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## 1. Introduction

### 1.1 Scope.

This service manual constitutes the manufacturer's instructions for the inspection, packing, and maintenance of the 26 foot diameter Military Mid-Lite canopy in the SET-10R chest container.

## 1.2 FAA Approval.

FAA approved under TSO C-23c, category B (in accordance with AS 8015A and FAR 21, Subpart O).

## 1.3 Operational Limitations.

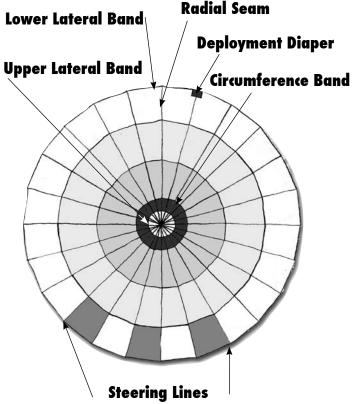
Limited to use by persons up to 115 kg (254 lbs) fully equipped (person and clothes), up to 150 knots IAS.

## 1.4 Parachute Repack Interval.

The 26-foot diameter SET-10R Chest Reserve Parachute should be repacked at 180 day intervals to insure airworthiness. When necessitated by climate, storage or condition, the equipment maintenance officer may require additional maintenance.

## 1.5 Model Description.

**1.5.1 Canopy.** The Mid-Lite canopy is a 26-foot-diameter low porosity, 15 deg. conical canopy. Constructed from 1.1-ounce ripstop Upper Lateral Band nylon parachute cloth. The canopy has 24 gores, an upper lateral band, a lower lateral band, a circumference band, a line stowage diaper, 24 V-tabs, 24 canopy lines, and 2 snaps. A cross connector strap keeps both snaps together. Each gore consists four sections joined together by circumferential seams. Each gore is joined to the adjacent gore by a radial seam, with reinforcing tape. The 24 lines, attach to the skirt and end at the snaps. The 12 apex lines are attached at each radial seam and cross the orifice to corresponding opposite gore. Gores are numbered counterclockwise from 1 through 24 consecutively when viewed from the snaps. The bridle attaches the pilot chute to the canopy. The canopy is attached to the pack assembly by hand tacking the snaps to the pack tray.



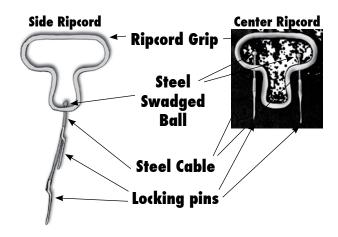
Shape	15 degrees Conical
	26 feet
	24
_	4
	1.1-ounce low porosity ripstop nylon
	24
Line material	
<u> </u>	
	24

#### 1.5.2 SET-10R Reserve Pack Assembly.

This pack tray has two major parts of the pack. They are the main panel and the bottom and end panels. The main panel forms a top flap and a bottom flap, and the bottom and end panels form a right end flap and a left end flap. The main panel is positioned across the bottom and end panels, and the overlap central areas are stitched together to form the pack bottom. A rectangular shaped pack frame is enclosed in a pocket formed in the pack bottom. Two holes are provided in the bottom of the pack for the connector snaps, which are used for attaching the parachute to the primary parachute harness. Two suspension line retainer band keepers are attached on the inside near the ends of the pack bottom. Canopy protector flaps are attached to the inside of each side flap.

**1.5.3 Ripcord.** The ripcord consists of a stainless steel grip, flexible steel cables to which steel ripcord pins are swaged.





Grip material	Steel Tubing
Grip shape	
Cable material	
Number of pins	2

1.5.4 Pilot Chute. The pilot chute uses helical spring encased in mesh and canopy cloth and fitted with a cap at one end and a tubular bridle at the other end.



## 1.6 System Function.

The SET-10R is activated by pulling the ripcord handle. This withdraws the ripcord pins releasing the flaps allowing the pilot chute to eject, catch air and extract the canopy from the container. The canopy utilizes a device called a deployment diaper, which is sewn onto the skirt and wrapped around the bottom of the canopy and locked in place by three stows of the suspension lines. On deployment of the canopy, the lines are not released from the diaper until the last three stows free the diaper allowing the canopy to inflate.

Complete assembly weight is 10 lbs and 2 oz (4.58 kg)

## 1.7 Parachute Log Record.

The Parachute Log Record, is a historical maintenance document, which accompanies the parachute canopy and pack throughout the period of service of the individual assembly. The log record provides a means of recording maintenance actions performed on the assembly. Should an item that requires a log record be transferred from one unit to another, the log record for the canopy will accompany the item in the transfer action. A prepared log record will not be removed or separated from the assembly, except as directed by an equipment maintenance activity officer. A log record when full, will be kept and another attached.

#### 1.8 Care of the SET-10R.

Observe the following precautions: 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. Avoid handling the ripcord grip or grip-retaining pocket when working with a packed parachute. Use every effort to protect the parachute from weather elements, dust, dirt, oil, grease, and acids. Place unpacked parachute in aviator kit bag. Cover canopy during periods of inactivity. Avoid prolonged exposure to sunlight, inspection lights, or florescent lights. Nylon material is subject to deterioration under ultraviolet light. Use a heated building to store parachutes when available. Store parachutes in a dry, well-ventilated location, protected from pilferage, dampness, fire, dirt, insects, rodents and direct sunlight.

#### ! CAUTION ! LEAVING THE PACKED PARACHUTE SYSTEM EXPOSED TO THE SUN WILL GREATLY DECREASE ITS SERVICE LIFE.

#### 1.9 Service Life.

The service life of the SET-10R Chest Parachute Assembly is not to exceed 15 years. At that time, the assembly it will be removed from service and dispositioned by the equipment maintenance activity officer.

## 1.10 Routine Inspection.

A routine inspection is a visual check performed to ascertain the serviceability of all visible components of a parachute assembly that is packed or rigged for use. The inspection will be



made on all components that can be inspected without opening the pack. This inspection will be administered by a parachute rigger prior to use. Parachutes issued for an aerial delivery operation and not deployed will receive a routine inspection prior to being placed into readyfor-issue storage.

## 1.11 In-Storage Inspection.

An in-storage inspection is a physical check conducted on a random sample of air delivery equipment. The purpose of the inspection is to insure 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 air delivery items, the adequacy of storage facilities, efforts of pest and rodent control, and protection against unfavorable climatic conditions. Air delivery equipment, which is in storage, will be inspected at least semi-annually 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. In-storage inspection will be conducted only by parachute rigger personnel designated by local parachute maintenance officer.

## 1.12 Reporting of Equipment Improvement recommendations.

If the design of your parachute needs improvement, let us know. The users of this equipment are the only one who can tell us what you don't like about it. Let us know what you don't like about the design or performance. Put it in an email or send a letter to:

Strong Enterprises 11236 Satellite Blvd. Orlando Florida, 32837 USA customerservice@strongparachutes.com www.strongparachutes.com

## 1.13 Preflight Inspection.

Prior to each use the parachute should be inspected before it is put on. Check it visually for any unsafe condition. Are the fittings rusted? Is the ripcord handle secure in its pocket (under the flap)? Pins should extend at least 1/2 inch beyond the locking cones. Be sure the rigger's seal thread is still intact around the pin. It is assurance it has not been opened since it left the rigger's packing table. Check the packing data card in the pocket to be sure that the parachute has been repacked within the previous 180 days.

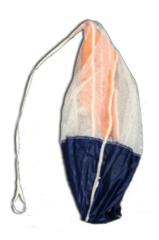
## 2. SET10-R Parts List



420550 Canopy, 26 ft. (on snaps with cross-connector)



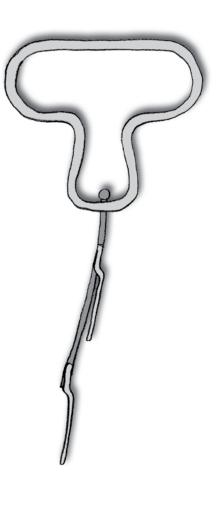
600007 Center Pull Ripcord Assembly



790121 Pilot Chute



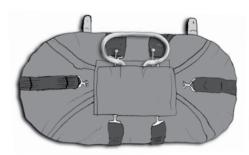
 $799020\ Launching\ Disk$ 



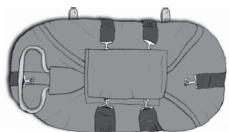
652070 Side Pull Ripcord Assembly



510073 Service Manual



108126 SET-10R container with center pull-cord



108125 SET-10R container with side pull-cord



## 3. Required Packing Tools

- A Shot Bags, 4 ea
- B Line Separator 1 ea
- C Pilot Chute Locking Rod 1 ea
- D Fid 1 ea
- E Temporary pin (with Flag) 2 ea
- F Tension Plate 1 ea
- G Apex tension strap 1 ea



# 4. Prepare Parachute Assembly for Proper Layout and Packing.

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

#### Prepare the parachute as follows:

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

#### Suspension Lines properly laid out:

- 1. Locate the top center gore of the canopy, lines 1 and 24. Divide the suspension lines into two groups (lines 1 through 12 in the left group and lines 13 through 24 in the right group).
- 2. Run these two groups to the snaps.
- 3. Remove any turns, tangles or twists in the suspension lines.

## 5. Inspection: Technician/Rigger.

## 5.1 Overall inspection.

Perform inspection as follows:

An overall inspection will be made on the 26-foot troop chest parachute to ascertain the following:

- 1. Log record/parachute inspection data pocket and form. As applicable, inspect the Packing Data Card pocket to insure it is enclosed and properly attached. Remove the log record from the pocket and evaluate the recorded entries to insure completeness.
- 2. Assembly completeness. Ensure the assembly is complete and no components or parts are missing.
- 3. Operational adequacy. Check 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.
- 4. Markings and stenciling. Inspect for faded, illegible, obliterated, or missing informational data, and identification numbers.
- 5. Foreign material and stains. Inspect 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.



## 5.2 Detailed inspection.

In addition to the overall inspection performed in (a) Overall inspection 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; damage, loose, or missing grommets, safety pins, connector snap, hook eye, pack fastener, improper swaging or welding; loss of spring tension.
- b. Pack Cones. If an unserviceable cone is identified, that pack assembly must be re moved from service and the cone must be replace before the pack can be placed back into service.
- c. Cloth. Inspect for breaks, burns, cuts, frays, holes, rips, snags, tears; loose, missing or broken stitching or tacking; weak spots, wear, or deterioration.
- d. 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.
- e. Rubber and elastic. Inspect for burns, cuts, holes, tears, weak spots; loss of elasticity and deterioration.

## **5.3 Equipment Disposition.**

Air delivery equipment may be rendered unserviceable by either normal fair wear or by aging and will subsequently be repaired, modified, or condemned, as appropriate. Equipment that is beyond economic repair (B.E.R.) will be condemned.

## 6. Packing the SET-10R.

## 6.1 Pleat and Long Fold.

#### 6.1.1

Lay the pack tray and canopy down on the table as if the wearer was facing down. Inspect assembly for completeness and any damage. Check line sequence. Flake canopy and pleat with an equal number of gores to each side.

Move to the apex end of the table and dress the upper lateral band. Apply pressure from the end of the table until the upper lateral band is aligned. Apply sufficient tension to hold the canopy and suspension lines taut.

Move to the lower lateral band (Skirt) of the canopy and flake leaving lines 1-12 in the left line group, and lines 13-24 in the right.

Insert the two groups of lines into a line separator.

Place packing weight on suspension lines next to line separator.

Apply additional tension to the suspension lines and dress canopy.

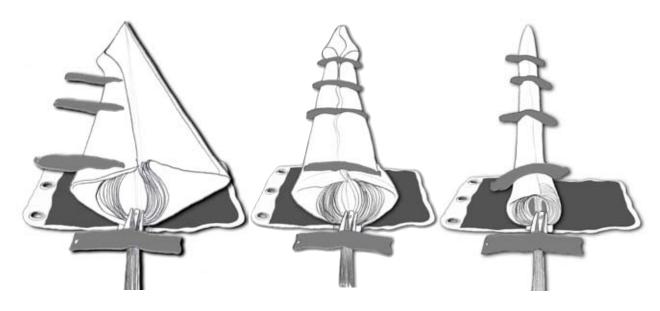
#### 6.1.2

Fold the skirt up 90° on each side parallel to the radial seams.



#### 6.1.3

Long fold in fifths (by folding both sides to meet at the center, and then folding in thirds, overlapping) tight and narrow.

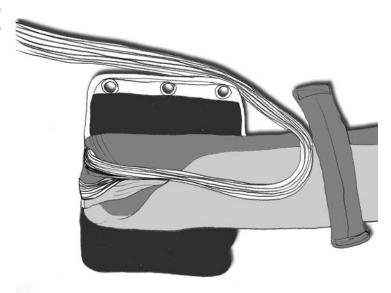


## **6.2 Securing the Diaper**

#### 6.2.1

The 26 ft. Military Mid-lite is intended for use with a full-stow diaper. After the canopy is folded, bring the lines up the center of the reserve, past the diaper as shown in illustration.

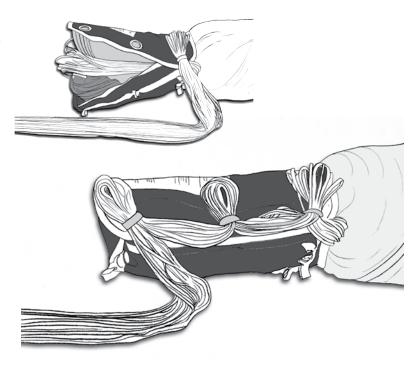
! WARNING! **DO NOT tuck the lines** inside the folded canopy.
Tucking the lines in the canopy can cause serious burns to the canopy and lines.



#### **6.2.2**

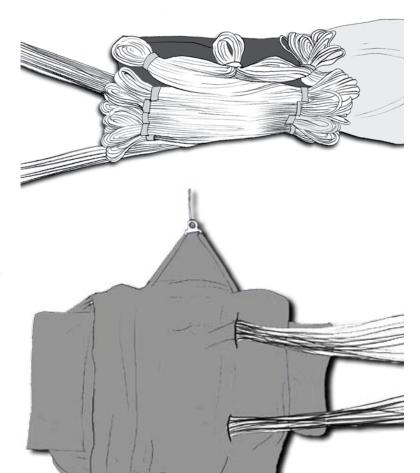
Wrap the diaper around the skirt and the line group.

Close the diaper around the canopy, and pass the elastic bands through the grommets. Secure with three bights of line stows as shown in illustration.



#### 6.2.3

Stow the remaining lines using 1 1/4" – 1 1/2" bights, until there is about 12" of line remaining.



#### 6.2.4

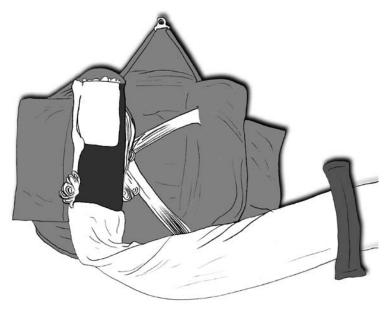
Assure that control lines are not tangled in lines and lay flat.



## **6.3 Canopy Placement**

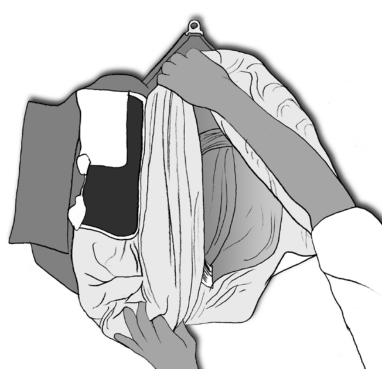
#### 6.3.1

Rotate the diaper 90° so that the diaper side of the canopy is facing up from your position. Lay the skirt and diaper of the canopy in wearer's right corner of the container and the canopy facing the bottom of the pack.



#### 6.3.2

With the canopy on edge, S-fold the canopy allowing it to extend 1 1/2" – 2" past the edges of the pack frame working towards the top of the container.



#### 6.3.3

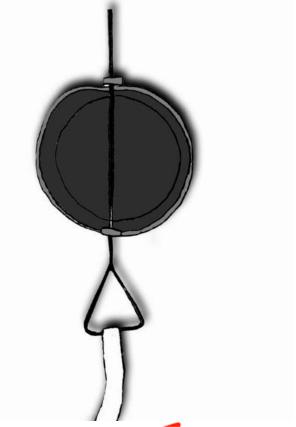
Bring the apex to the center front and fold it back on itself leaving as much of the bridle exposed as possible.



## 6.4 Collapsing the Pilot chute

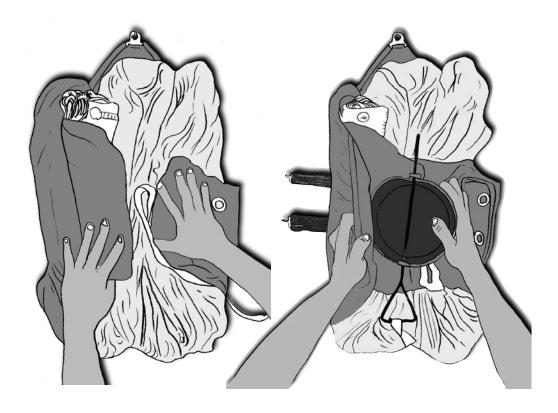
#### 6.4.1

S-fold the bridle neatly on top of the launching disk and compress the pilot chute on top of the bridle. Lock the pilot chute in place temporarily with locking rod threading it through the locking tabs on the launching disk.



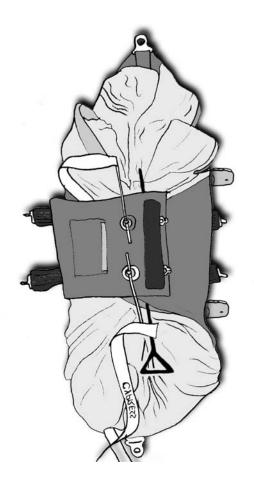
#### 6.4.2

Overlap pack sub-flaps and position the pilot chute and launching disk on top of the sub-flaps.



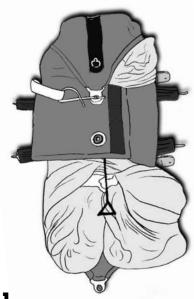
#### 6.4.3

Close the top and bottom pack flaps and secure with temporary pins.



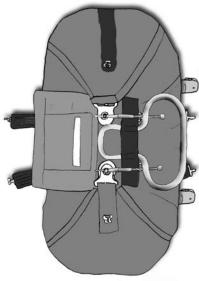
## 6.5 Closing the pack

## **CENTER** pull pack



6.5.1

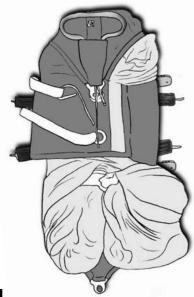
Continue closing the end flap of the container and securing with a temporary pin on the cone. Before closing the last flap, remember to remove the locking rod.



#### 6.5.2

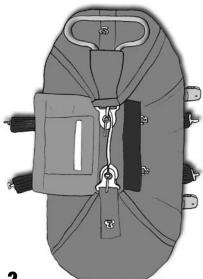
Close the last flap of the container and secure with temporary pins, and tuck in all flaps. Remove the temporary pins and install the ripcord as shown with the ripcord pins going all the way through.

## SIDE pull pack



6.5.1

Continue colsing the lateral flap of the container and securing with a temporary pin on the cones. Before closing the last flap, remember to remove the locking rod and the locking strap.



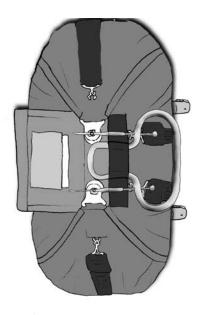
6.5.2

Close the last flap of the container and secure with temporary pins, and tuck in all flaps. Remove the temporary pins and install the ripcord as shown with the ripcord pins going through the cones.

### WARNING! Make Certain to Remove Temporary Locking Strap and Locking Rod.

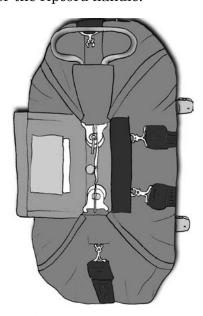
#### 6.5.3

Attach all six Pack Opening Band hooks, ensuring that Pack Opening Bands are under, not over the ripcord handle.

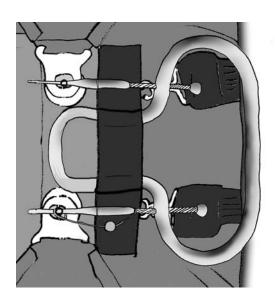


#### 6.5.3

Attach all 6 Pack Opening Band hooks, ensuring that Pack Opening Band is under, not over the ripcord handle.

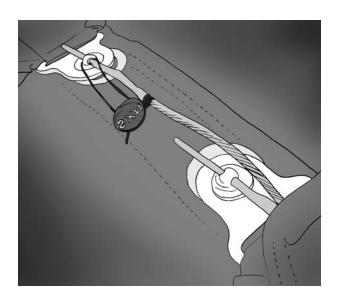


! WARNING! Pack Opening Bands Must Not be Routed Over the Ripcord.



#### 6.5.4

Seal one pin of the ripcord. Fill out data card and return it to its pocket.

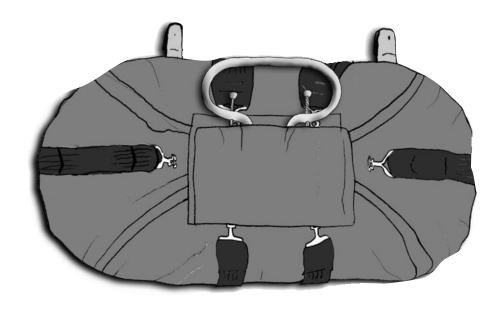


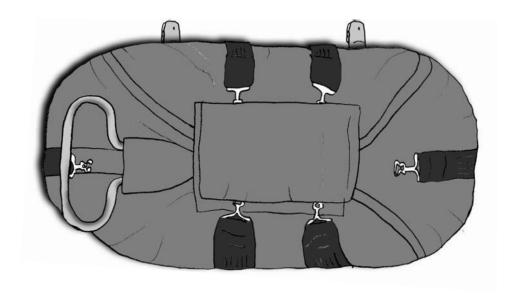
#### 6.5.4

Seal end pin of the ripcord. Fill out data card and return it to its pocket.



6.5.5 Close the Protector flap of the container.





## **COUNT YOUR TOOLS!**

## ! WARNING! Check to make certain you have all the same tools that you started with.

## 7. Repair Guidelines

Stitching and re-stitching on parachute items constructed from cloth, canvas, and webbing should be accomplished with thread, which matches the original material and the original stitching, when possible.

All straight stitching should be 7-11 stitches per inch, and locked by overstitching the existing stitching by at least 2-inches. Zigzag stitching should extend at least 1/2-inch into undamaged stitching at each end. Re-stitching should be made directly over the original stitching, following the original stitch pattern as closely as possible.

All thread on the canopy should be V-T-295E, Size E, VY, and applied with a light or medium duty machine.

#### CANOPY

#### TYPE OF REPAIR LIMITATIONS

Re-stitching: No limit as to length or number.

Size limit: Maximum 50% of panel area. Patch, single side:

Limit of 3 per panel, 15 per canopy.

Panel replacement: Limit 9 per canopy.

Radial Seams: Size limit: 12", no more than 4 per canopy.

Size limit 2", no more than 10 per canopy Lateral bands:

Upper Limit: 4" 1 per canopy. Lower Limit: 36" 4 per canopy.

#### **PILOT CHUTE**

Use restitching or single side patch. Anything more, replace. Damaged bridles should be replaced.

#### CONTAINER

Standard military single side patches or replacement of the damaged area is authorized.

#### RIPCORDS

Damaged ripcords should be replaced.

#### DATA CARD

Data cards should not be discarded or replaced. When filled, they should be attached to the new card so that a complete log of packing, repairs, and alterations is recorded. This is the history of the parachute.

#### Note!

Darning and ripstop tape are not authorized for certified Canopy's as they may weaken the fabric. Single side patches are recommended for even small damaged areas.



## 8. Maintenaince Checks and Services

Chest Parachute Assembly 108126

Verify that assembly is complete, no components missing. Check for proper assembly, no foreign material. Clean and

free from abrasion.

Pilot Chute 790121

Canopy Material. Inspect for illegible markings, loose or broken stitching. Check all webbing, mesh and tapes for holes, tears,

burns, and snags.

Inspect for cuts, breaks, frays, loose, broken

stitching or improper installation.

Canopy 420550

Canopy Fabric. Inspect for rips, holes, tears, dampness, debris, frays, broken or loose stitching, and marred and illegible marks. Inspect for burns, loose or broken stitching on lateral band or radial seam.

**Apex Lines** Inspect for holes, cuts, frays, tears, burns,

and loose or broken stitching.

Upper Lateral Band

Inspect for, holes, cuts, tears, frays, burns,

loose or broken stitching.

Gore Sections Inspect for loose or broken stitching.

> Inspect for loose or broken stitching. V-Tabs

Lower Lateral Band

Inspect for loose or broken stitching, picks,

frays, burns, and stains.

Suspension Lines

Inspect for broken lines.

Pack Assembly 62J4346-10

Pack Releasing Cone. Check for dents, rust corrosion, burrs, breaks, and proper fitting.

Ripcord Grip Pocket. Inspect for loose or broken stitching, and hand tacking, cuts and

frays.

Retainer Webbings. Inspect for loose or broken stitching, loss of elasticity, cuts, and

frays.

Pack Opening Bands

Completeness of stitching, no holes.

Ripcord 62C4250 Inspect for rust, burns, and corrosion, rough spots, bent missing or damaged pins, kinks in cable, sharp bends, frays, breaks, or loose

swages.

Spring Inspect for rust, burns, and corrosion.

Log Record Pocket



# SET10

#### **Airborne Military Canopy**

The SET-10 is a steerable, 35-foot diameter parabolic shaped canopy, with anti-inversion netting. Its 30 gores are block constructed using non-porous, high UV resistant, ripstop nylon. Very little air passes through the material, resulting in slower-than-normal rate of descent. Softer landings are especially welcomed at high field elevations or with heavy payloads.

The SET-10 uses the same Harness / Container, Deployment Bag and Static Line that the standard T-10 and MC1-1C use, to upgrading to the SET-10 means a seamless transition for personnel.

#### Steering:

The steering modification is a 7-TU configuration optimizing forward speed and turning ability. The two large steering vents are covered with anti inversion netting. The maneuvering vents are controlled by steering lines running to toggles at the risers.

#### **Performance:**

The SET-10 is unique in it's performance. Similar to the MC-1-1B in size and gore shape, and similar to the MC-1-1C in that it has non-porous material. The SET-10 non-porous, UV resistant canopy cloth results in forward speed and turn rates comparable to the MC-1-1B while the rate of descent is significantly reduced. This fact alone reduces landing injuries, thus improving overall mission effectiveness.

#### **Maintenance:**

The block construction of the SET-10 significantly reduces the time and effort required for repairs.



## Strong Enterprises

The parachute company with imagination.
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www.strongparachutes.com sales@strongparachutes.com

## Service Manual For packing and maintenance of



## With Center and Side Ripcord

Part number: 108126, 108125

with Diaper equipped

26ft. Mid-Lite Canopy

Part number: 1012-(420550)



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www.strongparachutes.com sales@strongparachutes.com

Fourth release: August 2007 Third release: December 2005 Second release: November 2004 Initial release: February2000

## ! WARNING!

Parachuting is a hazardous activity that can result in serious injury or death. Failure to follow all warnings, instructions and required procedures may result in serious injury or death. Parachutes sometimes malfunction even when they are properly designed, built, assembled, packed, maintained and used. The results of such malfunctions are sometimes serious injury or death. There are so many factors, both human and natural beyond our control, that we want you to clearly understand that by using or intending to use our equipment, you are assuming a considerable risk of personal injury or death. If you are not willing to assume that risk, please return the equipment where it was purchased for a full refund.

## **DISCLAIMER**

There are NO WARRANTIES that extend beyond the description of the products in this manual and neither the seller nor any agent of the seller has made any affirmation of the fact or promise with respect to the products except those that appear therein.