

STRATEGOS TECHNOLOGY TRANSFERENCE

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EXPEDITIONARY LIFT BALLOON MK II

ExLB.2

Instruction Manual  
& User Guide

## **Table of Contents**

**Page**

- |   |          |
|---|----------|
| <b>1. ExLB General Description &amp; Specifications</b>   | <b>3</b> |
| <b>2. Limited System Warranty</b>                         | <b>5</b> |
| <b>3. Berry Amendment Compliant Textiles and Hardware</b> | <b>6</b> |
| <b>4. ExLB System Equipment Inventory</b>                 | <b>7</b> |
| <b>5. ExLB Major Components</b>                           | <b>8</b> |
| <b>6. ExLB MKII Component Storage</b>                     | <b>9</b> |

# 1. General Description & Specifications

## 1.1 Lift bag material and capacities

- 1.1.1 Lift Bag Capacity: 750#
- 1.1.2 Fabric: 1000 Denier Cordura Overbag with lightweight airtight and waterproof inner bag
- 1.1.3 Overpressure Valve: USIA
- 1.1.4 Surface Inflation/Deflation Valve: NRS

## 1.2 Dimensions

- 1.2.1 Inflated
  - 1.2.1.1 Height 50"
  - 1.2.1.2 Width 33"
  - 1.2.1.3 Depth 37.5"
- 1.2.2 Deflated
  - 1.2.2.1 Height 26.5"
  - 1.2.2.2 Width 18"
  - 1.2.2.3 Depth 9"

## 1.3 Weights

- 1.3.1 Bare System: 24.5 pounds
- 1.3.2 System Including Bottles
  - 1.3.2.1 One Bottle: 37 Pounds
  - 1.3.2.2 Two Bottles: 61.5 Pounds

## **General Description & Specifications (Continued)**

### **1.4 Inflation and Actuation Mechanisms**

- 1.4.1 Manual Lanyard Pull Actuation
- 1.4.2 Optional Automatic Tow Actuated Coupler (ATAC ) Pneumatic Actuation
- 1.4.3 System configurable for single or double HP50 (3300 psi) aluminum cylinders to accommodate different weights at different depths

### **1.5 System Protection and Packaging**

- 1.5.1 1000 Denier Cordura Deployment Bag
- 1.5.2 1000 Denier Cordura Accessory bag
- 1.5.3 1660 Vented Pelican case w/wheels
- 1.5.4 1060 Pelican case for Field Repair Kit

### **1.6 Attachment System**

- 1.6.1 1" Stainless Steel Pin capturing <3/4" Amsteel Blue line or lift strap
- 1.6.2 Attachment to ATAC System through same 1" pin and machined lift eye

## **2. Limited System Warranty**

Strategos Technology Transference LLC asserts that the products are guaranteed to be free from defects in material and/or workmanship and to perform as advertised when properly used and maintained in accordance with written instructions for the period of one year.

### 3. Berry Amendment Compliant Textiles and Hardware

#### Hardware:

2" Side Release Buckles #5618

**Stealth Warrior Duraflex**

**National Molding Corp. 5 Dubon Court Farmingdale, NY 11735**

Rubber handles

1" polyethylene molded

**Gerald Schwartz Inc. GA**

#### Fabric:

Waterproof Interior Liner:

LCT-1915

Black, 400Denier nylon packcloth

M1 W/6.75 oz urethane coating

Weight 10.75 oz

**Lamcotec™ 152 Bethany Rd. P.O. Box 279 Monson, MA 01057**

Cordura™

1000 Denier w/ 1.25 oz urethane coating

102625-BK-59/60in

**DUCRBC 144 Railroad Ave., Ste. 219 Edmonds WA 98020**

Weight belt webbing 2"

989N 2BK Nylon

**PK Supply corp. 6406 South 196th St. Kent, WA 98032**

Thread:

T70 nylon, Anafil Nylon, Twisted multifilament

**All components used comply with Title 10 United States Code [U.S.C.] §2533a.**

STRATEGOS EXPEDITIONARY LIFT BALLOON MK II

## 4. System Equipment Inventory

### 4.1 Main Lift Bag System

- ExLB.2 Chassis with Internal Air System
- Dual HP50 Aluminum Scuba bottles
- Four Scuba Tank Straps
- Manual Actuation Lanyard
- Rigging Attachment Pin
- Handling Strap Assembly (red)
  - Actuator Safety Arming Pin

### 4.2 Component Storage

- Vented 1660 Pelican™ Case (Storage and Transport)
  - Sized to allow case to be used for fresh water rinse post-dive
- STT 1000 Denier Cordura™ Zippered Deployment (Bag)
- 1060 Pelican™ Case
  - Field Repair Kit storage box

### 4.3 Field Repair Kit

- Scuba fill adapter (x2)
- Quick Disconnect O-Ring repair Kit (N004,012,013)
- ATAC O-ring Pack (CO2 Ring, Actuator Pin Rings)
- Surface Inflation/Deflation Valve Adapter
- Emergency Spare CO2 cartridges
- Inner Bag repair patches/Aqua Seal Adhesive
- Extra Lift pin locking clip
- Extra Manual Pull Lanyard
- Silicone Grease tube
- Zipper Wax Stick

## 5. Major Components

The ExLB system as deployed consists of four major components

### 5.1 Main System

- 5.1.1 With All of the critical system components internal, the inflated ExLB protects them while under tow and while being dragged over terrain

### 5.2 Dual High Pressure 50 cubic foot bottles

- 5.2.1 Rigged with our integrated 1st stage regulator bottle valve, the ExLB uses proprietary quick disconnect fittings to connect to the internal air system. Convenient "on bottle" gauges validate pressure prior to rigging.

### 5.3 Manual Lanyard

- 5.3.1 Not critical for pneumatic actuation, the manual pull lanyard provides an alternative triggering mechanism and adds redundant manual operation should the mission demand it.

- 5.3.2 Held in place by safety pin until armed.

### 5.4 Handling Strap

- 5.4.1 Colored bright red for easy identification, the handling strap keeps the bag folded and tidy when being handled either in water or in a boat.
- 5.4.2 Includes the actuator safety pin on an attached lanyard. As a part of a dive supervisor check, the removal of the handling strap as a last action also involves removing the safety pin, fully arming the system.



Packed ExLB System



Dual HP50 cf bottles



Actuator Pin and Manual Lanyard



## 6. MKII Component Storage

The ExLB MKII Component Storage and Deployment system is comprised of two 1000 Denier Cordura™ bags and two Pelican™ Cases.

### 6.1 Vented 1660 Pelican Case

6.1.1 The entire system fits, ready to dive in a single Pelican 1660 case. This case has been custom vented with louvred vents to prevent post-dive moisture from destroying system if left for a period.



Vented Pelican Case



Deployment Bag in Case

### 6.2 Deployment Bag

6.2.1 The Deployment Bag is constructed out of 1000 denier Cordura and Hypalon, designed to house the entire system as it would be fielded. Deployment bag has stowable carry handles, an armored end that the nose of the system goes on to prevent wear through, and continuous loops around it's perimeter to allow solid rigging to a duck or to an inflatable boat underway.

6.2.2 Inner pocket to house the instruction manual



Deployment Bag with  
Accessory Bag in it

### 6.3 Accessory Bag

6.3.1 Accessory Bag is designed in a similar manner to the deployment bag, and houses the ATAC, ATAC pins, Shuttle, Field Repair Kit and any bridle or rigging hardware you wish to maintain with the gear to ensure FMC without additional bags needed.

6.3.1.1 The Automated Tow Actuated Coupler is generally coupled to the Shuttle in storage, and has it's pin stored in it.

6.3.1.2 The Field Repair Kit (FRK) has it's own inventory card and is intended to do exactly what it sounds like, provide repair capability while deployed in the field.



Accessory Bag with Field  
Repair Kit, Shuttle and ATAC

## 7. Setup and Use Guide

### 7.1 System Preparation

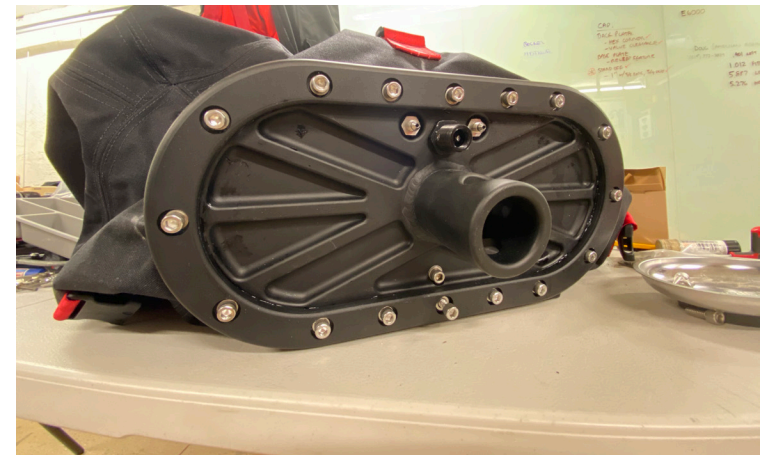
- 7.1.1 Lift system out of the Pelican case and deployment bag, setting it on level ground (preferably padded) with the front side toward you (end with machined lift eye and IVA actuator body) and the zipper facing upward.

### 7.2 Safety Pin Inspection

- 7.2.1 Is the safety pin in?
  - 7.2.1.1 No... The system has been fired and will need the lanyard and the actuator safety pin reset. Follow Section 2 "Resetting Procedure" in following section.
  - 7.2.1.2 Yes... The system is ready to be rigged and is already prepared for service. Skip to "Test Inflation" section.



Pin and Lanyard Properly Rigged



Pin and Lanyard Missing



## 7. Resetting the STT Inflation Valve Assembly

### 7.3 Access the air system

- 7.3.1 Remove the red handling strap (if still attached) by unfastening the (5x) 2" Fastex buckles from the sides and top of the bag. If the actuation safety pin and manual pull lanyard are installed, no need to remove them, simply set aside and continue procedure.

### 7.4 Unzip the lift bag

- 7.4.1 Grabbing the bag by the top of the zipper, pull the zipper handle firmly and smoothly to open up system.
- 7.4.1.1 \*If bag is difficult to manipulate, it is likely due to suction from vacuum de-bulking. Once you crack the zipper, system will equalize and bag will be easy to manipulate.
- 7.4.2 To ease access, pull the bag carefully over the entire inner system to expose chassis and bottles.

### 7.5 Bleeding Down

- 7.5.1 Shut the bottle valves off, turning by hand until tight. This will retain approximately 50 psi of air in the tanks, preventing a mandatory disassembly and visual inspection of the tanks when you go to recharge them.
- 7.5.2 Bleed the air out of the system using the bleed screw on the air manifold on top of the system. Looking at it from the top view, the bleed screw is a silver thumbscrew disc on the right side of the manifold. Turning this disc counterclockwise to loosen, listen for a small bleed down air burst as it bleeds the lines and valve. You likely won't hear the valve reset. You may see the bottle air pressure gauges drop slightly to zero.



Packed System with strap



Handling strap off



Bag Unzipped



Bag tucked behind system



Pointing to bleed valve

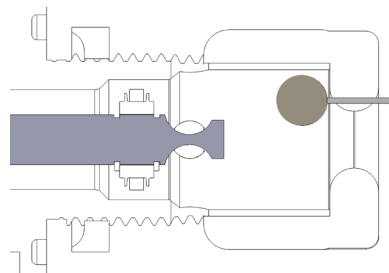
## 7. Resetting the STT-IVA (continued)

### 7.6 Actuation Safety Pin and Lanyard Reset

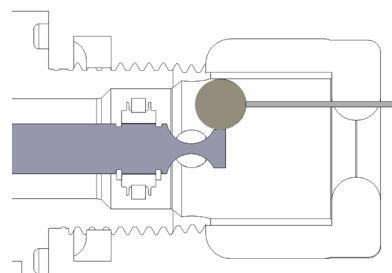
The STT-IVA system, designed specifically for repetitive use, employs a proprietary automatic resetting poppet which resets itself once it is bled down. Unlike prior and legacy systems, the operator does not need to manually reset the valve. This is an industry first.

Instead, the operator need only re-install the manual pull lanyard (which is ejected regardless of deployment method) and reinstall the actuator safety pin.

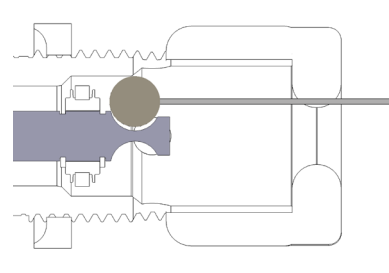
- 7.6.1 Remove black cable guide cap to access manual actuation pin (shown in gray below)
- 7.6.2 Use needle nose pliers to pull pin all the way out. This step isn't always necessary, and will likely not need to happen if system was last actuated pneumatically, as it tends to drive it all the way out.
- 7.6.3 Feed manual pull lanyard back through guide before reinstalling
- 7.6.4 Push lanyard ball around the side of the actuator pin, into the pin cutout and apply backward pressure. See below diagram. You will usually hear a light "click" when it has gone around the side properly.
- 7.6.5 Using a pen, the needle-nose pliers or almost any other small thin tool (pinky has worked in the past...) push the pin back into seated reset position.
- 7.6.6 Reinstall actuator safety pin (tied to handling strap, shown in green below)
- 7.6.7 Reinstall black cable guide cap
- 7.6.8 Pull firmly on lanyard to make sure engagement is positive



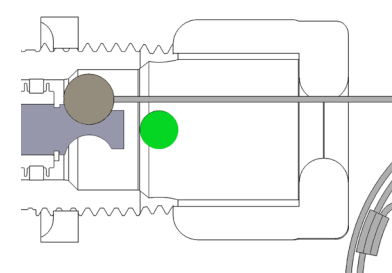
Lanyard ball out



Ball passing pin



Ball engaged in relief



Pin in ready position, actuator safety pin installed (green)

## **IVA Reset Video**

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