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## Warning / Disclaimer

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# 1.0 Introduction

## 1.1 Scope

This manual provides assembly, intermediate maintenance and packing instructions for SET-10 Main Parachute Assembly, PN 106000. This is a 35 foot diameter Troop Back steerable Parachute.

## 1.2 Equipment Name

SET-10 Steerable Troop Back Parachute Assembly

## 1.3 Purpose of Equipment

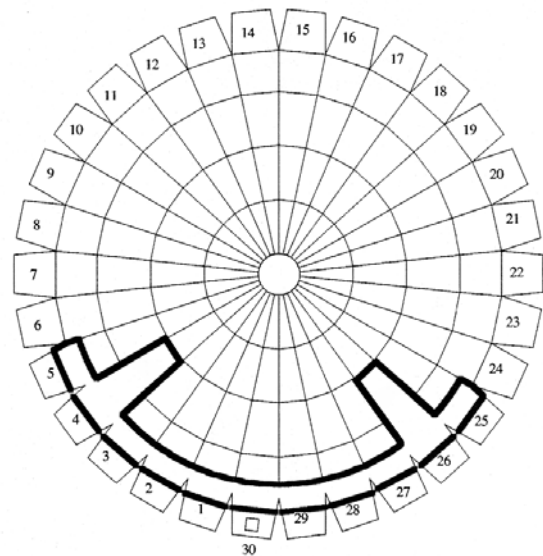
This parachute equipment provides the capability to safely deliver an airborne soldier with individual equipment from an aircraft in-flight for a vertical assault.

## 1.4 Capabilities and Features:

### 1.4.1 Performance Data

Limited to use in winds not exceeding 35 knots at altitude, and 16 knots at surface.

Suspended Weight Range:	100-350 lbs
Rate of Descent:	13 fps (200 lbs )
Forward Speed:	8-10 mph
Rate of Turn:	8.5 seconds 360°
Stability Range:	± 15° Angle of Oscillation
Opening Time:	2.9 seconds at 150 kts



### 1.4.2 Physical Specifications:

Modification:	7TU
Anti-Inversion Netting:	Yes
Shape:	Parabolic
Diameter:	35 feet
Number of Gores:	30
Line Length:	23 Feet
Assembly Weight:	30 lbs

# 1.5 Components of System PN 102155:



**SET-10**  
**Parachute Assembly**  
**SE PN 106000.**



**Risers and Toggles**  
**MIL. PN 11-1-2149-2**  
**SE PN 831220.**



**Harness Assembly**  
**MIL. PN 11-1-2143**  
**SE PN 201200**



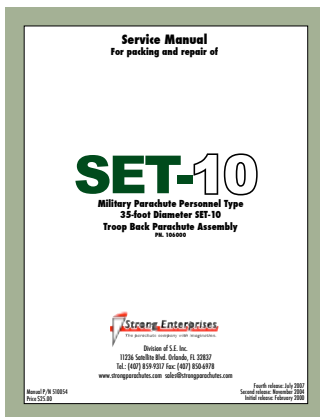
**Pack Tray**  
**MIL. PN 62J4342**  
**SE PN 300750.**



**Deployment Bag**  
**and Static Line**  
**MIL. PN 56D6276**  
**SE Bag PN 720403**  
**SE Static Line PN 780001.**



**35-foot diameter**  
**SET-10 Canopy**  
**SE PN 403468**



**Service Manual**  
**SE PN 510054**

## 1.6 Storage

The parachute assembly should be protected from weather elements, dust, dirt, oil, grease and acid. Unpacked parachutes should be kept in an approved Kit Bag. Ideally, environmentally controlled buildings should be used to store parachutes. Storage shall be in a dry, well-ventilated location.

### CAUTION

**LEAVING THE PACKED PARACHUTE SYSTEM EXPOSED TO THE SUN WILL GREATLY DECREASE ITS SERVICE LIFE!**

## 1.7 List of Materials

Ripstop Nylon,	Mil-C-44378, T IV, 0-3 cfm
Cord,	Nylon MIL-C-5040 Type II
Link,	Separable Connector, MS 22002-1
Tape,	MIL-T-5038H, Type III, 1/2"
Tape,	MIL-T-6134C, Type I
Webbing,	Tubular Mil-W-5625 , 9/16"
Webbing,	Mil-W-27265E Type I, 9/16"
Tape,	MIL-T-5038H, Type III, 3/4"
Net,	Anti Inversion, MIL-C-43805
Thread,	Nylon, VT-295E, Ty II, Cl. A, Size E
Webbing,	Mil-W-27265E Type VIII, Cond. R

## 1.8 Inspection Procedures Table

Item to Inspect	Procedure
Complete Assembly	Verify that assembly is complete. Verify proper assembly and that system is clean and free from foreign materials.
Canopy	Inspect for rips, burns, holes, tears, dampness, foreign materials, completeness of stitching, and complete legible marking.
Bridle Loop	Inspect for airworthiness, completeness of stitching, no holes tears or burns.
Apex Lines	Inspect for burns, cuts, breaks, completeness of stitching on radial seam, and lateral band.
Upper Lateral Band	Inspect for holes, tears, burns, and completeness of stitching.

<b>Item to Inspect</b>	<b>Procedure</b>
Information Block	Legible.
Gore Sections	Inspect for rips, burns, holes, tears, dampness, foreign materials, completeness of stitching, and complete legible marking.
Radial Seams	Inspect for completeness of stitching, holes, tears.
Radial Tapes	Inspect for completeness of stitching, holes, tears.
V-Tabs	Inspect for completeness of stitching, tears.
Lower Lateral Band	Inspect for completeness of stitching, holes, tears.
Anti-Inversion Netting	Inspect for completeness of stitching, broken lines, burns, snags.
Lines	Inspect for completeness of stitching, broken lines, broken core cords, frays, burns, snags and tears.
Connector Links	Inspect for corrosion, burrs, rough spots, cracks, loose or missing screws and stripped threads.
Risers	Inspect for loose or broken stitching, burns, frays, tears and deterioration.
Canopy Release	Inspect for corrosion, cracks, rough spots, smooth operation.
Harness	All webbing, and binding, completeness of stitching, deterioration, burns, frays, tears and legible marking. Inspect hardware for functional fittings, proper operation, corrosion, burrs and cracks.
Retainers	Completeness of stitching, elasticity, cuts and frays.
Pack Tray	Inspect for deterioration, completeness of stitching, hand tackings, holes, tears, burns and frays. Inspect snaps for degradation and proper operation.
Deployment Bag	Inspect all webbings and tapes for completeness of stitching, holes, tears, burns, legibility of marking.
Static Line	Inspect snap and safety pin for corrosion and smooth operation. Inspect static line for completeness of stitching, burns, holes and tears.

## **1.9 Authorized Maintenance and Packing Personnel**

All maintenance and packing procedures shall be supervised under direct supervision of a qualified rigger, or country's equivalent.

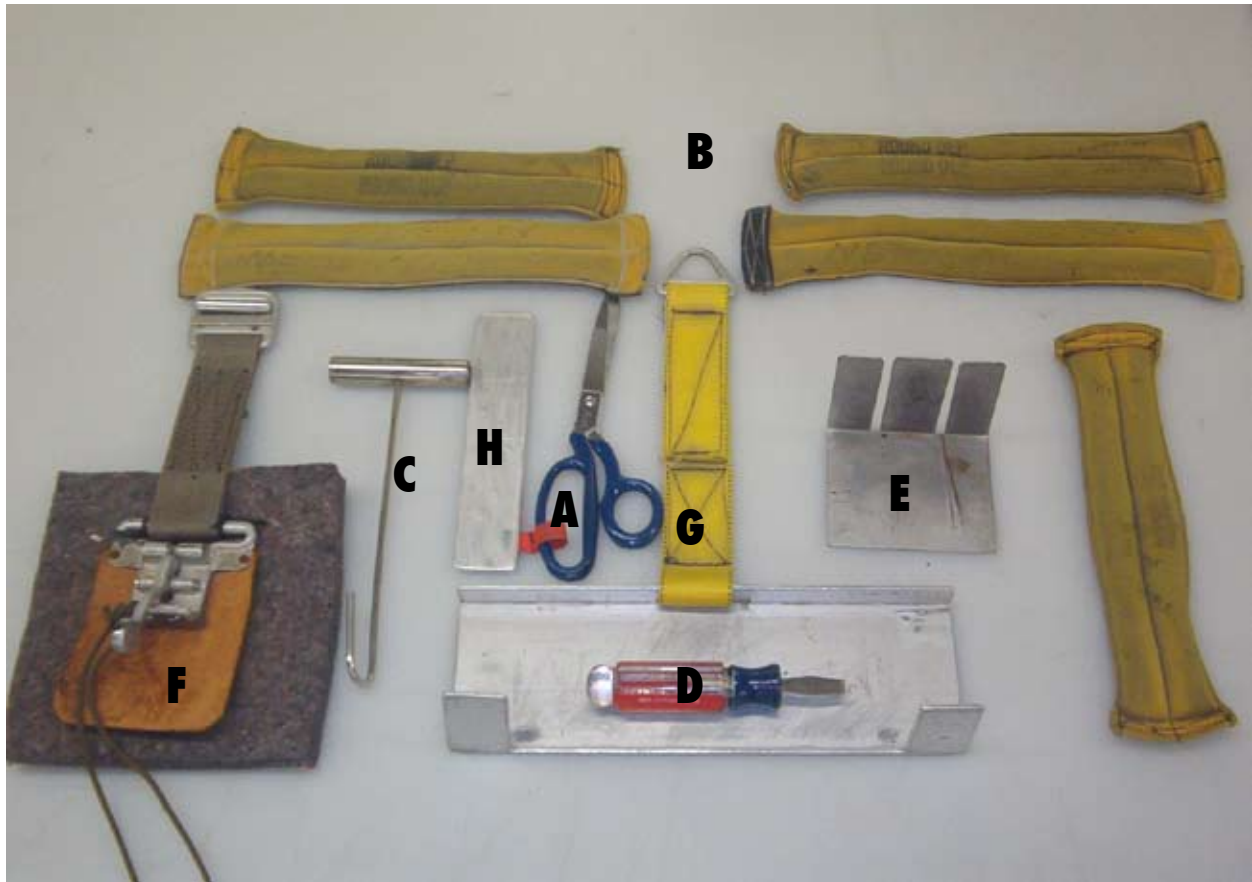
## **1.10 Reporting of Equipment Improvement Recommendations**

In our effort to continuously improve our products, processes, and services, we invite you to send us your comments. As a properly trained and qualified user of this equipment, you are uniquely suited to provide us with valuable feedback regarding design and/or performance. Tell us what you like. Tell us what you don't like. Send us an email or letter to:

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

## 2.0 Required Packing Tools

- A. **Scissors**
- B. **Shot Bags (at least 4)**
- C. **Packing Stow Hook**
- D. **Screwdriver**
- E. **Line Separator**
- F. **Apex Tensioning Device**
- G. **Connector Link Tensioning Device**
- H. **Packing Paddle**



## 2.1 Consumables

- I. **Type 1, 1/4" 80 lb Cotton Break Tape**
- J. **2" x 1/4" Rubber Bands (or equal)**



## 3.0 Assembling the SET-10 Steerable Troop Back Parachute Assembly

Assembly is performed during the layout of the parachute. During the assembly process, care must be taken to insure no damaged or defective parts are found.

### 3.1 Assembling the Harness to the Pack Tray

Place the pack tray on the table with the back strap retainers and keepers up. The end flap containing the static line slack retainer should face toward apex end of table.

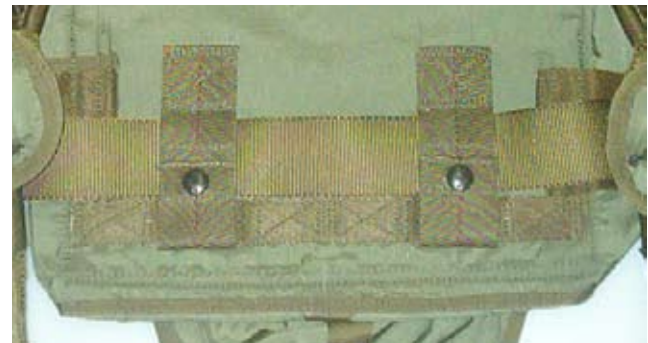


Attach the harness to the pack tray, as shown, by threading each pack tray diagonal backstrap keeper through the harness diagonal backstrap channel for the required size and through backstrap retainers. Ensure that left size equals right size.

Secure the pack tray diagonal backstrap Pull-The-Dot snap fasteners.



Secure both pack tray horizontal backstrap keepers over horizontal backstrap. Secure the pack tray horizontal backstrap Pull-The-Dot snap fasteners.





## 3.2 Assembling the Risers to the Harness

Lay parachute, harness down, with female fittings of harness near male fittings of risers.

Assemble male fitting to female fitting and close latch. Ensure that the latch is securely locked.

Operate latch to check for smooth operation.

Close and lock latch.



Position the cable loop around the latch and fit the heel of the safety clip into the slot of the latch.

Close the safety clip.



## 4.0 Packing the SET-10 Steerable Troop Back Parachute

### 4.1 Prepare Parachute for Proper Layout

Lay the harness container and canopy assembly on the table.



### 4.2 4-Line Check

Check suspension lines for proper layout using the 4 line check method.

Suspension lines 1-30 are divided into two groups, 1-15 in the left group, and 16-30 in the right group. Remove any twists and tangles in the lines. Check for canopy inversion.



### **4.3 Tying Break tape from Apex to Break tape Attaching Strap Loop of Deployment Bag.**

- 1) Inspect deployment bag and static line, including the portion under the sleeve.
  - 2) Rollback sides of deployment bag until Break tape attaching strap retainer pocket is visible.
  - 3) Double a 36 inch length of Type 1, ¼ inch 80 lb. cotton break tape and pass one end of the doubled webbing through the loop in the end of the break tape attaching strap, through the bridle loop of the canopy and back through the loop in the end of the break tape attaching strap.
  - 4) Tie ends of tape over the break tape attaching strap loop using a surgeons knot, and a locking knot.
- Allow approximately a 3 inch loop between the break tape attaching strap, and the bridle loop. Cut off the excess tape, leaving ends approximately 1 ½ inches to 2 inches long.



## 4.4 Folding the Gores

- 1) Apply tension to canopy using the connector link tensioning device, and the apex tensioning device.
- 2) Move to the lower lateral band and take line number 16 from the right line group in hand.
- 3) Pick up line number 17 with the left hand and with a smooth continuous motion lift up inflating the gore and place on top of line 16 making certain the V-tab is facing down.
- 4) Continue flaking in this manner until all the right line group is stacked neatly, with line number 16 on the bottom and line number 30 is on top.
- 5) Using the same technique and while keeping the right line group contained, flake the left side of the canopy starting with line number 1, placing each line on top of the previous one until you reach line number 15.
- 6) Insert the two groups of lines into line separator with the right line group in the right slot, and the left line group in the left slot.



## 4.5 Dress Skirt

Neatly stack the left and right side of the lower lateral band and anti-inversion netting, making sure no material is in the center part of the folded canopy.

## 4.6 Long Folding the Canopy

1) The right side of the canopy, including the anti-inversion netting and the lower lateral band will be folded 180 degrees, so the lower edges are parallel to each other and extend slightly (approximately 2 inches) over the two groups of suspension lines. Place shot bags on the folded portion of the canopy.



2) Fold the left side of the canopy over the right side, and place shot bags over folded canopy.



## 4.7 Stowing Canopy

1) Release tension on canopy, and remove apex tensioning device. Hold the deployment bag open, and grasp the canopy near the apex. Place the apex of the canopy into the left side of the bag.



2) Grasp the canopy and make your next stow in the bag slightly longer than the width of the deployment bag, and place in the right side of the bag.





3) Continue stowing in this manner, until the entire canopy is S-folded completely in deployment bag. Remove shot bags as you go.



**CAUTION**  
**MAKE CERTAIN YOU HAVE ALL THE SHOT BAGS**  
**AND THE LINE SEPARATOR**  
**ON THE TABLE, AND YOU HAVE NOT STOWED THEM**  
**INSIDE THE DEPLOYMENT BAG.**

4) Stand the deployment bag, with the folded canopy inside, upright, neatly dress the canopy and the bag. End with the lines centered on top of the deployment bag.

## 4.8 Closing the Deployment Bag

Pull the suspension lines over the top of the deployment bag. Fold the side pockets of the deployment bag over the stowed canopy and fold the locking stow panel over the side flaps. Insert locking stow loops and connector link tie loops through the slots in the locking stow panel.



## 4.9 Stowing Suspension Lines

- 1) Grasp all suspension lines and form a loop which reaches from the center of the deployment bag to 2 inches beyond right side locking stow loop hood.
- 2) Using packing hook, make the first stow in the right side locking stow loop to 2 inches beyond the locking stow loop.
- 3) Grasp the suspension lines approximately the width of the bag, and form a second loop which extends 2 inches beyond the left side locking stow loop.



## Note!

*Now that the canopy is contained safely in the deployment bag, it is a good opportunity to flatten the deployment bag, by using calculated yet forceful slaps to the bag. Flattening and neatening now, will help ensure a neat pack job, as well as making it easier to close in later steps.*

- 4) Extend the suspension lines to the right corner of the bag and make your first regular stow, letting the lines extend 2 inches beyond stow loops.



5) With the lines extending across the bag, make your next stow in the left side stow loop, leaving 2 inches beyond the loop.



6) Continue with your stows, alternating between right side then left side, until approximately 8-10 inches of line remain unstowed. Remove connector link tensioning device.



## 4.10 Tying Connector Links and Suspension Line Cover

1) Fold suspension line cover over suspension lines.

2) Using a 14 inch length of cotton break tape, pass an end through the right bottom connector link tie loop, then through the right pair of connector links, through the top right connector link tie loop and through the cover tie loop.



3) Secure all tie loops and connector links together with a surgeons knot and locking knot.

Cut excess break tape, leaving approximately 2 inch tails.



## 4.11 Closing the Pack Tray

1) Slide the pack tray up to under the deployment bag, make a U-fold with the risers.



2) Grasp the bag at the static line and stand deployment bag up on connector links.



3) Roll the deployment bag into the pack tray, on top of the folded risers.





4) Remove twists in static line.

5) Lay pack tray closing flaps over deployment bag. Thread a 40 inch length of Type 1, ¼ inch cotton break tape through the lower end closing loop, static line pack opening loop, left side flap closing loop, upper end flap closing loop, under static line and through right side flap closing loop.



6) Pull loops close together until loops are approximately 2 inches apart. Tie with a surgeons knot, and locking knot. Using a packing paddle, insert flaps and dress pack.



## 4.12 Stowing the Static Line

- 1) Install four rubber bands on left and right side static line retainer bands.
- 2) Make first stow of the static line on the lower right side of the pack, leaving approximately 3 inches of static line extended past static line retainer bands.
- 3) Extend the static line across the pack, and make the next stow in the lower left static line retainer band.
- 4) Continue stowing static line right to left.
- 5) Inspect your work.

**CAUTION**  
**COUNT YOUR TOOLS!**



## 5. Maintenance Guidelines

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

All straight stitching should be 7-11 stitches per inch, and locked by over stitching 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

Re-stitching:

Patch, single side:

Panel replacement:

Radial Seams:

Lateral bands :

Upper

Lower

#### LIMITATIONS

No limit as to length or number.

Size limit: Maximum 50% of panel area.  
Limit of 3 per panel, 15 per canopy.

Limit 9 per canopy

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

Size limit 2", no more than 10 per canopy

Limit: 4". Limit 1 per canopy

Limit: 36". Limit 4 per canopy

### STATIC LINE

Damaged static line should be replaced.

### CONTAINER

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

### DEPLOYMENT BAG

Damaged Deployment Bag should be patched or 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.*

# MILITARY

# Quasar II



The Military Quasar is a single harness, dual parachute system using ripcord, static line or Hand deployed main deployment methods. It features single pin closures for the main and reserve containers and is characterized by the reserve and main pin protector flaps which tucks into a pocket on opposed flaps. The main and reserve canopies are 9-cell Ram Air canopies.

The Harness is fully adjustable at 7 points, and has provisions for a main ripcord release and reserve automatic ripcord release. It has an adjustable bellyband and 2 equipment rings and it accepts all current oxygen bottles, radios, navigation aids, weapons, rucksacks, equipment bags and lowering lines.



## DESCRIPTION CAPABILITY

Span:.....27 feet(8.8 m)  
 Chord:..... 11.8 feet (3.36 m)  
 No. of Cells:.....9  
 Aspect ratio:..... 2.3/1  
 Max. Susp. Wt.:..... 360 lbs (163 kg)  
 L/D ratio:..... 3.2  
 Rate of Descent: ..... 12-18 fpt (4 mps)  
 Rate of Descent 50% brakes:..... 8-12 fps (2 mps)  
 Ops. Envelope:1500 feet (457 m)to 25000 feet (7620 m)  
 Forward speed: 200 lbs (90 kg):.....24 mph  
 300 lbs (136 kg): .....28 mph  
 Rate of Turn:..... 8 seconds

## QUASAR II FEATURES

- Main spring Loaded Pilto Chute
- Oxygen Pouch
- Radio Pouch
- Weapon Tiedowns
- FXC compatible
- Equipment Rings



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**Service Manual**  
**For Packing and Maintenance Guidelines of**

**SET-10**

**Military Parachute Personnel Type**  
**35-foot Diameter SET-10**  
**Troop Back Parachute Assembly**  
PN. 106000



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# **! 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 NOWARRANTIES 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.**