



**HAMMERHEAD  
TACTICAL LIFE PRESERVER  
P/N 67000**

*This manual contains important information. READ IT!*

*Keep this manual in a safe place for future reference.*

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## 1. LIFE PRESERVER SAFETY



### CAUTION

The following describes potential hazards or procedures that, if not performed correctly, can result in damage to or failure of the life preserver, personal injury or death.

- Only persons who have been trained in the operation and care of this device should use it.
- This life preserver does not provide any buoyancy unless it is inflated.
- Never inflate the life preserver fully by mouth first and then pull the handle to discharge the CO<sub>2</sub> cylinders. Doing so may cause injury to the user or damage to the life preserver.
- Each set of CO<sub>2</sub> cylinders will only inflate the life preserver once. The life preserver must be rearmed with new cylinders following each inflation.
- Do not dry clean, iron or machine-wash your life preserver.
- Do not use damaged life preservers. Send them to an approved repair facility for inspection, maintenance and repair.
- No objects or equipment should be attached to the Hammerhead outer shell to avoid risk of harm to the system or user.
- No objects or piece of equipment should interfere with the chassis or slide rails as this will prevent actuation.
- Do not inhale CO<sub>2</sub> gas. Doing so may cause you to become nauseous.

## 2. HAMMERHEAD OVERVIEW

The Hammerhead life preserver is a high-buoyancy, constant-wear inflatable life support device designed for discrete tactical operations. To function properly, it must be integrated with a harness system. Quick-ejector clips and side-release buckles provide secure harness attachment points.

In its packed configuration, the life preserver fits closely to the neck and extends across the shoulders at the outside of the chest area. The harness straps run to the outside of the hipbone at the waist. The packed side lobes extend only to the breast and should not interfere with tactical load-carriage or other equipment. When inflated, the life preserver will cover the chest area and support the neck.

The Hammerhead should not be worn under any other carriage system or under clothing. The life preserver system should be the outermost system in any tactical configuration.

**Figure 1 — Hammerhead Life Preserver worn with Climb Harness**



3. PARTS & FEATURES

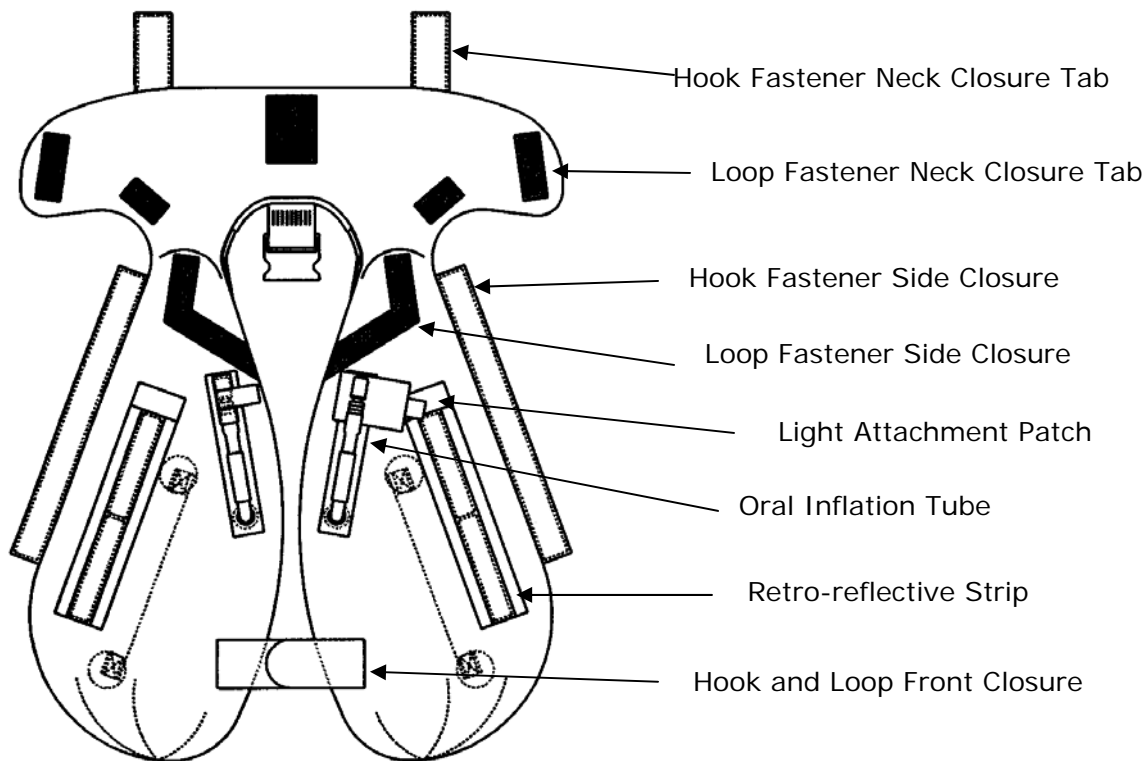


Figure 2 — Hammerhead Front View

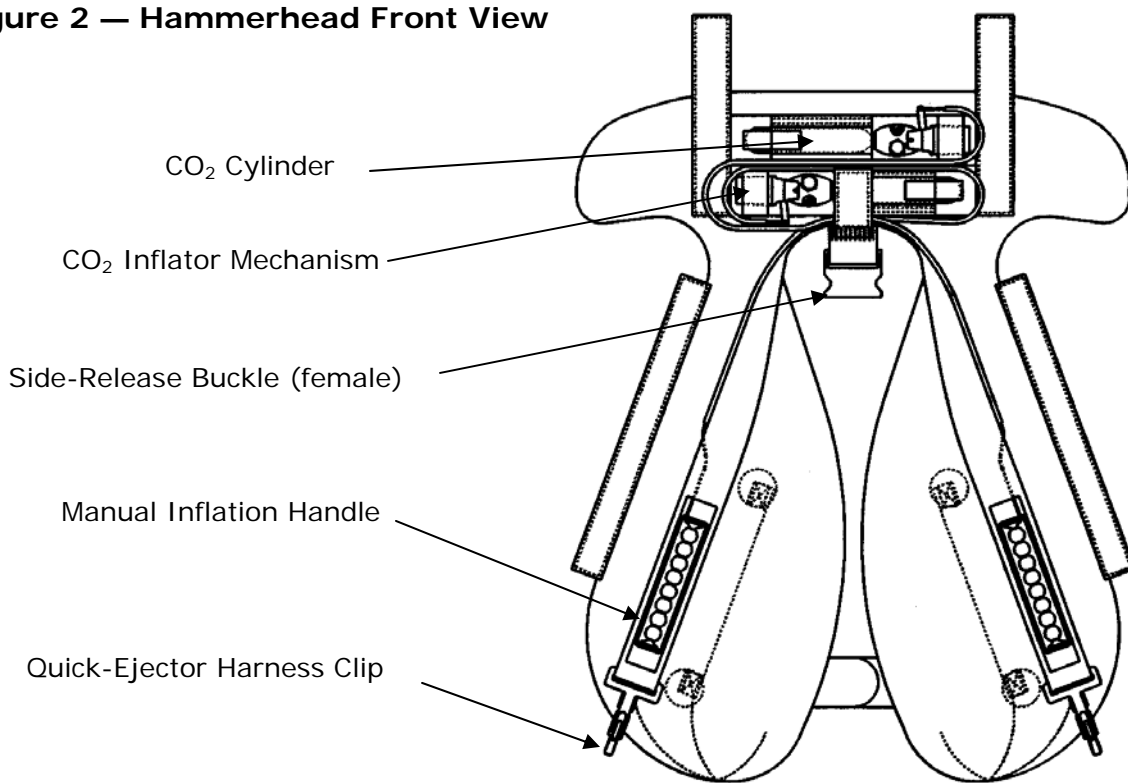


Figure 3 — Hammerhead Rear View

### 3.1. Structural Over-Shell

**CAUTION:** *No objects or equipment should be attached to the Hammerhead outer shell to avoid risk of harm to the system or user.*

The inflatable compartment consists of a structural over-shell container and a dual-chamber inflatable bladder. The over-shell is comprised of two side lobes that cover the chest area when inflated and a neck lobe to support the wearer's head. Internal baffles in the side lobes restrict the radius of the lobes upon inflation while webbing reinforcements serve to reduce stress along the baffle seams.

Hook and loop fastener strips on the over-shell allow the life preserver to be folded in upon itself to form a compact package for constant wear. A hook and loop tab strap closure secures the side lobes across the chest when the jacket is inflated. Retro-reflective tape patches on the side lobes are provided with covers to minimize visibility in tactical situations. Attachment patches are provided on the retro-reflective tab covers to which personal locator lights can be fixed.

### 3.2. Inflatable Bladder

The inflatable bladder is constructed from three plies of polyurethane film sealed together to form two independent inflatable chambers superimposed on each other. Each chamber has a mechanical inflation valve and an oral inflator. The bladder extends throughout the inflation compartment so that inflation symmetry is maintained even with one chamber deflated. The bladder is designed to be larger than the over-shell to ensure that upon inflation, the bladder is not stressed. The structural over-shell bears the full force of inflation.

### 3.3. Chassis Harness

**CAUTION:** *No object or piece of equipment should interfere with the chassis or slide rail as this will prevent actuation.*

The cell container is secured to a webbing chassis fitted with quick-release buckles that provide the life preserver with three-point attachment to a harness system. The neck attachment point is the female portion of a 2-inch side-release buckle. The remaining two attachment points are quick-ejector clips designed to fit with V-rings on the separate harness straps.

Slide rails located on the lower portion of the chassis harness ensure positive connection of the side lobes to the harness system while allowing the side lobes to be packed away higher on the chest.

### 3.4. CO<sub>2</sub> Inflation System

The CO<sub>2</sub> (carbon dioxide) inflation system is located at the back of the neck. It consists of two Halkey-Roberts V85000 series automatic inflators, one for each bladder, attached to the underside of the neck lobe. Two CO<sub>2</sub> cylinders are held in place by hook and loop fastener tabs. Two 35 gram cylinders with ½" thread should be used. Only 35 gram CO<sub>2</sub> cylinders marked with NSN 4220-21-913-8072 are compatible with the Halkey-Roberts V85000 series inflator.

### 3.5. Manual Inflation System

Backup manual activation is provided through two inflation handles located on the lower portion of the chassis harness. A sleeved cabling system runs along the chassis harness and connects the activation handles to the inflator mechanism. A molded trigger guard

covers the inflator body to ensure free-travel of the manual inflator arm. Hook & loop fastener strips on the worry-bead handles secure them to the chassis webbing to prevent snagging.

### **3.6. Oral Inflation System**

The life preserver also has two oral inflation valves connected to oral tubes located on the front of the chest lobes. The oral tubes have protective caps with screw closures to prevent inadvertent deflation and are secured to the chest lobes with hook & loop fastener tabs.

## 4. INSTRUCTIONS FOR USE

### 4.1. Pre-Donning Inspection

Before each use, the condition of the life preserver should be unpacked and checked as follows:

#### 4.1.1. Inspect the Life Preserver for Damage.

Check that the container and chassis are free of rips, tears or holes; that all seams are securely sewn and that all hardware is securely attached and operational.

#### 4.1.2. Check the Condition of the CO<sub>2</sub> Cylinder

To check the condition of the cylinder, unscrew it from the inflator mechanism. Once removed, look at the flat face of the cylinder just above the threads. An empty cylinder will have a visible puncture hole on the face and cannot be reused. The cylinder should also be discarded and replaced if it shows signs of corrosion. If the cylinder is serviceable, it can then be re-installed by screwing back into the inflator mechanism. Hand-tighten only. If the cylinder is used or damaged, discard the cylinder and rearm the mechanism per the instructions in Section 4.9 Rearming the CO<sub>2</sub> Inflation Mechanism.

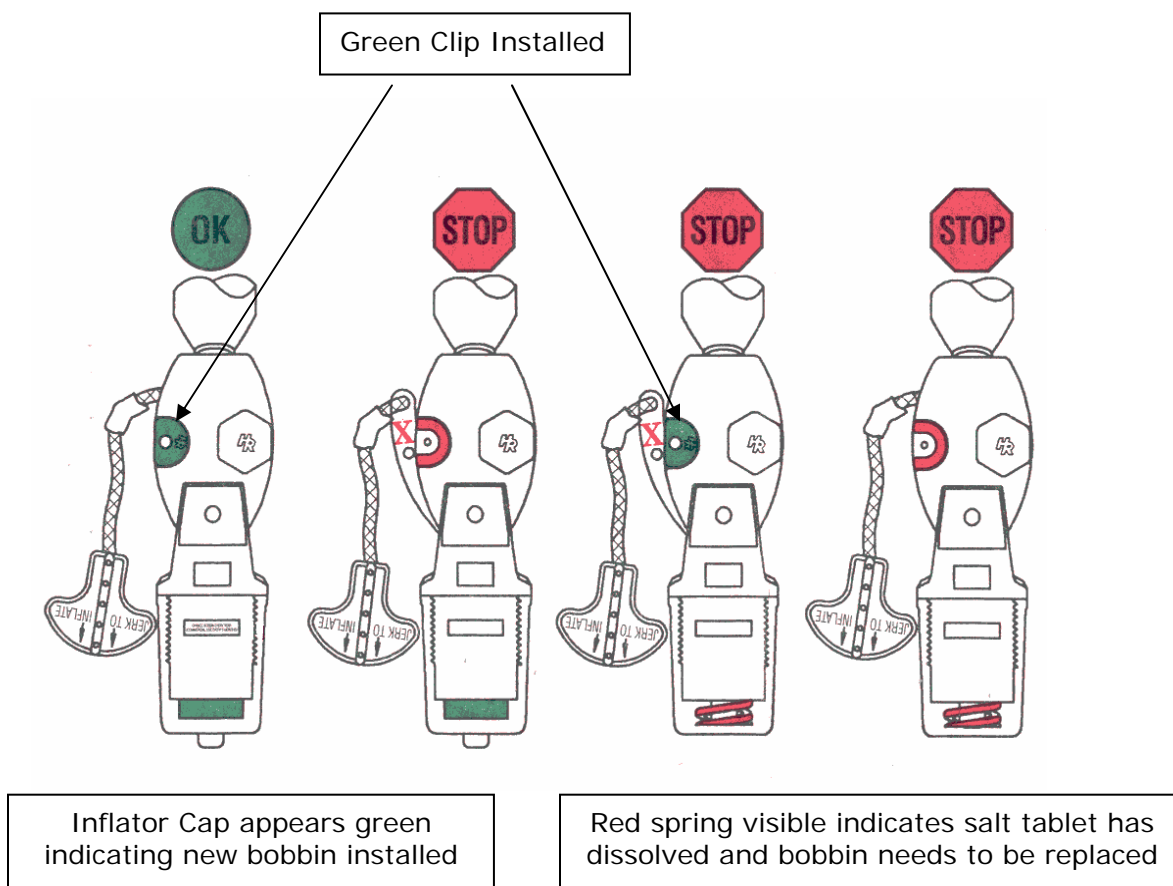


Figure 4 — Arming Status Indicators

#### 4.1.3. Examine the Inflator Mechanism for “OK” Status Indicators

Check that the green status indicator clip is in place on the inflator mechanism's face. The green clip must be in place for the mechanism to be properly armed. If the green clip is broken or missing, rearm the mechanism per the instructions in Section 4.9 Rearming the CO<sub>2</sub> Inflation Mechanism.

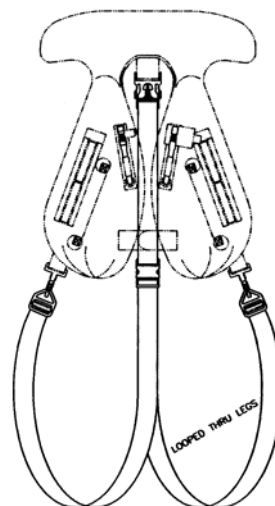
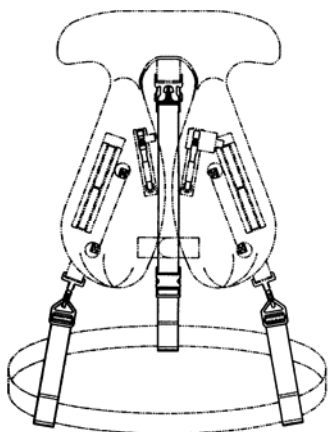
Check that the automatic inflator cap end is green indicating that a bobbin is installed in the automatic inflator cap assembly. If the cap assembly is red, install a bobbin per the instructions in Section 4.9 Rearming the CO<sub>2</sub> Inflation Mechanism.

#### 4.2. Configuration for Tactical Use

The Hammerhead can be integrated with a variety of harnesses for tactical use. The key to operational effectiveness is appropriate initial setup. The tactical harness (simple Y-harness) is intended for general tactical use and quick two-point doffing. The climb harness integration provides a three-point doff and is intended to maximize performance.

Integrate the life preserver system by connecting the female portion of the side-release buckle on the chassis collar to the male portion on the Y-Harness or Climb Harness extender strap. Connect the quick-ejector buckles on the lower portion of the chassis to the V-rings on the applicable harness.

**Figure 5 — Climb Harness Integration**



**Figure 6 — Y-Harness Integration**

#### 4.3. Donning

The life preserver should be worn with the collar as close as possible to the back of the neck. Fastening points on the harness should be wide, leaving the chest area free to access tactical equipment. Tighten the adjustable straps so that the chassis is secure to the body, but range of motion is not unduly restricted. The V-rings should be worn above the hip bones.



#### 4.4. Automatic Inflation

Inflation will occur automatically upon immersion of the life preserver in water. Activation should occur within 5 seconds of exposure and full inflation should occur within 5 seconds of activation.

#### 4.5. Manual Inflation

To activate manual inflation, detach the inflation handles from the hook and loop security patches and pull downward quickly and forcefully on both handles until inflation is activated. Approximately 25 lbs of pull force is required for manual activation.

#### 4.6. Inflation by Mouth

**CAUTION: Never inflate the life preserver by mouth first and then pull the CO<sub>2</sub> mechanism handle. Doing so may cause injury. It may also over-inflate and damage the inflatable cell.**

To inflate the life preserver orally, the life preserver must first be unpacked. Separate the hook and loop fastening located on each of the chest lobes and the neck lobe. Free each of the two oral tubes from its holder by releasing the hook and loop tab closure. Unlock the oral valve by screwing down the safety mechanism. Depress the head and breathe forcefully into the bladder until the life preserver is firm. Release the screw cap.

#### 4.7. Secondary Donning & Adjustment

After inflating the life preserver, fasten the hook and loop chest strap to secure the chest lobes together. Additional harness adjustments may be necessary to yield maximum performance. Secure the harness as tightly as is comfortable so that the neck lobe of the lifejacket is securely behind the head and the chest lobes are pulled securely to the chest.

#### 4.8. Deflation

**CAUTION: Do not inhale CO<sub>2</sub> gas. Doing so may cause you to become nauseous.**

Detach the Hammerhead life preserver from the harness and place the Hammerhead on a flat surface. Remove the oral tubes from their Velcro keepers and fully unscrew the lock on each oral tube. Take one oral tube in each hand and depress the oral tube end to begin deflating the Hammerhead. You should hear gas coming out of each oral tube and feel the Hammerhead deflate. You can put the side lobes of the Hammerhead on top of each other and use your arms and body to squeeze the Hammerhead as much as possible to push the gas out while depressing the oral tube ends. Continue compressing the Hammerhead until no more gas comes out of the oral tubes. There may still be gas left in the Hammerhead at this time.

Turn the Hammerhead over. Position the side lobes so that the Velcro strips are towards the center and the oral tubes are towards the outside. Squeeze all the remaining gas out of the head lobe and into the side lobes. Roll up the ends of the head lobe and Velcro them in place. Roll the entire head lobe around the inflators and Velcro it in place at the center and ends.

Grasp the bottom of one side lobe and the harness attachment clip. Pull the side lobe up and fold it upon itself. While depressing the oral tube end, squeeze as much gas out of this side lobe as possible. Some gas will come out of the oral tube and some will transfer through the head lobe into the other side lobe. Roll the side lobe around the oral tube towards the Velcro strip. When it is completely rolled, Velcro it closed.

At this point, there should be no gas in the temporarily packed head lobe and side lobe. By temporarily packing these lobes, gas is prevented from entering them. The second un-packed side lobe should have all the remaining gas in it. Fold this side lobe up as done before. Depress the oral tube end and try to get as much gas out as possible. Any remaining gas in this side lobe will now have to be transferred over through the head lobe and into the other side lobe to be removed. This is due to the layered bladder design.

Unpack the packed side lobe by opening the Velcro and lay it flat. Squeeze the side lobe that still has gas in it to empty it completely. This will push the gas through the head lobe and into the newly unpacked side lobe. Temporarily pack the empty side lobe to prevent gas from entering it. Fold up the bottom of the empty side lobe and roll it around the oral tube until the Velcro can be closed.

At this point all the remaining gas should be in the un-packed side lobe. Fold this side lobe up as done before. Depress the oral tube end and try to get as much gas out as possible. Temporarily pack the remaining side lobe.

If all lobes can be temporarily packed without any bulging in the Hammerhead, then it is sufficiently deflated. Otherwise, repeat the side-to-side transfer process until the Hammerhead is properly deflated.

Once the Hammerhead is properly deflated, start un-packing it. Open the head lobe Velcro's, un-roll it and lay it flat. Open the side lobe Velcro's, un-roll them and lay them flat. Lock both oral tube ends by screwing the lock closed against the oral tube end. The oral tube end should not be able to be depressed when properly locked. Place the oral tubes back into their Velcro keepers.

The Hammerhead is now deflated and ready for arming.

#### **4.9. Rearming the CO<sub>2</sub> Inflator Mechanism**

Each time the CO<sub>2</sub> inflation mechanism is actuated, the inflators must be rearmed, the automatic inflation bobbins replaced and the empty CO<sub>2</sub> cylinders replaced.

All the necessary parts are included in the rearming kits which are available from the manufacturer, Tulmar Safety Systems, 1123 Cameron Street, Hawkesbury, Ontario K6A 2B8.

##### **Arming Kit —Tulmar Safety Systems Part No: 5675-35**

A complete arming kit contains 2 CO<sub>2</sub> cylinders, 2 salt tablet bobbins and 2 green indicator clips along with arming instructions.

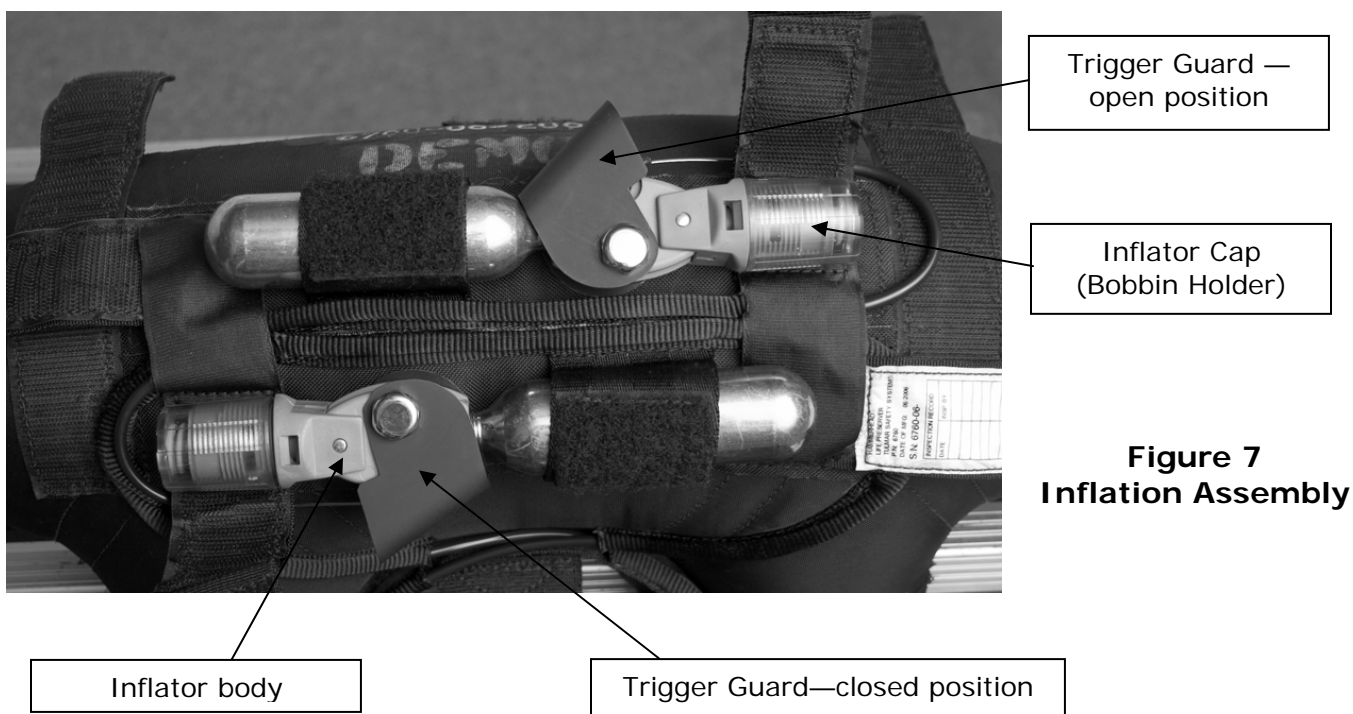
#### **Rearming Procedure**

**Step 1** Unscrew the used CO<sub>2</sub> cylinder in a counter-clockwise direction and immediately discard. Do not insert a new cylinder at this time. To avoid confusion later in the rearming process, throw away the old CO<sub>2</sub> cylinder now.

**Step 2** (Refer to Figure 7 following). Access the bobbin holder by lifting up the Velcro securing strap. Unscrew the automatic inflator cap from the inflator head to access the bobbin. Remove the bobbin and discard. Even if inflation was manually activated, the bobbin will require replacement if the jacket was exposed to water. Dry the spring cap and the inflator head by blowing air into both. Before inserting a new bobbin, check the expiry date printed on the side of the bobbin to ensure that it has not expired. Insert the new bobbin — the bobbin fits into the bobbin holder in only one direction. Replace the screw cap. You will see green through the bottom of the

transparent bobbin holder indicating that the automatic inflator mechanism is armed. Close the Velcro securing strap.

**Step 3** Rotate the inflator cover (trigger guard) away from the inflator head to the open position. This will expose the hole in the inflator body where the indicator clip fits. There may be a red circle painted on the depression or alternatively, the inflator surface may be plain grey. Close the manual inflator lever within the inflator body and install a new green clip over the lever so that it clips into the top and bottom of the inflator body. This indicates that the manual inflator mechanism is armed. Rotate the trigger guard to the closed position.



**Figure 7  
Inflation Assembly**

**Step 4** Look into the threaded cylinder receiver and view the gasket. If the gasket is missing or torn, or if the edges are frayed, it must be replaced. Remove the life preserver from service to perform this maintenance.

**Step 5** Inspect the face of the new cylinder. Be sure it is smooth and has no holes or scratches. There is a minimum gross weight on the cylinder. If you have any question about the cylinder integrity, weigh the cylinder on a small scale. Compare the minimum gross weight printed on the cylinder to the actual weight. If the actual weight is less than the minimum gross weight, discard the cylinder and get another one.

**Step 6** Screw the new cylinder in a clockwise direction into the inflator. Ensure the cylinder is snug, but do not over-tighten. Fasten the cylinder securing strap hook and loop closures.

**NOTE:** *It is very important to follow the arming sequence as outlined above. If you attempt to replace the cylinder before replacing the salt-tablet bobbin, the piercing pin will strike the surface of the cylinder as you screw it in which will trigger inflation.*

#### **4.10. Refolding and Packing**

The packing of the Hammerhead generally follows the deflation and rearming of the life preserver and is accomplished by first packing the chest lobes and then the neck lobe.

Lay the fully deflated Hammerhead on a flat surface with the CO<sub>2</sub> inflation system on the neck lobe facing up. Turn the chest lobes so that the oral inflators are facing down and the chest lobes are towards the outside of the chassis.

Fold the bottom of each chest lobe upwards as far as possible. Tuck the chest strap into the fold. The slide rail loop will travel on the slide rail to allow the chest lobes to be folded up and limiting the extent of the fold.

Roll each chest lobe from the outside edge around the oral inflator towards the chassis webbing. Secure the chest lobe in the rolled position using the hook and loop fastener strips on the chest lobe and the chassis.

Roll each side of the neck lobe from the outside towards the CO<sub>2</sub> inflation system until the hook and loop fastener strips on the back and front sides of the neck lobe connect and secure in place.

Roll the neck lobe from the top towards the chassis, enclosing the CO<sub>2</sub> inflation system. Secure the neck lobe in the rolled position by attaching the single hook strip on the tail harness and the two hook strips on the sides of the neck lobe to the loop strips on the back of the neck lobe.

## 5. CARE AND MAINTENANCE INSTRUCTIONS

### 5.1. Service Inspection Procedures

Service Inspection includes temporarily removing the life preserver from service and performing visual inspection and leakage test on it per the instructions below. Service inspection should be performed at least every 180 days. Service inspection should also be performed each time the CO<sub>2</sub> mechanism is rearmed after being used to inflate the life preserver.

#### 5.1.1. Visual Inspection

Open the hook and loop fasteners and unfold the life preserver. Check the inflation cell cover for rips, tears, holes or punctures that might indicate damage. Check the chassis harness for loose stitching. Check the hardware for damaged or missing components. If any of these are present, forward the unit to an approved repair facility for inspection, maintenance and repair before returning the life preserver to service.

#### 5.1.2. Leakage Test

Test the life preserver's inflatable cell for leaks by inflating the life preserver orally until the cell becomes hard. Refer to Section 4.6 Inflation by Mouth. Tighten the screw cap on the oral tube. Allow the life preserver to sit overnight for 11 to 12 hours and then check to see if the inflatable cell is still firm. A leaking life preserver will have become soft and should not be used. Send leaking life preservers to an approved repair facility for inspection, maintenance and repair.

### 5.2. Periodic Maintenance Inspection

The life preserver should undergo Periodic Maintenance Inspection by an approved repair station. The repair facility must be trained and experienced in working on inflatable life saving appliances. If an approved facility is not available in your area, return the unit to Tulmar Safety Systems for Periodic Maintenance Inspection.

Periodic Maintenance Inspection is much more extensive than the 180 day Service Inspection (See Section 5.1) and includes a leakage test, pressure test, CO<sub>2</sub> cylinder weight test and replacement of automatic inflation bobbins, washers and gaskets. Special tooling and equipment such as calibrated pressure gauges and manometers are required.

Perform periodic maintenance inspection within 12 months from the date a new life preserver has been entered into service. However, first maintenance inspection must be performed no later than 24 months from the life preserver's date of manufacture. Perform all subsequent maintenance inspections within 12 months of the date of last maintenance inspection regardless of whether a life preserver has been returned to service or removed from service and placed in storage.

### 5.3. Cleaning

***CAUTION: Do not dry clean, iron or machine wash. Do not use bleach. Never dry your life preserver on a heater or with a direct heat source.***

Rinse the life preserver in fresh, clean water to remove dirt, salt and mud from the cover. If cleaning is required, use mild hand soap and cool water. Rub gently. Do not scrub or use abrasive cleansers. Hang to dry thoroughly. Do not use forced hot air. Do not place next to heat sources. For best results, a circulation fan can be used to assist with air drying.

#### **5.4. Storage**

***CAUTION: Contaminants such as petroleum solvents, fuel, grease, oil and hydraulic fluids may have a detrimental effect on life preserver fabric and consequently on the units service life and performance.***

Store the Hammerhead life preserver in a clean, dry, well-ventilated place. Recommended storage temperature is between -18 deg C to 49 deg C. A damp or wet life preserver should be hung on a clothesline and dried before storage. Do not store the unit where it can be exposed to chemicals. Do not leave in direct sunlight or in hot areas for long periods. Avoid storing the life preserver inflated.

#### **5.5. Service Life Limit**

The Hammerhead life preserver has no prescribed ultimate life, specified service life or life limit. The life preserver may remain in service indefinitely as long as it continues to pass periodic maintenance inspection.

**6. COMPONENTS AND ACCESSORIES PARTS LIST**

<b>Part No.</b>	<b>Part Description</b>
6770	Strap Kit, Climb Harness Attachment, for Hammerhead
6771	Harness, Y-shape, for Hammerhead
6772-001	Sea Light Assembly, White LED
6772-500	Sea Light Assembly, IR LED
3168	C02 Cylinder, 35 grams, NSN 4220-21-913-8072
3219-001	Manual Mode Cap, for V85000 Inflator
3220	Bobbin for V85000 Automatic Inflator
3248	Green Indicator Clip
3249	Trigger Guard for V85000 Inflator
5675-35	Arming Kit, Automatic Inflation, 35g cylinders

For technical support or questions regarding servicing of this product, please contact the manufacturer:

Tulmar Safety Systems  
 1123 Cameron Street  
 Hawkesbury, Ontario K6A 2B8  
 Tel: 613-632-1282  
 Fax: 613-632-2030