Crewsaver®

SERVICE MANUAL

CREWFIT
XD 150N and XD 275N
LIFEJACKETS

Crewsaver®

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Service Bulletins and Amendments Register

No.	Description	Date

Scope

This manual covers the servicing of the Crewfit range of XD150N and XD 275 lifejackets.

Index

1.1 Introduction

1.1.1. This Service Manual will be published on the Crewsaver website (www.crewsaver.com). Click on PARTNERLOGIN/ at the bottom of the screen. Personnel who have been trained in the servicing procedures for this lifejacket will be issued with a Username and Password to enable them to access the download section. Each manual carries an Issue Number and records of issue are logged by Crewsaver to ensure that the service network maintains correct and up to date servicing information. Emails will be sent regarding any new Issues. Periodically service bulletins may be issued which will be published on the Crewsaver website (www.crewsaver.com). Emails will also be sent. It is the service station's responsibility to regularly check the website for any new bulletins and to ensure inclusion within the servicing manual. The service bulletin register at the front of the Manual should be completed.

1.1.2. The information referenced in each section follows a standard servicing procedure by which the inspection should take place.

1.1.3. This servicing manual details information to enable regular maintenance and servicing of the lifejacket to help prolong the life of the product and ensure it functions correctly.

1.1.4. The manual should be used as a reference document following training in servicing procedures instructed by Crewsaver approved personnel. The manual also details the equipment and parts needed for correct maintenance to be performed.

1.1.5. Servicing must be carried out annually at a service station authorised by the manufacturer. 

1.1.6. Regular servicing is to be carried out by qualified personnel trained by Crewsaver and holding a valid servicing certificate. Certificates are valid for a period of 3 years.

1.2 Product Description

1.2.1. The lifejackets are CE approved to BS EN ISO 12402-3 (150N) and BS EN ISO 12402-2 (275N).

1.2.2. The lifejacket is easy to don.

1.2.3. Buoyancy of both Crewfit XD 150N and XD 275N lifejackets is provided by a stole consisting of a single chamber fitted with a oral tube and inflated by a CO_2 Cylinder.

1.2.4. The high buoyancy of these lifejackets allows them to safely support a fully clothed user in a face up position, even when wearing heavy clothing such as an immersion suit.

1.2.5. These lifejackets can be inflated manually, as well as automatically when entering the water. Each lifejacket has a crutch strap to ensure it remains securely fitted and remains in position when in use. An optional light can be attached to aid visual location and is operated automatically on contact with the water. A whistle is attached to the inflatable stole to allow the user to raise the attention of rescue services. The Lifejacket can also be supplied with an optional factory fitted spray hood that conforms to BS EN ISO 12402-8.

1.2.6. Each lifejacket (Crewfit XD 150N and XD 275N) comes in two different versions, the waist belt version and integral deck safety harness version. The harness version, approved to ISO 12401 is fitted with a soft attachment loop in place of the usual stainless steel D-Ring.

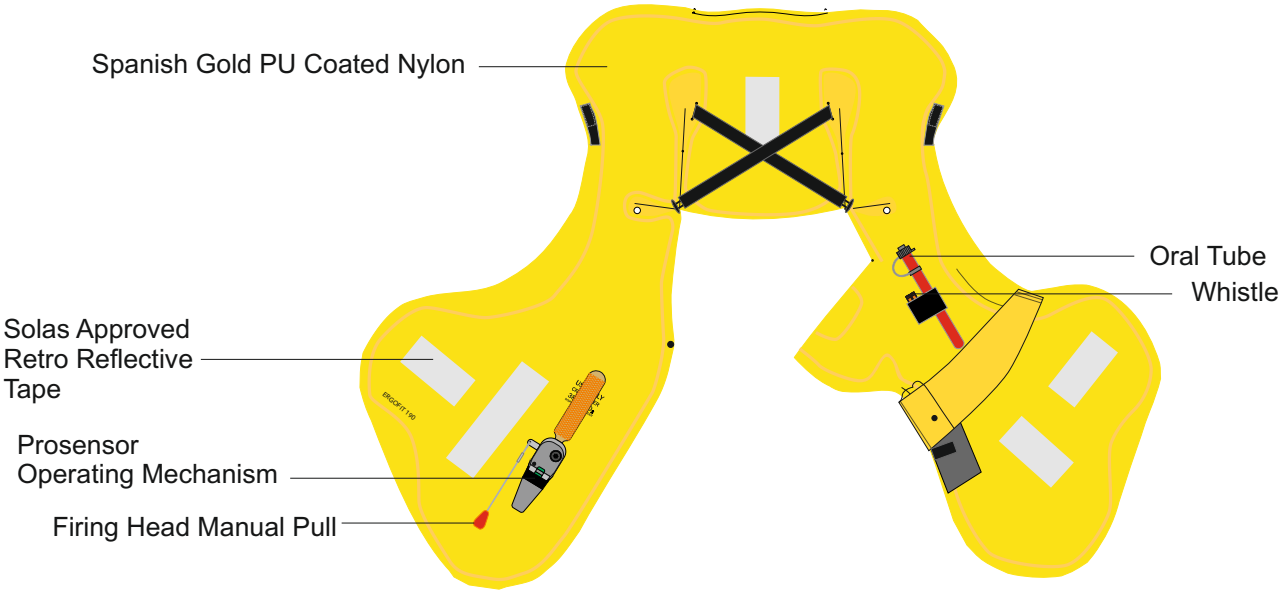
1.2.7. The outer cover is made from a hard wearing material and is fastened by a zip. The colour of the outer cover is available in Red or Blue Hard wearing material, Yellow or Orange Wipe clean or Silver Flame Retardant material for operational use or training purposes.

1.3.1 Data Sheet

Features:	Crewfit XD 150N Or Crewfit XD 275N
Chamber Buoyancy:	190N Or 290N
Buoyancy Category:	Level 150N and 275N
Cover Colour	Red / Blue / Orange* / Yellow* / Silver (FR)
ISO Approved	Level 150N Or 275N
Cylinder Size	38 gram (150N) / 60 gram (275N)
UML Pro Sensor or	Manual / Automatic Options
UML Pro Sensor Elite	Manual / Automatic Options
Hammar Operating Head MA-1	Automatic
Oral Inflation Tube	Yes
Hard Wearing Cover	Red / Blue / Orange / Yellow
Whistle - Fitted	Yes
Retro-reflective Tape	Yes
Lifting Becket	Yes
Light - Fitted	Optional
Spray Hood	Optional
Crotch Straps - Fitted	Yes
Fall Arrest Harness	Optional
Closure Method	Quick Burst Zip

* = Wipe Clean

1.4.1 General Features - Crewfit XD150N and XD275N



1.5 Donning Instructions - Crewfit XD150N and XD275N

1.5.1. Don like a normal jacket.

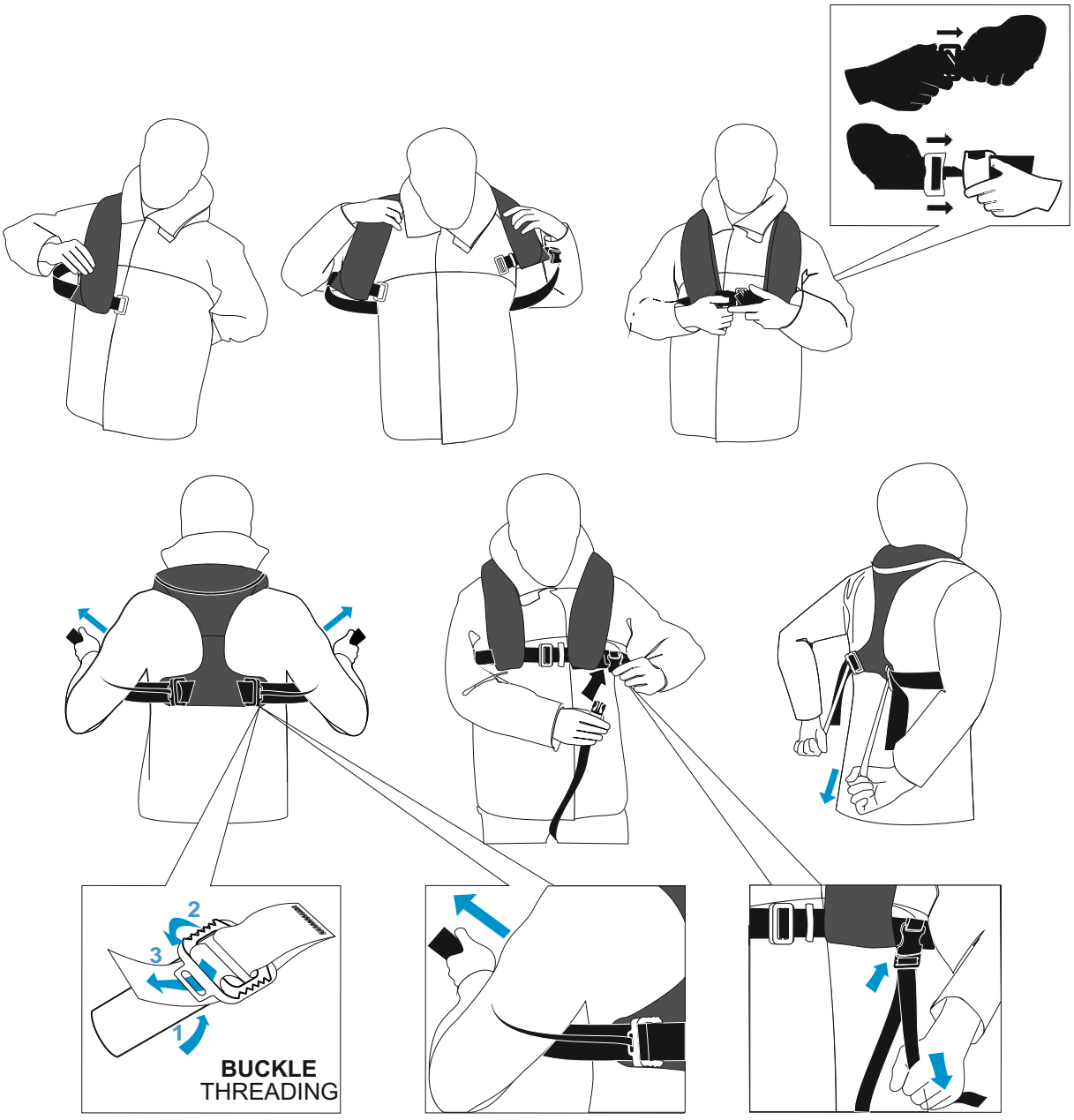
1.5.2. Fasten front buckle.

1.5.3. Adjust waistbelt by pulling webbing forward for a close secure fit.

1.5.4. Fasten crotch strap buckles and adjust straps by pulling webbing downwards for a close secure fit.

1.5.5. Roll the excess webbing and secure with the velcro strap.

1.5.6. To release straps, pull the release tabs attached to the adjustment buckles.



2.1 Service Stations

2.1.1. Service stations shall comply with the following as a minimum;

2.1.1.1 Servicing of Inflatable Lifejackets shall be carried out in a fully enclosed area only.

2.1.1.2 The area shall be well lit and protected from direct sunlight.

2.1.1.3 The temperature and humidity shall be sufficiently controlled to ensure that the servicing of inflatable Lifejackets may be carried out successfully.

2.1.1.4 The area shall be efficiently ventilated but free from draught.

2.1.1.5 Sufficient tools (including specialist tools) shall be available to ensure Lifejackets may be disassembled, tested and reassembled in accordance with this Manual. These shall include but not limited to:

2.1.1.5.1 Manometers and pressure gauges.

2.1.1.5.2 Oil free and dry air supply.

2.1.1.5.3 Scales for weighing Gas Cylinders.

2.1.1.5.4 Crewsaver Service tool kit (See 2.6). This is recommended but similar calibrated devices may also be used.

2.1.1.6 Stock of materials and components to allow efficient servicing with readily available replacement parts to ensure a prompt service for the customer.

2.1.1.7 Only personnel trained and certified in accordance with Crewsaver requirements are approved to carry out Servicing and Maintenance. They must be holders of a valid Certificate issued by Crewsaver.

2.1.1.8 The service station shall be of an approved standard.

2.1.1.9 Procedures shall be introduced to ensure that service bulletins, Manuals and replacement parts are obtained from Crewsaver.

2.1.1.10 Subsequent to initial approval and thereafter the service station shall be subject to regular surveillance by Crewsaver.

2.1.1.11 The service station must comply and have met all QA criteria in the Crewsaver servicing protocol file.

2.2 On Receipt Inspection

2.2.1. On receipt of the Lifejacket(s), check the state of the packaging before opening and notify the owner and the company delivering the package of any defects or damage.

2.2.2. On opening the package, check the contents for their general condition and quantity.

2.2.3. Prepare Servicing Record Sheet.

2.2.4. Visually inspect the cover and inflation chamber for damage, abrasion, contamination etc. In accordance with this manual.

2.2.5. Note repairs or replacements required on the record sheet.

2.2.6. Unless obvious damage is evident, test the Lifejacket in accordance with Section 6. If it is considered that the damage found would cause the Lifejacket to fail the tests then corrective action shall be carried out prior to testing.

2.2.7. Damaged areas shall only be marked using wax based crayon. Marks shall be with a small circle or cross. Ballpoint, rollerball or other forms of ink shall not be used. If in doubt refer to Crewsaver for guidance.

2.2.8. Repairs to welded components including the inflation chamber are expressly forbidden.

2.3 General Care

2.3.1. The Lifejacket should be stowed in accordance with the manufacturer's instructions.

2.3.1.1 Lifejackets should be stowed in a dry compartment. Avoid high humidity, such as a car boot.
2.3.1.2 Automatic Lifejackets should have stowage facilities which are provided with a method to encourage moisture removal.
2.3.1.3 Lifejackets should be stowed vertically, for example hung on hooks, in order that any trapped water or condensation can drain away naturally.
2.3.1.4 Lifejackets should be rinsed in fresh water and dried thoroughly after use.

WARNING
Prior to sponging or washing remove automatic capsules from the firing mechanism. Allow to dry thoroughly afterwards.

2.3.2. Contaminants such as oil or diesel fuel may be sponged off immediately with clean water and allowed to dry naturally.
2.3.3. Mud can be removed with a stiff (not wire) brush when dry.
2.3.4. The outer cover may be hand washed in good quality mild detergent in cool water (40°C). Rinse well, drip dry naturally in air.
2.3.5. Sponge the inflation chamber with pure soap solution only. Rinse in clean water immediately, inflate and allow to dry naturally in air.

WARNING
Do not use proprietary cleaning fluids, thinners, spirits or similar substances.

2.3.6. In cases of severe contamination the unit shall be deemed beyond economic repair and the customer advised to purchase a replacement lifejacket.

WARNING
Make sure you know how to use and fit this Lifejacket before an emergency occurs.
Always try and inflate the Lifejacket in the water. If already inflated, cross arms over the chest before jumping.

2.3.7. It is advised that personnel are familiarised with the operation of all Lifejackets and lifesaving appliances.

2.4 Lifejacket Servicing Tools

Fig. 2.4 Table of Tools Required

Description	Type
Crewsaver Servicing Tool Kit	
A fine screw driver or tool suitable for removing gaskets	
Roller	
Scissors or good quality trimming shears	
“Chinagraph” pencil	
Fine point indelible pen	
Scales to weigh gas cylinders	0-1000gram (+1/-1 grams)
Adaptor/tee piece for testing inflation chambers.	
Manometer	0-500Mbar
Timing Device	
Thermometer	0-40ºC
Clean and dry air supply	
450mm wide bag sealer (3mm element)	
Crewsaver Venturi Vacuum System	
Back pressure test unit	
Suitable large surface area for the work to be carried out	

2.5 Lifejacket Service Record Sheet

2.5.1. An electronic copy of the sheet is available to aid reproduction (or copy next page).

2.5.2. Each lifejacket serviced should be recorded either individually or as a batch, showing the serial numbers and the work performed during the service.

2.5.3. The service record sheet should be signed and a copy given to the owner certifying that the lifejacket has been serviced.

2.5.4. All replacement parts should be noted - recording either the serial numbers of the component or the expiry date.

2.5.5. The record sheet shown on the next page is a recommended version. Similar record sheets, including the same information, may also be used.

Section 2

Crewsaver®

CERTIFICATE NUMBER:

LIFEJACKET SERVICINGSCHEDULE

W/O Number:

TYPE	
CUSTOMER	
VESSEL	
LAST SERVICED BY	DATE OF LAST SERVICE

SERIALNUMBER /S:

CHAMBER INSPECTION	☑☒	COMMENTS
GENERAL CONDITION		
WELDS		
WEBBINGS		
RETRO TAPE		
WHISTLE		
ORAL TUBES		
RELIEF VALVES		
MANIFOLDS		
SCHRADER VALVES		
CYLINDERS		
LIGHT		
CYALUME POCKET		
BUDDY LINE		

COVER	☑☒	
MATERIAL		
VELCRO		
ZIP		

INFLATION MECHANISM	☑☒	COMMENTS
OPERATING MECHANISM		
CORD		
AUTOMATIC CAPSULE		
WASHERS		
RETAINING NUT		
RETAINING CLIP		
TOGGLE		

SPRAY HOOD	☑☒	COMMENTS
FABRIC		
ATTACHMENT		
VELCRO		

WEBBINGS	☑☒	COMMENTS
WAIST / BELT HARNESS		
BACK STRAP		
LIFTING BECKET		
CROTCH STRAP		
BUCKLES		
STITCHING		

PRESSURE TEST RESULTS

TIME		FRONT CHAMBER	REAR CHAMBER
ON			
OFF			

RELIEF VALVE TEST RESULTS	FRONT CHAMBER	REAR CHAMBER
OPEN		
CLOSE		

REPAIREDCOMMENTS (ITEMS)

SERVICED BY:		DATE:	

2.6 Lifejacket Servicing Tool Kit

Cylinder Torque Strap

UML Mk5 Auto Socket

Manometer

Turned Socket

Valve Extraction Tool

Inflation Adaptor

Pressure Measuring Adaptor

Back Pressure Test Set

Cylinder Adaptor (Back Pressure Test)

Calibrated Star Socket Driver (Operating Head)

Calibrated Socket Driver (Tighten Cylinder)

Calibrated Socket Driver (Remove & Replace Locking Nuts For UML & HR)

Calibrated Torque Driver (Schrader Valve)

3.1 Unpacking

3.1.1 Open the velcro tabs on the front of the lifejacket cover. To avoid damaging the lifejacket zip, pull apart the zip, and open the zip via the quick burst elements, holding the cover on either side and the neck. (Refer to Section 3.2).

WARNING: All defects should be noted onto the service record sheet

3.1.2 Once the zip has opened insert a finger and slide it around the zip of the lifejacket. The lifejacket cover should now be fully opened and the inflation chambers visible. Both sides of the zip should be apart with the zip slider free to move back around the lifejacket to the start.

WARNING: All defects should be noted onto the service record sheet.

Fig 3.1 Unpacking the Crewfit XD 150N / Crewfit XD 275N

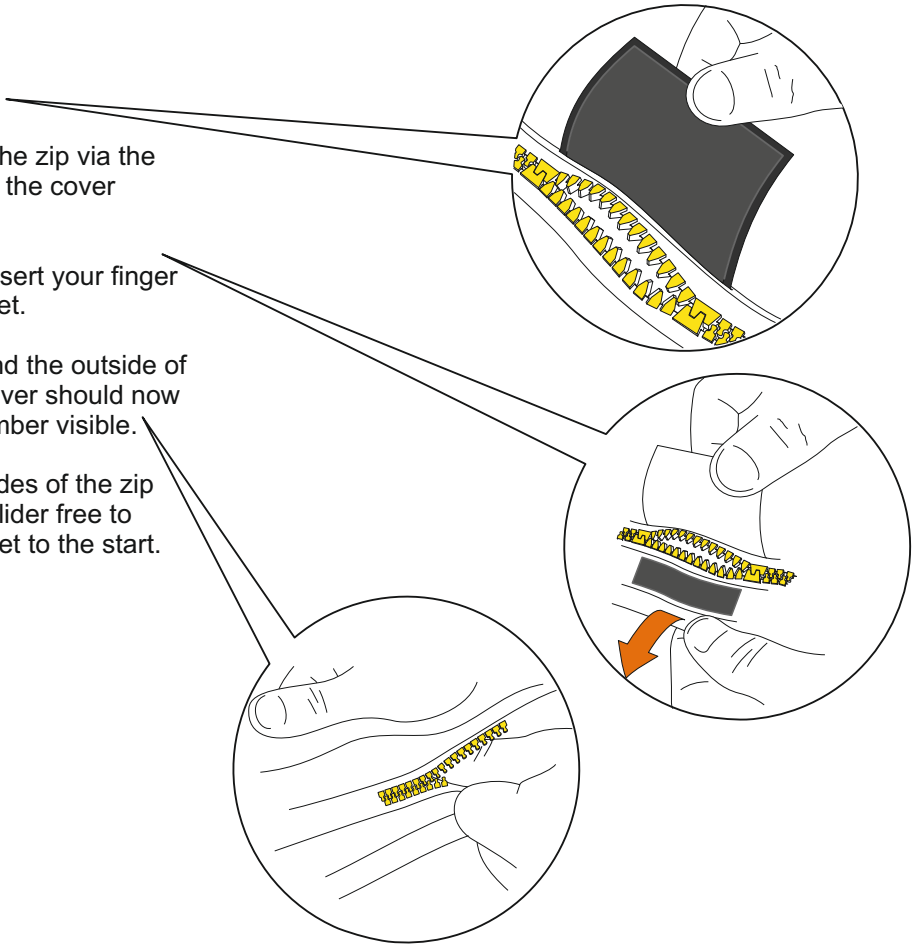
1. Open the velcro tab.

2. Pull apart the zip, opening the zip via the quick burst elements, holding the cover either side.

3. Once the zip has opened insert your finger and slide it around the lifejacket.

Undo the zip all the way around the outside of the lifejacket. The lifejacket cover should now be open and the inflation chamber visible.

Fully separate the zip. Both sides of the zip should be apart, with the zip slider free to move back around the lifejacket to the start.



3.1.3. Remove the operating mechanisms.

3.1.3.1 Following unpacking refer to Fig 3.2 - UML Prosensor Mk3 and Fig 3.3 - UML Prosensor Elite Operating Heads:

3.1.3.1.1 Automatic Only. Unscrew the Automatic Capsule if fitted from the operating mechanism. Place to one side for testing and reassembly later. See Section 6 for details.
3.1.3.1.2 Carefully remove the inflation cylinder by unscrewing it from the operating mechanism. Retain for further Inspection. Refer to Section 5.
3.1.3.1.3 Remove Operating Mechanisms by unscrewing the retaining screw on the top of the inflation mechanism. Retain for further Inspection. Refer to Section 5.
3.1.3.1.4 Remove and discard O-rings and cutter sealing washer.

3.1.3.2 If a Hammar operating mechanism is fitted, remove using the special Hammar operating head "Service Key". See Fig 3.4. Place to one side for further inspection. Refer to Section 5.

3.1.4. For Cleaning. Refer to Section 4.
3.1.5. Carry out visual inspection. Refer to section 5.

Fig 3.2 UML Prosensor Operating Head Mk3

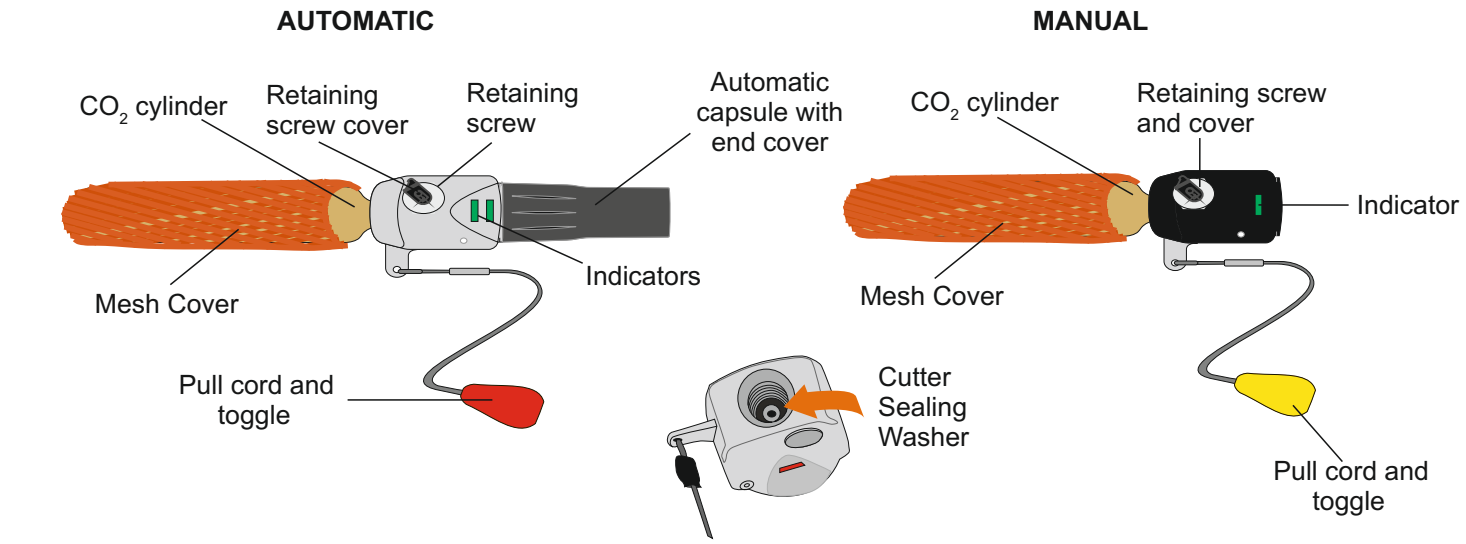


Fig 3.3 UML Prosensor Operating Heads Elite

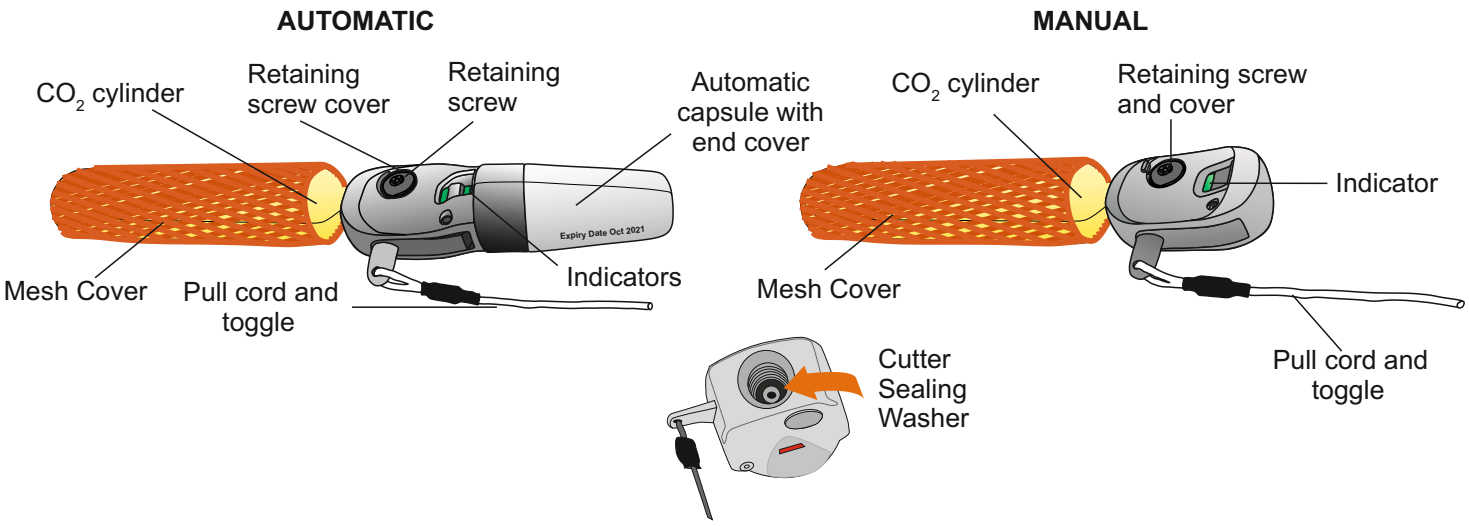
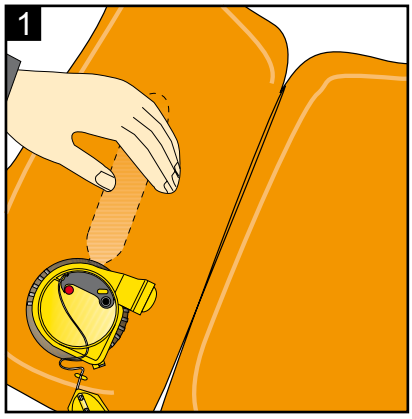


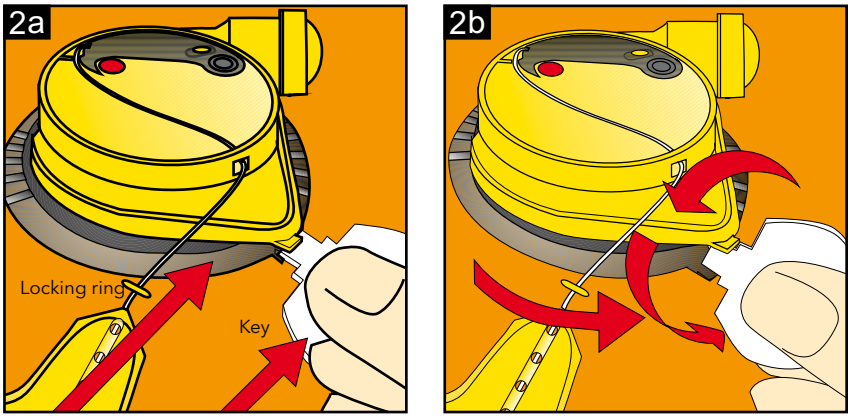
Fig 3.4 Hammar Operating Head

Fig. 3.4.1



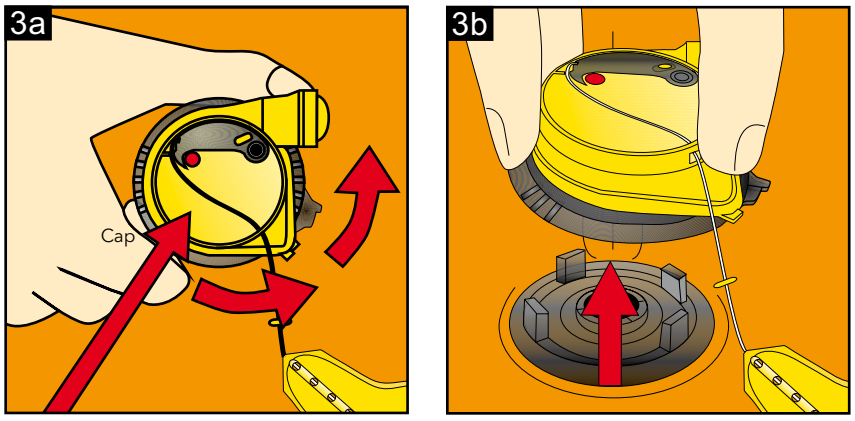
1.
Place the lifejacket on a smooth, flat surface and wipe off any water. Hold the gas cylinder through the fabric, using one hand.

Fig. 3.4.2



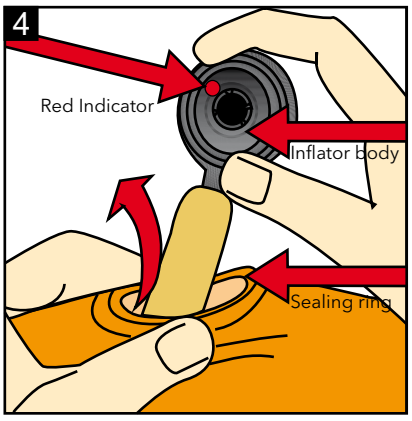
2.
Insert metal key as shown in 2a and turn the key counter-clockwise (2b) between black locking ring and labelled yellow cap. The black locking ring will now turn counter-clockwise.

Fig. 3.4.3



3.
Now turn black locking ring counter-clockwise (3a) and lift cap (3b). (cap = yellow inflator operating head) Dispose of used cap.

Fig. 3.4.4



4.
Squeeze sealing ring to elongate and remove the inflator body through the sealing ring.
Dispose of used inflator body in an environmentally approved manner.

4.1 Cleaning Lifejackets

4.1.1. The current standard cover of the Crewfit XD 150N and XD 275N is made from a 300d polyester fabric that can be cleaned with care. In the event that contamination is such that the materials are inherently damaged refer to section 7.

4.1.2. For all types of cover, mud can be removed with clean water and the zip (if fitted) can be cleaned with a stiff (not wire) brush when dry.

4.1.2.1 Contaminants such as oil or diesel fuel may be sponged off immediately with clean water and allowed to dry naturally.
4.1.2.2 Mud can be removed with a stiff (not wire) brush when dry.
4.1.2.3 Covers may be hand washed in good quality mild detergent in cool water (<40°C). Rinse well, air drip dry.

4.1.3. Sponge the inflation chamber with PURE SOAP SOLUTION ONLY. Rinse in clean water immediately, inflate and air dry.

WARNING: Do not use proprietary cleaning fluids, thinners, spirits or similar substances.

5.1 Outer Cover Inspection

5.1.1 Visually inspect the cover material for wear, abrasion, pulled threads, contamination, cuts and holes.

5.1.2 Carefully examine the zips and the slider for wear, broken teeth or slider and worn or fraying tape.

5.1.2 If necessary the cover may be washed. Refer to Section 4.

5.1.3 Repairs to the outer cover are not permitted.

5.1.4 On the XD range of jackets the covers may be replaced due to the way the jackets are constructed, ref to page 33 for replacement part.

5.2 Inflation Chamber Inspection

5.2.1. Visually inspect the inflation chamber material for wear, pulled threads, contamination or signs of mistreatment.

5.2.2. Visually inspect all welds.

5.2.3. Visually inspect all webbings in accordance with Section 5.6

5.2.4. Visually inspect the whistle and its attachment to the lifejacket for mistreatment, defects, and fraying of the cord and its attachment.

5.2.5. Test Lifejacket in accordance with Section 6.

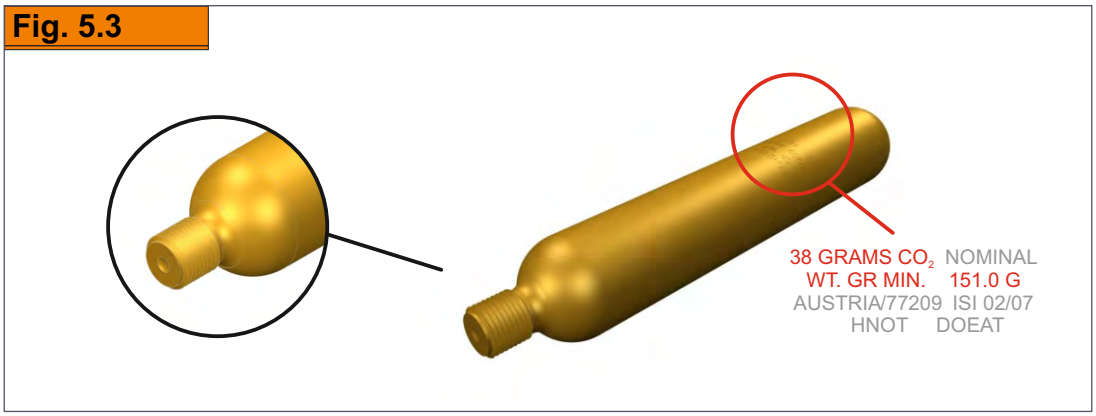
5.3 Gas Cylinders

5.3.1. Visually examine:

5.3.1.1 For Corrosion (All cylinders corroded with red rust or with visible pitting must be replaced).
5.3.1.2 Pierced or damaged piercing disc.
5.3.1.3 That the cylinder has the correct gas charge - 38 grams CO_2 (150N) or 60 grams (275N).

5.3.2. Check Min Weight of Cylinder against that marked on the barrel. If the lifejacket is fitted with a Hammar Inflation system the cylinder will be glued into the Hammar backplate. Do NOT attempt to unscrew the cylinder from the backplate. Instead add 22 grams to the minimum weight shown on the cylinder.

Fig. 5.3



Remedial Action: If any of the above conditions are found to be incorrect the cylinder shall be replaced. See Section 9.

5.4 Mouth Inflation Valve

5.4.1. Visually inspect for damage.

5.4.2. Test in accordance with Section 6.

Remedial Action: These items are not repairable. Refer to Section 9 for replacement part.

5.5 Inflation System

5.5.1. Visually inspect the Operation of the UML Prosensor Mk3 / Elite operating head for:

5.5.1.1 Operation of the firing pin cam action. Similarly this shall be a smooth action when the lever is operated and the top indicator turns from red to green and back to red when the lever is released.
5.5.1.2 Firing Pin centre discharge hole clear.
5.5.1.3 Activation cord for frays and damage.
5.5.1.4 Moulded body for cracks and damage. Special attention to be given to the areas around the operating lever/body connection pin.
5.5.1.5 Check the Automatic plunger (Automatic Head Only) at the base of the unit when depressed moves the firing pin and that the plunger and the firing pin return to their original positions when released.

Remedial Action: In the event that the Operating Mechanism fails any of the above inspection procedures, the complete unit shall be replaced. No Repairs are allowed. Refer to Section 9 for the part number of the relevant replacement part.

5.5.2. Visually inspect the Operation of the Automatic Capsule on the automatic Operating Head:

5.5.2.1 On the Pro-sensor MK3 Black Capsules check plug is in place at the base of the capsule. Replace if no plug is found (The plug can be either Black or Green).

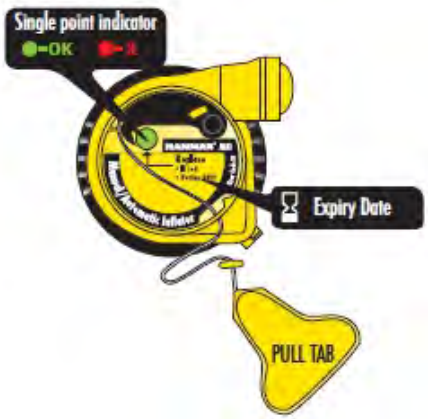
Note:- Plug can only be found on the Black Mk3 capsule used on the Prosensor operating head.

5.5.2.2 To check the grey Elite capsule you will need to check the depth of the red piston head, if it is raised as in the image shown the capsule will need to be replaced. See Fig 5.5 below.

5.5.3.3 New Capsules are to be fitted where the expiry date is before the next annual service of the lifejacket e.g. capsules marked 'Replace by 2010' expire at the end of 2010.

5.5.3. For Hammar Manual or hydrostatic remove and inspect. For the Hydrostatically operated head ensure that indicator is green, and that the handle has not been pulled, or displaced. See Fig 5.5 below.

Fig 5.5



5.6 Webbings

5.6.1. Visually inspect for damage:

5.6.1.1. Fraying
5.6.1.2. Pulled Threads
5.6.1.3. Broken Stitches

Remedial Action: Effect repairs in accordance with the Repair Procedures within the limits defined in Section 7.

5.7 Buckles

5.7.1. Visually inspect all buckles used on the webbings for signs of damage or corrosion.

Remedial Action: No repairs are allowed. Effect repairs in accordance with the repair procedures within the limits defined in section 7.

5.8 Labelling/Markings

5.8.1. Check all Markings and Labelling are clear and legible.

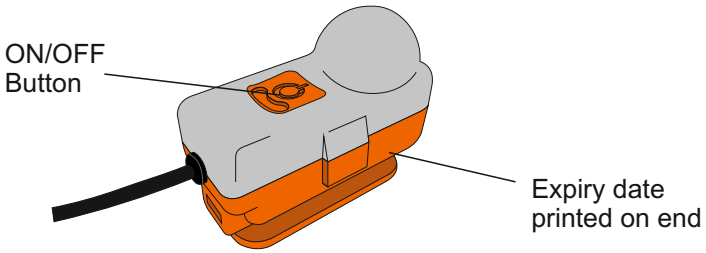
Remedial Action: No repairs are allowed. Effect repairs in accordance with the repair procedures within the limits defined in section 7.

5.9 Lights (if fitted)

5.9.1. The Crewfit XD 150N Lifejacket or Crewfit XD 275N Lifejacket is fitted with the Crewsaver CS-SL2 Water Activated Light.

Visually inspect the light for signs of damage to:
5.9.1.1. The switch.
5.9.1.2. the cable.
5.9.1.3. the lens and its mounting or housing.

5.9.2. Check expiry date on battery. The expiry date must exceed the date of the next annual service. If the light has expired or expires before the next service then it must be replaced. (See Section 9).



5.9.3. Test the assembly as detailed in Section 6.

5.9.4. Check the expiry date (Fig. 1) and replace light if necessary.

Remedial Action: These lights are not repairable; if the light fails inspection it must be replaced with a replacement CS-SL2 light.

6.1 Inflation Chamber

6.1.1. Air Holding Test.

6.1.1.1 Connect through a suitable Tee piece and adaptor, the oral tube with the oral valve in the open position, to a graduated water manometer (or a similar digital device for measuring back pressure).

Note: Hammar inflators must be tested with the Hammar operating head fitted to the inflation chamber.

6.1.1.2 Slowly inflate the lifejacket from a regulated supply until manometer reads 200mbar

Warning: Regulated supply pressure must not exceed 20psi.

6.1.1.3 Close off the air supply and leave for 10 minutes to ensure pressure is stable.
6.1.1.4 Check and record the pressure and temperature reading on the Service Record Sheet.
6.1.1.5 Leave for 30 minutes.
6.1.1.6 Check and record the pressure and temperature reading on the Service Record Sheet. The maximum difference in the two pressure readings (pressure drop) allowed is 10%. The temperature differential shall be within plus or minus 3 degrees of the original reading. For each degree Centigrade rise in temperature subtract 2.5 mbar. For each degree Centigrade drop in temperature add 2.5 mbar to the readings to obtain the actual pressure variation. Should the temperature variation be outside 3 degrees either way then the test shall be repeated.

6.1.1.7 If Lifejacket fails the Air holding test inspect as follows:
6.1.1.7.1 With the lifejacket inflated carefully brush or spray the surface with a weak solution of soap and water or alternatively lower the lifejacket into a tank of water to observe for bubbles.
6.1.1.7.2 Identify and mark the source of leakage. Wash off in clean water and allow to dry naturally in air.

Special Attention is to be given to the Manifold UML PS Core and Oral Tube/ Top-up Valve.

6.1.2. If the test is satisfactory deflate the Lifejacket in preparation for re-assembly. Refer to Section 8.
6.1.2.1 Insert the inverted oral valve dust cap into the top of the oral valve and expel the air. Lifejackets may also be deflated using the Crewsaver Venturi Vacuum System. For the part number, refer to Section 9.

6.1.3. Effect repairs in accordance with the Repair Procedures within the limits defined in Section 7.
6.1.4. Subsequent to remedial action being taken (see Section 7), retest the lifejacket in accordance with Section 6.

6.2 Valves

6.2.1. Oral Valve.

6.2.1.1. When removing the test adapter from each oral valve check that the oral valve reseats. If in doubt this may be checked by placing the valve underwater.

6.2.2. UML PS Short Valve.

6.2.2.1 Should a leak be found in the UML PS Short Valve the faulty core must be removed and a new valve inserted using the Torque Screwdriver from the tool kit (0.32-0.36Nm).

6.3 Back Pressure Test

6.3.1. The Back Pressure Test is only to be carried out when the inflation mechanism has been fitted to the Schrader valve.

6.3.2. The inflation mechanism is pressure tested for leakage (pressure drop). See following instruction;

6.3.2.1. Fit the automatic or manual inflation mechanism to the 'D' post.

6.3.2.2. Firmly screw the cylinder adaptor by hand into the inflation mechanism. See Fig 6.3.1.

6.3.2.3. Connect the cylinder adaptor to the pressure test unit. See Fig 6.3.2.

6.3.2.4. Pressurise the inflation mechanism by turning the control on the test unit to INFLATE. See Fig 6.3.3.

6.3.2.5. Let pressure rise to 10psi.

6.3.2.6. Release control to its vertical position (minor pressure decrease over 2 seconds is ok).

6.3.2.7. Release the pressure by turning the control to DEFLATE.

6.3.3. If the pressure does not stabilise after 2 seconds and continues to drop then this must be rectified.

6.3.4. Disconnect the test unit, remove the cylinder adaptor and check the following;

6.3.4.1. Sealing washers either side of the inflation mechanism.

6.3.4.2. Trapped cylinder cover or other item under the inflation mechanism.

6.3.4.3. Damage to the 'D' post seating.

6.3.4.4. Cross threaded chrome nut.

6.3.4.5. The cylinder sealing washer.

6.3.4.6. The Schrader or Pang valves in the 'D' post.

6.3.4.7. The inflation mechanism itself, although this is the least likely.

6.3.5. If there is no decrease in pressure, disconnect the test unit and remove the cylinder adaptor.

6.3.6. Fit by hand the gas cylinder required for that design of lifejacket.

6.3.7. Fully tighten the gas cylinder using the torque wrench set to 4Nm and the belt adaptor.

6.3.8. Continue with packing the lifejacket.

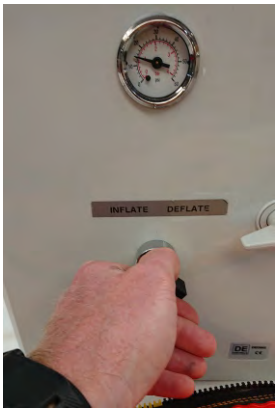
Fig 6.3 Back Pressure Test

Fig. 6.3.1

Fig. 6.3.2

Note - Images show a Mk5 head but the steps are the same for the Prosensor head.

Fig. 6.3.3



6.4 Retro Reflective Tape

6.4.1. If the retro reflective tape shows any signs of degradation the following tests shall be carried out in accordance with Marine Guidance Note UK 105 (M+F) Issued by the MGN Marine and Coast guard Agency March 1999.

6.4.1.1 Place a new piece of the same retro-reflective material to, and on the same plane as, a representative piece of material fitted to the appliance.
6.4.1.2 Pour water over both pieces of material.
6.4.1.3 Using a powerful torch or "Aldis" lamp held at eye level, compare the performance of the two pieces of material from a distance of 10 Metres.
6.4.1.4 If a noticeable deterioration in performance is observed then the retro-reflective material on the appliance should be replaced.
6.4.1.5 Dry off the lifejacket before repacking.

6.5 Lights

6.5.1. Testing Procedure for lights fitted to lifejackets.

6.5.1.1. Crewsaver CS-SL2 Water Activated Light. Test the light by pressing the switch. The light must flash, press the light switch again to turn the flashing off (This will not affect the automatic operation of the light). If the light does not flash, the unit has expired and must be replaced.
6.5.1.2. Operation should be checked during the lifejacket servicing.

7.1 Outer Cover

7.1.1. No repairs are permitted to the outer cover.

7.2 Inflation Chamber

7.2.1. No repairs are permitted to the inflator fabric or its assembly, due to the construction of this lifejacket.

7.2.2. Components attached to the inflator may be repaired in line with the limits defined below.

7.3 Gas Cylinders

7.3.1. No repairs permitted. For the Part No. of the replacement part refer to Section 9.

7.3.2. Please ensure cylinders are disposed of in accordance with local regulations.

Note - Treat empty cylinders as steel for recycling purposes.

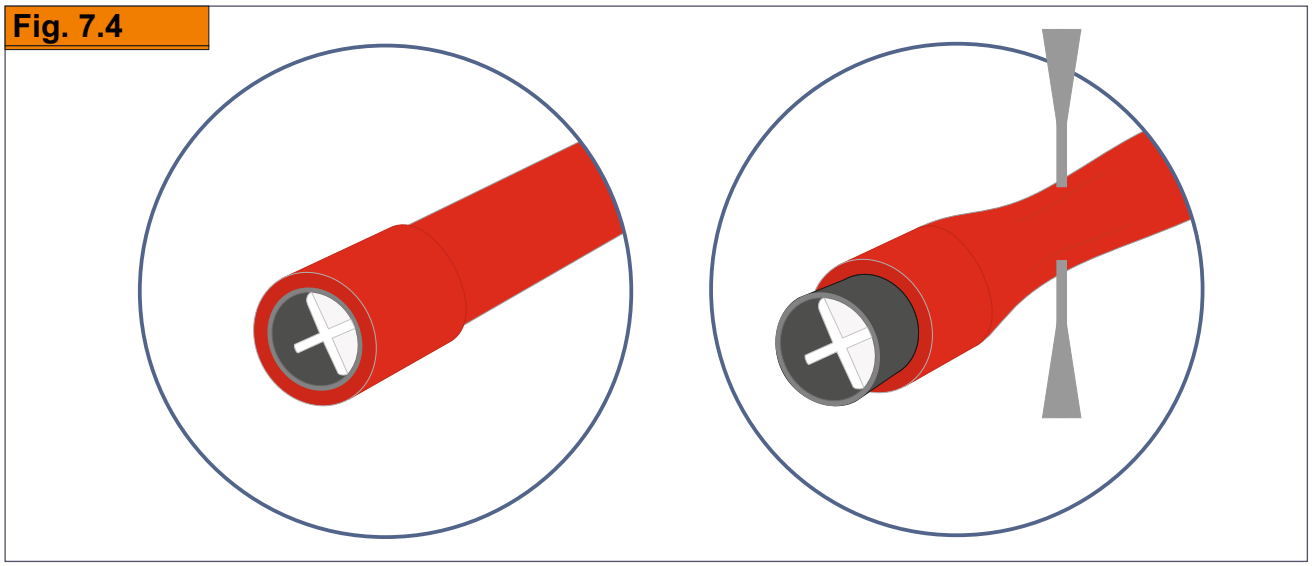
7.4 Valves

7.4.1. No repairs permitted. For the Part No. of the replacement parts refer to Section 9.

7.4.2. Replacement of the Oral valve may be achieved by.

7.4.2.1 Carefully removing the defective unit by applying force, with a blunt instrument, behind the oral valve Squeezing the tube and gently pushing the valve out.

Fig. 7.4



7.5 Inflation System

7.5.1. Operating Mechanism.

7.5.1.1 No repairs permissible. Replace the complete unit. Refer to Section 9 for the Part No. of the replacement part.

7.5.2. A UML PS short core is located inside the valve stem.

7.5.2.1 Remove and replace using the calibrated torque driver for UML PS short valves set to 0.32-0.36NM. Refer to Section 9 for the Part No. of the replacement part.

WARNING: Only fit replacement UML PS Short Valves obtained by Crewsaver.

7.6 Webbings

7.6.1. No repairs are permitted to the webbing on the lifejacket. Lifejackets with damaged webbing (including crotch straps) can be returned to Crewsaver.

7.6.2. Due to the way the XD range of jackets are constructed you are able to replace the webbing harness and crotch strap. Ref to page 33 for replacement parts.

7.7 Buckles

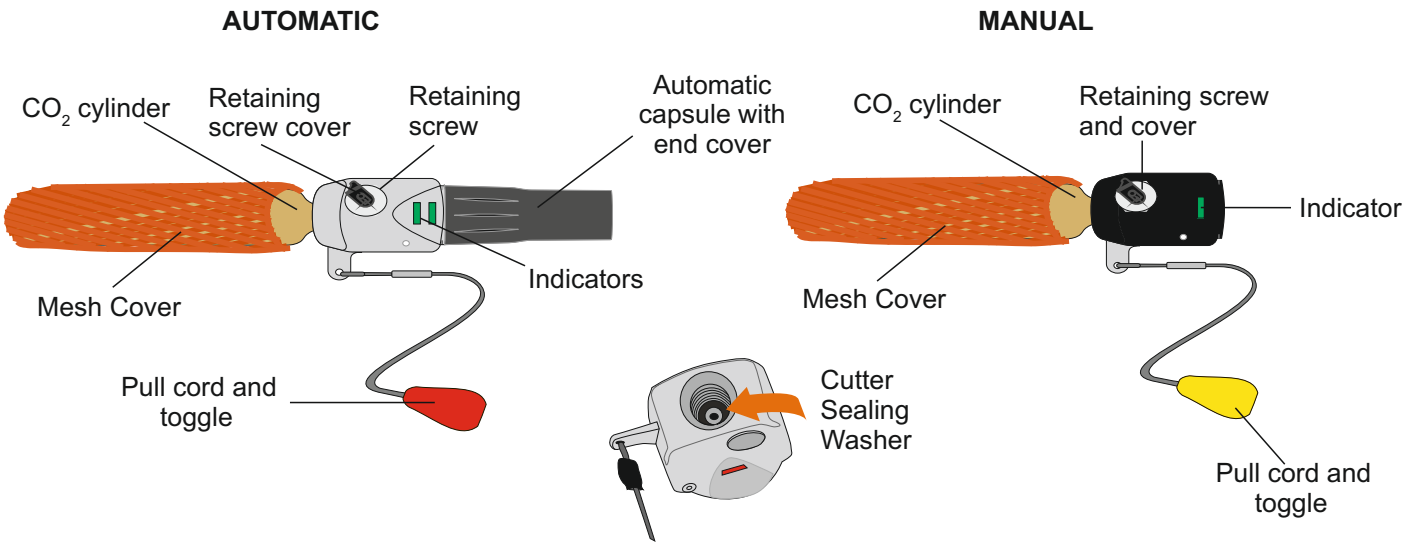
7.7.1. These components are not repairable. Due to the way the XD range of jackets are constructed you are able to replace the webbing harness (including buckles and crotch strap). Ref to page 33 for replacement parts.

7.8 Spray Hood

7.8.1. No repairs permitted. Lifejackets with damaged spray hoods should be returned to Crewsaver.

8.1 Assembly

Fig 8.1 Crewsaver Mk3 Operating Head



8.1.1. Ensure the whistle is positioned and tied in correctly.

8.1.2. Expel the air from the chamber by inverting the dust cap on the oral tube. Lifejackets may also be deflated using the Venturi Vacuum System. For the part number, refer to Section 9.

8.1.3. Assemble the Operating Mechanism to the inflator.

8.1.3.1 For United Moulders Prosensor Automatic Operating Mechanism. See Fig 8.1 (Mk3) and Fig 8.2 for (Elite).

8.1.3.1.1 Fit the automatic firing capsule to the operating head, screw hand tight ensuring that the bottom indicator has turned green, if it has remained red, replace the capsule.

8.1.3.1.2 Replace with "Ensure that the top and bottom O-rings are in place on the operating head and refit to Manifold.The Screw should be finger tighten and then torque using a torque driver fitted with a star socket. The driver should be set to between 3Nm. Then fit the protective cover. Carry out the Back Pressure Test. Refer to Section 6.

8.1.3.1.3 Fit the gas cylinder to the firing mechanism using the torque wrench (4Nm) and head adaptor from the tool kit. If necessary replace the cylinder sealing O-ring. The cylinder is gripped in one hand and the head tightened using the torque wrench held in the other hand.

8.1.3.1.4 Check that the Cutter sealing washer in the end of the operating head has been replaced and is correctly fitted. Fit the CO_2 cylinder. Ensure that the cylinder has been check weighed before fitting to the lifejacket. Hand tighten the cylinder firmly by hand. Then check using the torque wrench (4Nm) and cylinder belt from the toolkit.

WARNING
Care must be taken not to 'cross thread' the connection.

WARNING
Ensure the correct size cylinder is fitted - XD 150N = 38 gram CO_2 / XD 275N = 60 gram. CO_2 Cylinder.

8.1.4. To re-pack the lifejacket see Figure 8.3.

8.1.5. Expel additional excess air, during the packing operation, from within the inflator by again inverting the cap on the oral tube and inserting it into the oral valve. When all excess has been expelled replace the cap.

8.1.6. Mark Service Label on Lifejacket (using an indelible pen) and Service Record Sheet with the date of the service, together with the initials and certificate number of the person carrying out the service.

8.1.7. Ensure the serial number has been correctly recorded and that it is clearly marked on the Record Sheet.

WARNING

The lifejacket folding procedures must be followed accurately to ensure that the lifejacket inflation mechanism operates and the lifejacket deploys correctly. The lifejacket shall not be folded and/or packed using any other method or procedure than that specified.

8.1.8. For Hammar Hydrostatic and Manual Operating Mechanisms. See Fig 8.2.

8.1.8.1 If the operating head has been fired, tampered with, does not comply with any of the details in 5.5.3 a replacement operating mechanism must be fitted.

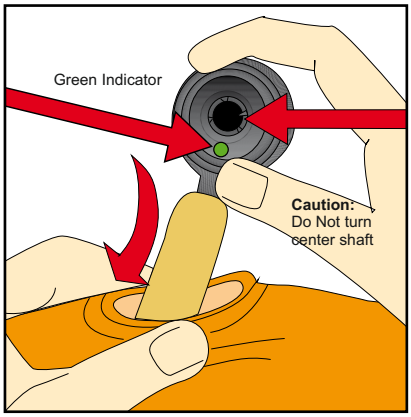
8.1.8.2 If a new CO_2 cylinder is required a replacement cylinder ALREADY ATTACHED to an inflator body must be purchased from Crewsaver.

8.1.8.3 Insert the cylinder and inflator body into the inflation chamber through the sealing ring, ensure that the cylinder is vertically positioned in the inflation chamber.

8.1.8.4 Seat the inflator body underneath the sealing ring. Locate the inflation mechanism to the sealing ring and the inflator body, with the red firing handle facing directly down the inflation chamber away from the cylinder. Using the Hammar operating head tightening key, clip the mechanism closed.

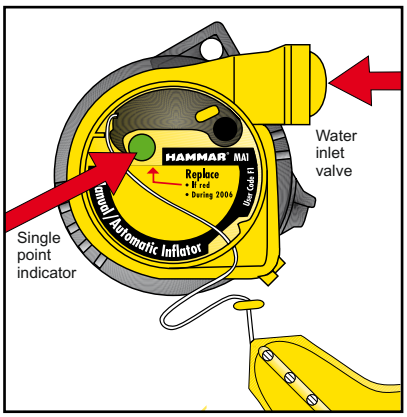
Fig 8.2 Hammar Operating Head

Fig. 8.2.1



Check that the indicator is green. Insert new inflator body with gas cylinder pointing upward inside the lifejacket (PFD). Let the sealing ring rest on the inflator body around the four lugs.

Fig. 8.2.2

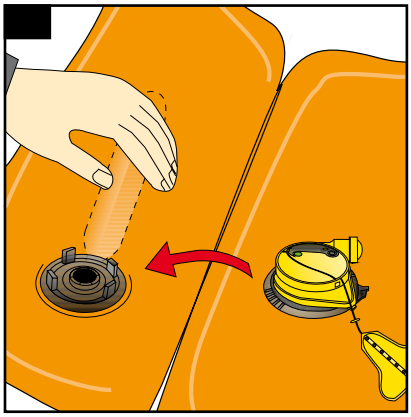


Now check the new manual/ automatic cap as follows:

1. Single point indicator showing green?
2. Expiry date OK?
   If YES is the answer to both these questions, then proceed as follows.

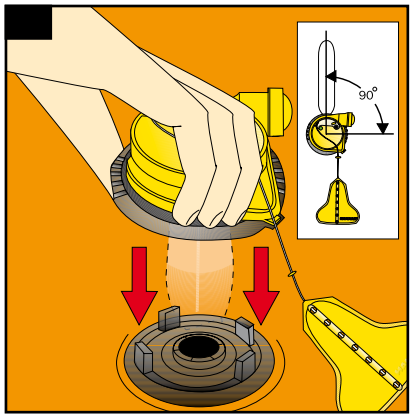
   If NO get a new cap.

Fig. 8.2.3



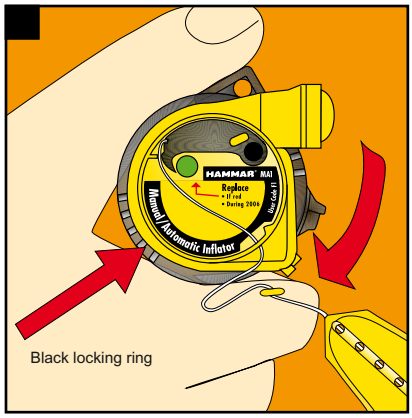
Hold the gas cylinder through the fabric of the lifejacket.

Fig. 8.2.4



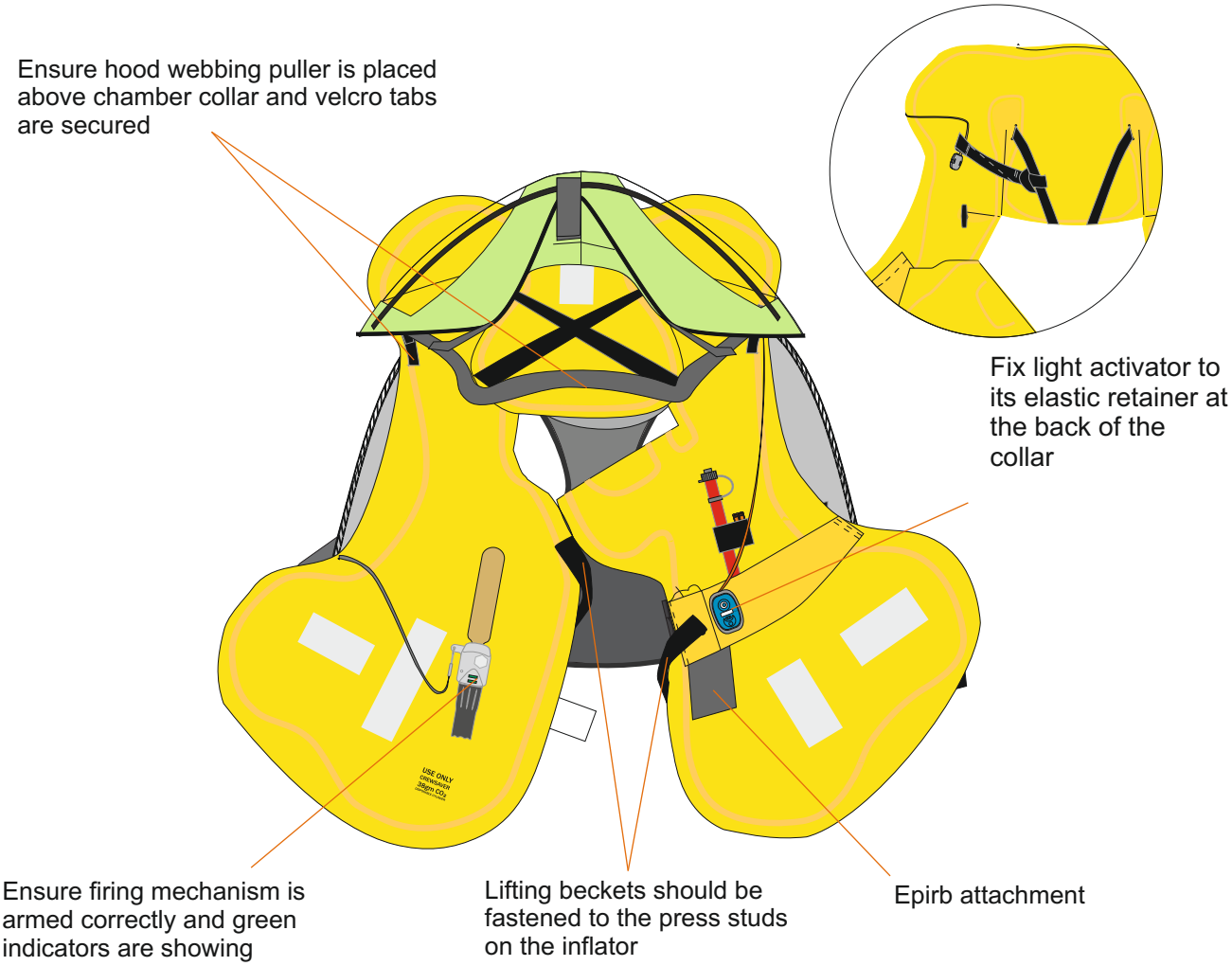
Position the replacement cap with the water inlet valve pointing to the right (7b) and press it FIRMLY onto the inflator body and sealing ring.

Fig. 8.2.5

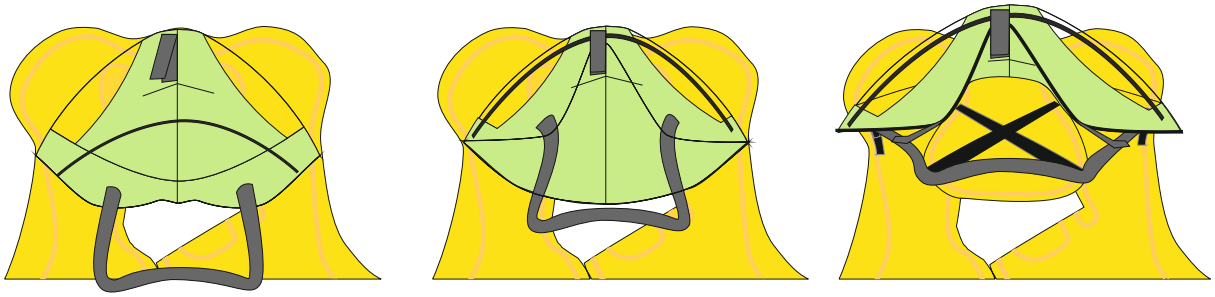


While pressing FIRMLY onto the inflator body turn the BLACK locking ring clockwise into the locked position. Pull on the cap to make sure it has locked onto the inflator body.

Fig 8.3 Crewfit XD150N and XD275N



REPACKING THE SPRAYHOOD



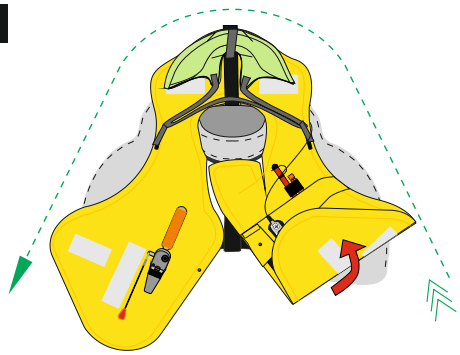
Lay hood out so top seam with velcro retainers lays flat and straight

Gather tubing and excess visor up and secure with velcro retainers

Concertina hood so it lays flat against edge of the chamber. Affix velcro tabs on webbing to velcro retainers on chamber.
Ensure webbing puller lays over the chamber collar

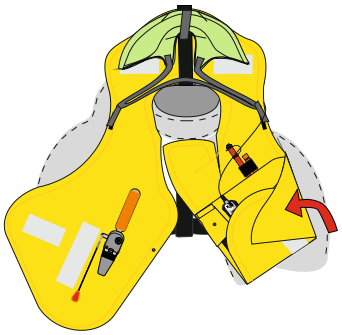
Fig 8.3 Crewfit XD150N and XD275N Packing Instructions

1



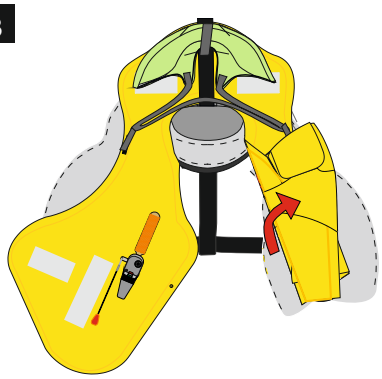
Fold up bottom right side of chamber. Run the zip slider round to the left side.

2



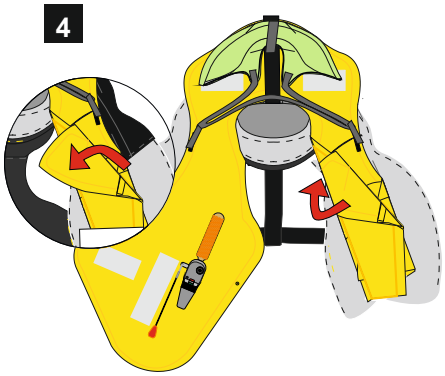
Fold outer right side of chamber over towards the center.

3



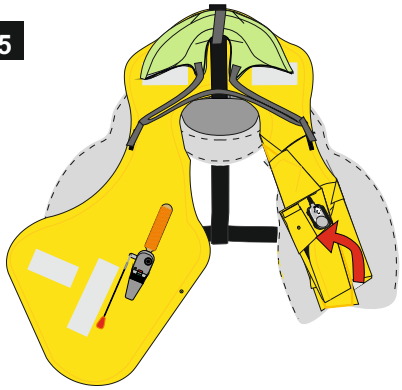
Fold the inner edge of the chamber over towards the outside.

4



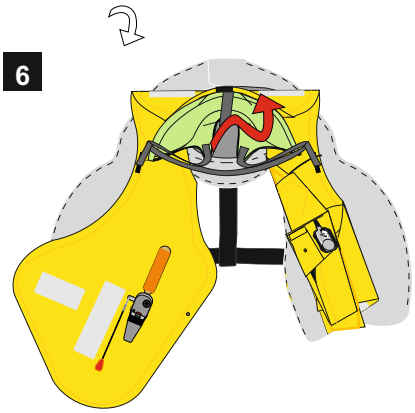
Fold back chin support and roll underneath folded chamber.

5



Fold over excess chamber bringing light to the top.

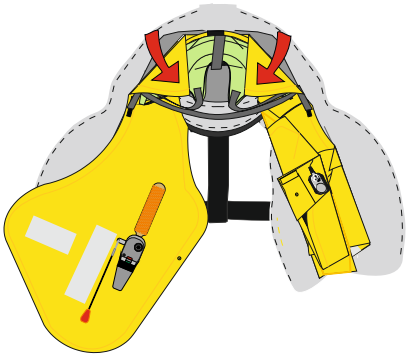
6



Concertina the collar with two folds. The hood should lie on top (if fitted).

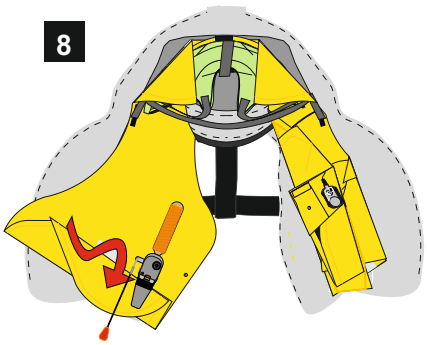
Fig 8.3 Crewfit XD150N and XD275N Packing Instructions

7



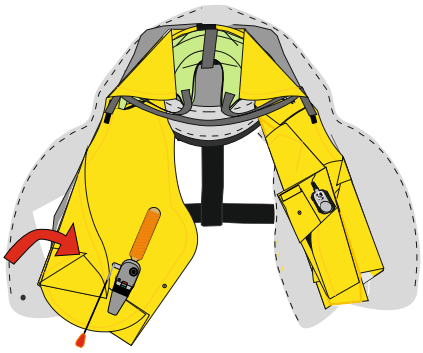
Fold top corners of collar down and tuck hood in. Take care not to tangle light cord or hood pull webbing.

8



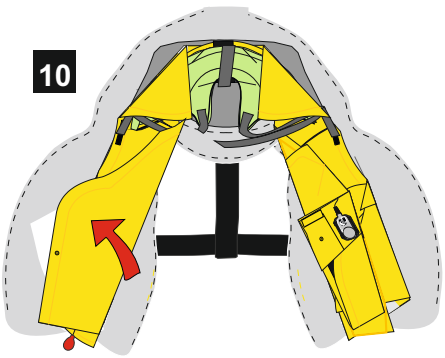
Concertina bottom edge of chamber. Firing capsule should lie on top.

9



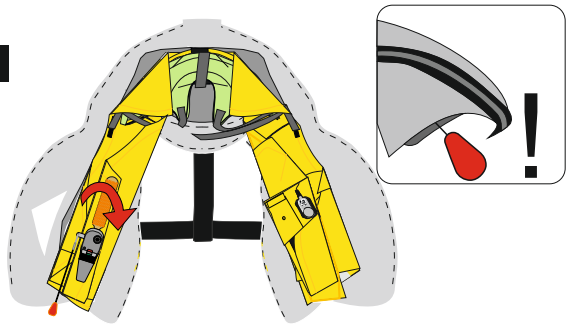
Fold outer edge of chamber in towards the centre.

10



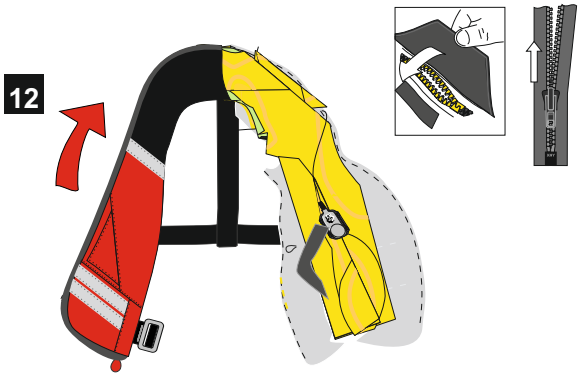
Fold inner edge over as far as it will go.

11



Tuck cord away. Roll excess back on itself so the firing mechanism is on top.

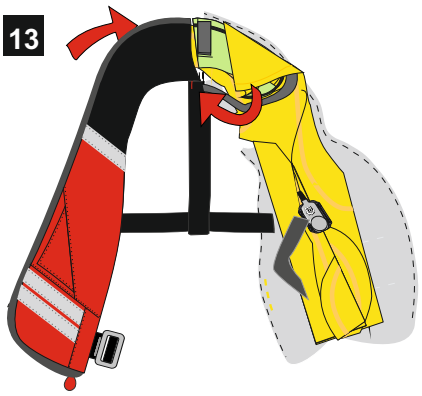
12



Tuck everything inside the cover and close cover using zip from the left hand side, fixing velcro burst tabs as you go.

Fig 8.3 Crewfit XD150N and XD275N Packing Instructions

13



Tuck hood in. Take care not to tangle light cord or hood webbing.

14

Ensure firing mechanism is visible through the window.

9.1 Parts List

Product Description	Part Number
XD Quick Release Belt	10004
Automatic Hammar Head Ma1 - Crewfit XD Lifejackets	11006
Re-Arming Kit Hammar MA1 38 gram - XD Lifejackets	11320
Re-arming Kit Hammar MA1 60 gram - XD Lifejackets	11321
Replacement Crewfit XD Lifejacket Cover - Red	92100
Replacement Crewfit XD Lifejacket Cover - Navy	92101
Replacement Crewfit XD Lifejacket Cover - Orange (Wipe Clean)	92102
Replacement Crewfit XD Lifejacket Cover - Yellow (Wipe Clean)	92103
Replacement Crewfit XD Lifejacket Cover - Fire Retardant	92104
Replacement Crewfit XD Lifejacket Webbing (Non Harness)	92105
Replacement Crewfit XD Lifejacket Webbing (Harness)	92106
Crewsaver Mk5i Auto Capsule	10012
Auto Head Sealing Gasket (Top and Bottom)	10373
Crewsaver Mk5 Auto Head Cylinder Sealing Gasket	10381
UML Mk5 Auto Head Cutter 'O' Ring	11048
60gm CO_2 & Ma1 Back Plate Assy Unpack	11034
38gm CO_2 & Ma1 Back Plate Assy Unpack	12038
Whistle	10677
CSL Light	10226
Crutch Straps (pair)	10032
Mouth Inflation Valve	10208
Mouth Inflation Valve Cap	10151
Schrader Valve	10049
Venturi Vacuum System	10481
Servicing tool kit	10467
Pneumatic control panel controller	900041
Cylinder adaptor	900042
Cylinder tension belt	900040