NUMBER</b>	<b>(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER</b>	<b>(5) UNIT OF MEASURE</b>
8	O	1670-00-176-1802	Cloth, Nylon, Parachute Mending, Adhesive, OD	YD
9	O	8305-00-782-2988	Cloth, Nylon, Parachute, Type II, 1.6-OZ., OD, 36-IN. (81349) MIL-C-7020	FT
10	O	8305-01-415-8602	Cloth, Nylon, Parachute, Type III, 1.6-OZ. Green, 60-IN. (81349) MIL-C-7020	FT
11	O	4020-00-262-2019	Cord, Nylon, Type II, OG (81349) MIL-C-5040	YD
12	O	4020-00-240-2146	Cord, Nylon, Type III, Natural (81349) MIL-C-5040	YD
13	O	4020-00-246-0688	Cord, Nylon, Type III, OD (81349) MIL-C-5040	YD
14	O	4020-00-262-2020	Cord, Nylon, Type IV, Coreless, OD (81349) MIL-C-7515	YD
15	O	1377-00-060-0885	Cutter, Reefing Line, M21, 2-Second	EA
16	O	7930-00-281-4731	Dishwashing Compound, Hand, Flake (81348) P-D-410	LB
17	O	7510-00-286-5362	Ink, Marking, Parachute, Strata-Blue (81349) MIL-I-6903	PT
18	O	5340-01-290-5939	Line, Center, 100-Foot	EA
19	O	9150-01-260-2534	Lubricant, Solid Film	PT
20	O	7520-00-230-2734	Marker, Felt Tip, Black (81348) GG-M 00114	FT
21	O	7510-00-240-1525	Marking Aid, White (81348) A-A-87	EA
22	O	7510-00-264-4612	Marking Aid, Yellow (81348) A-A-87	EA

**100-FOOT DIAMETER, CARGO PARACHUTE  
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST**

Table 1. Expendable/Durable Supplies and Materials List				
(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) UNIT OF MEASURE
23	O	8135-00-160-7759	Paper, Kraft, Untreated (81348) UU-P-268	FT
24	O	7520-00-491-2917	Pen, Ballpoint (81348) GG-B-60	EA
25	O	7920-00-205-3570	Rag, Wiping (81348) DDD-R-30	BE
26	O	910-00-160-7858	Stencilboard, Oiled, Type II (81348) UU-S-625	SH
27	O	7510-00-074-4961	Tape, Adhesive, Pressure Sensitive, 2-IN., Black, PPP-T-60	YD
28	O	7510-01-235-0013	Tape, Adhesive, Pressure Sensitive, 2-IN., OD, PPP-T-60	YD
29	O	7510-00-266-5016	Tape, Adhesive, Pressure Sensitive, 2-IN., OD (81348) PPP-T-60	YD
30	O	8315-00-281-3221	Tape, Cotton, Type III, 3/4-IN., OD (81349) MIL-T-5661	YD
31	O	4020-00-753-6555	Tape, Lacing and Tying	RL
32	O	7510-00-266-6712	Tape, Masking, 1 IN., A-A-883	YD
33	O	8315-00-255-7673	Tape, Nylon, Type III, 1/2-IN., OD (81349) MIL-T-5038	FT
34	O	8315-00-176-8083	Tape, Nylon, Type III, 3/4-IN., OD (81349) MIL-T-5038	YD
35	O	8310-01-279-6073	Thread, Cotton, Ticket No. 8/4 (81348) A-A-52094 (Orange)	YD
36	O	8310-00-917-3945	Thread, Cotton, Ticket No. 8/7 (81348) A-A-52094	YD
37	O	8310-00-248-9714	Thread, Nylon, Size 3, Natural White (81348) V-T-295, Type I, Class A	YD
38	O	8310-00-267-3027	Thread, Nylon, Size 3, OD (81348) V-T-295, Type I, Class A	YD
39	O	8310-00-248-9716	Thread, Nylon, Size 6, Natural White (81348) V-T-295, Type I, Class A	YD

**100-FOOT DIAMETER, CARGO PARACHUTE  
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST**

<b>Table 1. Expendable/Durable Supplies and Materials List</b>				
(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE, PART NUMBER	(5) UNIT OF MEASURE
40	O	8310-00-262-2780	Thread, Nylon, Size 6, OD (81348) V-T-295, Type I, Class A	YD
41	O	8310-00-262-2770	Thread, Nylon, Size E, Natural White (81348) V-T-295, Type I, Class A	YD
42	O	8310-00-262-2772	Thread, Nylon, Size E, OD (81348) V-T-295, Type I, Class A	YD
43	O	9160-00-285-2044	Wax, Paraffin, 1-LB Cake (81348) VVW95, Type I, Grade A	LB
44	O	8305-00-268-2411	Webbing, Cotton, Type I, ¼-IN. (81349) MIL-T-5661	FT
45	O	8305-00-260-2565	Webbing, Cotton, Type VIII, 1 ¾-IN., OD (81349) MIL-W-5665, Class 2A	FT
46	O	8305-00-268-2453	Webbing, Nylon, Tubular, ½-IN., OD (81349) MIL-W-5625	FT
47	O	8305-00-268-2455	Webbing, Nylon, Tubular, 1-IN., OD (81349) MIL-W-5625	FT
48	O	8305-00-263-3639	Webbing, Nylon, Type I, 9/16-IN., Natural (81349) MIL-W-4088	FT
49	O	8305-00-260-6909	Webbing, Nylon, Type I, 9/16-IN., OD (81349) MIL-W-4088	FT
50	O	8305-00-261-8585	Webbing, Nylon, Type VIII, OD (81349) MIL-W-4088	FT
51	O	8305-00-261-8584	Webbing, Nylon, Type X, 1 ¾-IN., OD (81349) MIL-W-4088	FT
52	O	8305-00-281-3012	Webbing, Nylon, Type XII, OD (81349) MIL-W-4088	FT
53	O	8305-00-261-6151	Webbing, Nylon, Type XVIII, 1-IN., OD (81349) MIL-W-4088	FT

**END OF WORK PACKAGE**

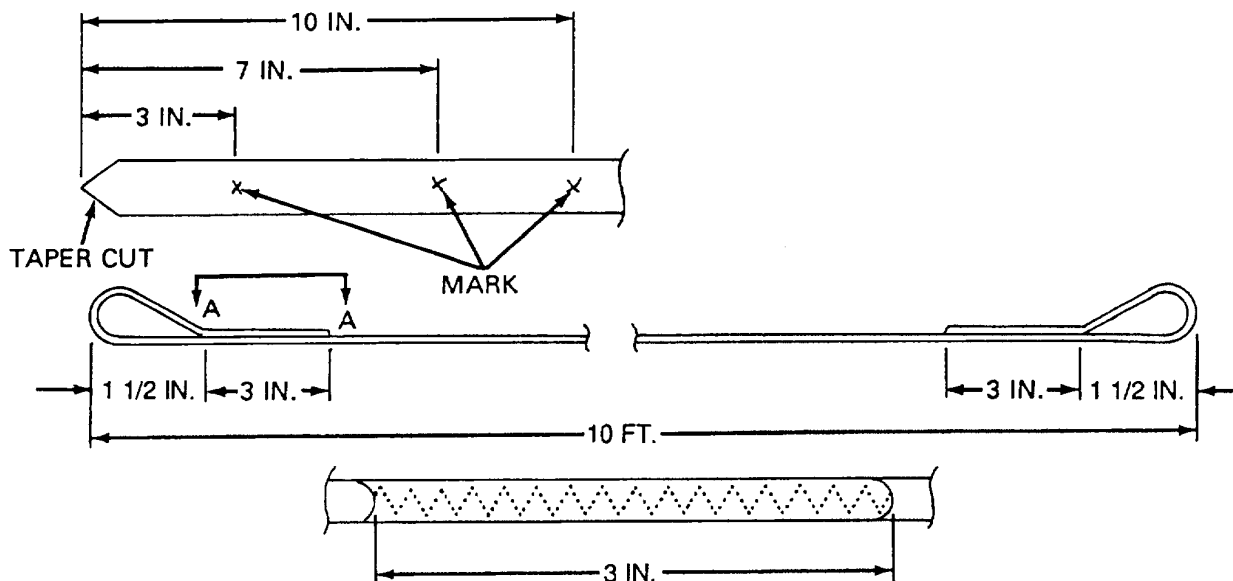


## 100-FOOT DIAMETER, CARGO PARACHUTE ILLUSTRATED LIST OF MANUFACTURED ITEMS

### Reefing Line Fabrication Procedure

Fabricate a reefing line for the G-11C cargo parachute in accordance with the illustration below.

1. Cut a 10-foot 9-inch length of type IV coreless nylon cored for each line (2 required).
2. Taper cut both ends.
3. Using a marking aid, mark cord at points 3-, 7-, and 10-inches from each tapered end.
4. Starting at one end, insert splicing aid into cord casing at 10-inch mark, pass up through cord casing and to outside at 7-inch mark.
5. Insert cord tapered end into eye of splicing aid.
6. Pull splicing aid and cord tapered end through cord casing until 3- and 7-inch marks are aligned.
7. Holding aligned marks together, pull splicing aid and cord tapered end to outside at 10-inch mark.
8. Remove cored tapered end from splicing aid. While holding 3- and 7-inch marks together, pull cord at point below 10-inch mark to allow cord tapered end to withdraw into cord casing.
9. Beginning at the aligned 3- and 7-inch marks, secure formed loop by stitching a  $\frac{1}{8}$ -inch wide, 3-inch long row of zig-zag stitching using size E nylon thread. Stitching will be 7 to 11 stitches per inch (refer to illustration below).
10. Repeat steps 4. through 9., above, for other end of cord.

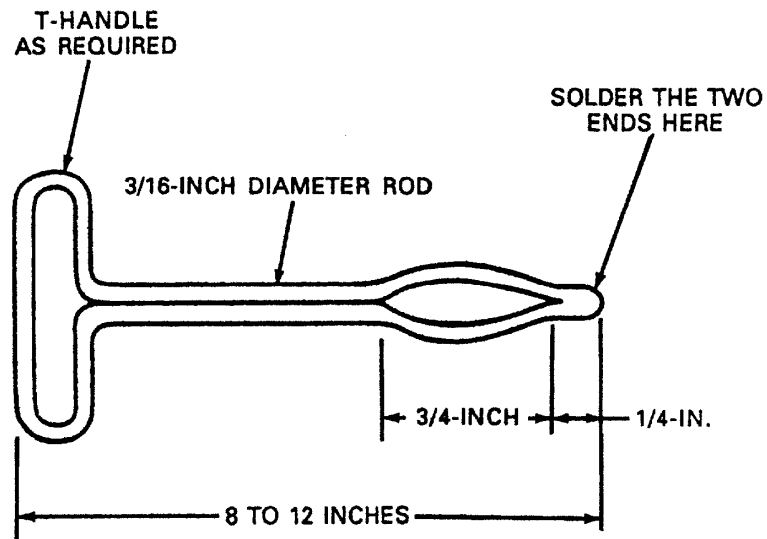


Reefing Line Fabrication

**100-FOOT DIAMETER, CARGO PARACHUTE  
ILLUSTRATED LIST OF MANUFACTURED ITEMS**

**Splicing Aid Fabrication Procedure**

Fabricate a splicing aid in accordance with the illustration below.



**Splicing Aid Fabrication**

**END OF WORK PACKAGE**

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

Official:



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*Administrative Assistant to the  
Secretary of the Army*

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**DISTRIBUTION:**

To be distributed in accordance with Initial Distribution Number (IDN 255755), requirements for TM 10-1670-280-23&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.



<b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b> 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).	<b>DATE</b> 21 October 2003
<b>TO:</b> (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						<b>FROM:</b> (Activity and location) (Include ZIP Code)  <i>PFC Jane Doe</i> <i>CO A 3<sup>rd</sup> Engineer BR</i> <i>Ft. Leonardwood, MO 63108</i>	
<b>PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>							
<b>PUBLICATION/FORM NUMBER</b> TM 10-1670-296-23&P				<b>DATE</b> 30 October 2002	<b>TITLE</b> Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems		
<b>ITEM NO.</b>	<b>PAGE NO.</b>	<b>PARA-GRAPH</b>	<b>LINE NO. *</b>	<b>FIGURE NO.</b>	<b>TABLE NO.</b>	<b>RECOMMENDED CHANGES AND REASON</b> <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>							
<b>TYPED NAME, GRADE OR TITLE</b>  Jane Doe, PFC				<b>TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION</b>  508-233-4141		<b>SIGNATURE</b>  Jane Doe <i>Jane Doe</i>	

<b>TO:</b> <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	<b>FROM:</b> <i>(Activity and location) (Include ZIP Code)</i> <i>PFC Jane Doe</i> <i>CO A 3<sup>rd</sup> Engineer BR</i> <i>Ft. Leonardwood, MO 63108</i>	<b>DATE</b> 21 October 2003
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**PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

<b>PUBLICATION NUMBER</b> TM 10-1670-296-23&P	<b>DATE</b> 30 October 2002	<b>TITLE</b> 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>

**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
----------------------------	--------------------------------------------	-----------

<b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b>						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
For use of this form, see AR 25-30; the proponent agency is ODISC4.							
<b>TO:</b> (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						<b>FROM:</b> (Activity and location) (Include ZIP Code)	
<b>PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>							
PUBLICATION/FORM NUMBER TM 10-1670-280-23&P				DATE 15 September 2002		TITLE UNIT AND DIRECT SUPPORT (DS) MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR PARACHUTE, CARGO TYPE: 100-FOOT DIAMETER, MODEL G-11B, G-11C, AND G-11D	
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	

<b>TO:</b> <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	<b>FROM:</b> <i>(Activity and location) (Include ZIP Code)</i>	<b>DATE</b>
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**PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

<b>PUBLICATION NUMBER</b> TM 10-1670-280-23&P	<b>DATE</b> 15 September 2002	<b>TITLE</b> UNIT AND DIRECT SUPPORT (DS) MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR PARACHUTE, CARGO TYPE: 100-FOOT DIAMETER, MODEL G-11B, G-11C, AND G-11D
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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
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<b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b>						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
For use of this form, see AR 25-30; the proponent agency is ODISC4.							
<b>TO:</b> (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						<b>FROM:</b> (Activity and location) (Include ZIP Code)	
<b>PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>							
PUBLICATION/FORM NUMBER TM 10-1670-280-23&P				DATE 15 September 2002		TITLE UNIT AND DIRECT SUPPORT (DS) MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR PARACHUTE, CARGO TYPE: 100-FOOT DIAMETER, MODEL G-11B, G-11C, AND G-11D	
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	

<b>TO:</b> <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	<b>FROM:</b> <i>(Activity and location) (Include ZIP Code)</i>	<b>DATE</b>
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## 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	5/9 (after subtracting 32)	Celsius temperature	_C
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**PIN: 068490-000**