

KENT

SURVIVAL (IMMERSION) SUIT INSPECTION & MAINTENANCE MANUAL

Inspection and maintenance facilities are responsible for verifying that all suits meet the required functioning abilities upon initial delivery, as well as later dates of return for servicing. The purpose of the facility will be to ensure that all suits are in top operating condition when received by the purchasing owner. If an immersion suit does not pass inspection then the facility shall perform any of the repairs listed within this manual, and nothing more. Alternatively, the suit may be condemned and removed from service. The following procedure is in conformance with the quality control standards of KENT Safety Products and the regulatory specifications of USCG/SOLAS/MED Immersion Suits.

It is the responsibility of the inspection and maintenance facility to notify immersion suit owners of any article that does NOT pass inspection.

Do NOT approve any suit unless all inspection procedures are passed.

Do NOT attempt to make any repairs that are not outlined within this manual.

For any questions that cannot be answered with this manual, please contact Kent Safety Products at:

Kent Safety Products, an Absolute Outdoor of America, LLC brand
Attn: Immersion Suit Maintenance Personnel
1209 Franklin Ave
Sauk Rapids, MN 56379
Phone: 320-252-2056
Fax: 320-252-2160
Email: service@absoluteoutdoor.com

**IMPORTANT LEGAL NOTICE REGARDING USE OF
Kent Safety Products Inspection & Maintenance Manual**

1. This Inspection and Maintenance Manual is only approved for use at inspection facilities that have been trained and certified by Kent Safety Products to inspect and repair the immersion/survival suit product.
2. Inspections and repairs may only be performed by certified individuals who have received proper training from Kent Safety Products.
3. The instructions inside this inspection and maintenance manual must be strictly followed in order to guarantee the safest functioning capabilities of the product. Not following the procedures within this manual can lead to risk of serious injury or even death.
4. It is the sole responsibility of the certified Inspection and Maintenance Facility to guarantee a complete and proper inspection of all Kent Safety Products immersion/survival suits. If a suit does not fully comply with the requirements within this manual then it is the sole responsibility of the Inspection and Maintenance Facility to repair the suit as instructed and then re-test the product until it fully complies with all requirements.
5. The Inspection and Maintenance Facility must confirm their full inspection and approval by means of a signature or stamp once servicing has been completed in accordance with the Kent Safety Products Inspection and Maintenance Manual.
6. Kent Safety Products reserves the right to audit any Inspection and Maintenance Facilities as necessary, even after the initial training and certification process.
7. Kent Safety Products reserves the right to make any alterations to the Inspection and Maintenance Manual, inspection procedures, and repair procedures as necessary in order to ensure the most up to date safety and functioning capabilities.
8. Save for death or personal injury caused by the negligence of Kent Sporting Goods Co., Inc. or its employees for whom it is liable, the Inspection and Maintenance Facility indemnifies and keeps indemnified Kent Safety Products against any claims, demand proceedings, liabilities damages or costs (including professional costs) incurred by Kent Safety Products directly or indirectly as a result of or in connection with any failure it or any of its employees or agents to comply with this Inspection and Maintenance Manual and the relevant service training.
9. Save for death or personal injury caused by the negligence of Kent Sporting Goods Co., Inc. or its employees for whom it is liable, Kent Safety Products shall have no liability to any person, company or other organization whether in contract, tort, negligence breach of statutory duty or otherwise for any loss, damage, harm, costs or expenses of any nature whatsoever incurred or suffered by such person, company or other organization arising from or in connection with any error in or omission from this

Inspection and Maintenance Manual or the service training provided by it.

Immersion Suit Inspection Guide

1. Visual Inspection of Immersion Suit body

- a. Prepare a clean work bench or area, in a well-lit setting, for inspection procedure.
 - i. Check foot pads to ensure that they are sufficiently sealed to the outer neoprene all the way around.
 - ii. Check that hand pads/grips are glued securely to the outer neoprene.
 - iii. Inspect all seams thoroughly for rips, tears, or loose stitching.
 - iv. Inspect the zipper and pull grab for any sign of damage to the zipper teeth or seams between the zipper and outer neoprene.
 - v. Check the rest of the neoprene outer in its entirety for any signs of rips, tears, holes, or any other visible damage. Refer to the repair section for instructions on repairing such defects.
 - vi. Check for any damage to the whistle, light, buddy line, lifting harness, or any other additional accessories included with the particular immersion suit version. If any accessories are inoperable, replace the defective item.

2. Inspection of Inflatable Bladder

- i. Wipe off the oral inflation mouth piece.
- ii. Check for any damage to inflatable hose or mouth piece. Refer to the repair section for instructions on repairing such defects.
- iii. The inflation pressure for the bladder is 0.2 PSI. Use caution to not over inflate as this will damage the bladder seams and cause the bladder to leak. Leaking bladders are not repairable and are to be replaced.

3. Repair Limitations

(NOTE: It is recommended that all repairs be approved by the immersion suit owner before they are performed.)

- a. Use wax sticks to lubricate the entire zipper.
- b. Replace faded or worn down reflective tape.
 - i. **CAUTION: Find a well-ventilated area before using Aquaseal adhesive.**
 - ii. **Use of rubber gloves and eye protection is required.**
 - iii. Do NOT remove the original reflective tape. New tape will be placed over top of the old tape.

- iv. Remove the plastic surface from the existing reflective tape as best as possible. This will maximize the performance of the adhesive bond between the new reflective tape and the old tape.
 - v. Put a layer of Aquaseal adhesive over the existing reflective tape and extend the coat 1/8" beyond the edge. Allow 5 minutes for adhesive to dry.
 - vi. Peel the back off of the new piece of reflective tape and place the new patch over the existing one.
 - vii. Smooth any air pockets out from the new reflective tape.
- c. Re-glue foot pads or hand pads
- i. If the foot pads or hand pads show any sign of peeling do NOT remove the pad from the immersion suit.
 - ii. Fill the peeling areas with a layer of Aquaseal adhesive and press the pad back to the outer neoprene. Smooth out any air pockets.
 - iii. Coat the edges of the re-glued pad with Aquaseal adhesive.
 - iv. Allow 5 minutes for the Aquaseal to dry.
- d. Fix any rips, tears, and holes in the outer neoprene fabric
- i. Depending on the size of the rip or tear, choose one of the two neoprene patch sizes from the Kent Safety Products Survival/Immersion Suit Servicing Kit.
 - ii. Place the chosen patch over the torn area and trace the circular patch.
 - iii. Cut the traced patch circle out from the immersion suit.
 - iv. Place the patch inside the newly cut circle and coat the seam/gap with a layer of Aquaseal adhesive. Allow 5 minutes for the adhesive to dry and then turn the suit inside-out in the area of the new patch. Put a coat of Aquaseal adhesive on the inner seam/gap of the newly patched area.
 - v. Once the Aquaseal adhesive has dried, put a coat of adhesive over the new neoprene patch and 1/2 inch beyond the edge. Place a nylon patch from the Servicing Kit over top the neoprene patch and smooth out any air pockets.
 - vi. Repeat this process on the opposite side of the new neoprene patch, so that each side has been sealed with adhesive and a nylon patch.
- e. Replace any broken or defective whistles. Do not attempt to repair.

- f. Replace damaged bladder
 - i. If there are any damages to the inflatable bladder (pillow) do not attempt to make repairs to the piece.
 - ii. If there is any damage to the inflation hose or mouth piece do NOT attempt to repair them. Replace the entire inflatable bladder.
- g. NO zipper replacement or repairs can be made. If the zipper is broken in any way then the entire immersion suit is defective.
- h. NO Velcro can be replaced on the immersion suit. If the Velcro is torn or damaged in any way then the entire immersion suit is defective.
- i. **NO SHIPBOARD REPAIRS!**

4. Air Retention Test

- a. Unfold the immersion suit onto a clean work bench or area. This procedure is performed in order to check the suit for any leaks in retaining air.
- b. Required Equipment
 - i. 60 PSI or greater Air Pressure Line
 - ii. Air pressure gauge
 - iii. Adjustable air flow regulator (0-200 PSI)
 - iv. Neck Seal Device
 - v. Spray can/bottle with a minimum capacity of 2 gallons
 - vi. 1.3 oz of Mild liquid dish soap (mixed with 2 gallons of fresh water)
- c. Procedure
 - i. Inflate the immersion suit's inflatable bladder to 0.2 PSI. Caution: **Overpressure with compressed air can severely damage the seams of the bladder.** Spray the soap/water solution around the bladder's seam and oral inflator. Check that no bubbling occurs and that the bladder remains inflated for a minimum of 8 hours.
 - ii. Place the neck seal "peanut" into the head, neck, and shoulders region of the immersion suit. Zip the suit up as far as it will go.
 - iii. Inflate the peanut until it is firm or tightly compressed against the head, neck, and upper shoulder regions of the immersion suit.

- iv. Use the peanut's second inflation tube to inflate the immersion suit to a pressure between 0.1 and 0.3 PSI. This air pressure is to be maintained throughout the air retention test. If the air pressure gauge drops below 0.1 PSI, re-inflate the suit through the peanut's second inflation tube. Continue as necessary.
- v. Spray the soap/water solution across all of the immersion suit's seams and closures. The solution should contain 1.3 oz of mild liquid dish soap, mixed with 2 gallons of freshwater (0.5 percent by weight).
- vi. Bubbling will occur in areas where air is leaking from the suits seams and/or closures.
 - 1. In areas where bubbling occurs the seams can be sealed using Aquaseal along the inside of the suit. Allow for the Aquaseal to dry overnight and repeat the procedure the next day.
- vii. Once the immersion suit has passed the air-retention test it can be dried out and re-packed.

5. Bag Inspection

- a. If the immersion suit's storage bag is torn or ripped, replace the bag.
- b. If the handle or snaps are damaged on the immersion suit's storage bag, replace with a new bag.

6. Immersion Suit Washing Instructions

- a. **WARNING:** Do not dry clean immersion suit or expose to any chemical cleaners.
 - i. Completely unzip the front zipper of the immersion suit.
 - ii. Only use detergent/shampoo specifically for wetsuits.
 - iii. Run washing machine on warm water cycle.
 - iv. Water will be trapped inside the suit when wash cycle is complete. Lift the suit from the feet to drain out water.
 - v. Lift the suit from the hands to drain out any remaining water.
 - vi. Hang suit in a well-ventilated area to dry.
- b. For the removal of oil or any other large stain, rub a mild water and dish soap solution onto the contaminated area and then rinse with fresh water. Allow the immersion suit to dry before re-packing.

7. Re-packing Instructions

- a. After each use of the immersion suit, follow the procedure below to properly re-pack the suit.
 - i. Make sure that the immersion suit is completely dry inside and out.

- ii. Lay the suit on a clean, flat surface.
- iii. Completely zip up the zipper and run the wax stick up and down the zipper teeth.
- iv. Fold the feet into the ankles and roll up the legs to the bottom of the arms.
- v. Fold the arms across the chest and the head down, above the folded arms.
- vi. Roll the legs the rest of the up over the head and place in the storage bag.

8. Certification of Immersion Suit Inspection

- a. Once inspection and repair of a Kent Safety Products immersion suit has been completed, the suit shall be marked and dated by the Inspection and Maintenance Facility in order to verify that it is in acceptable functioning condition.
- b. The immersion suit's matching storage bag shall also be marked and dated by the Inspection and Maintenance facility under these same circumstances.
- c. After each inspection and repair has been completed the Inspection and Maintenance Facility is required to document the serial number of the immersion suit and the date that the suit has been deemed in acceptable functioning condition.

IMPORTANT:

It is highly recommended that all immersion suit owners familiarize themselves with the use of their product. Practice donning the suit and even entering the water while wearing the suit. This will minimize donning time in case of an emergency.

It is recommended that immersion suits be donned on an open deck and NOT in an enclosed area of the vessel. The inherent buoyancy and restricted maneuverability could make it more difficult to escape such areas in time of an emergency.



IMMERSION SUIT SERVICING CHART

Date:	Name of Ship/Unit:	IMO:	Certificate #:
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Next Suggested Inspection Date: _____ Inspection and Maintenance Facility Location: _____

	Suit Serial #	Cleaned	Zipper & Zipper Tab	Inflation Valve & Hose	Reflective Tape	Stenciling	Leak Test	Stamp Suit	PFD Light	Battery Date	Whistle	Storage Bag (#'s agree)	Is suit Sea worthy? (Y/N)	Notes
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

X _____
 KENT Certified Maintenance & Repair Inspector