

ROYAL CANADIAN MARINE SEARCH AND RESCUE

STATION 60 LIFEBOAT

M/V "CAPE LAZO"

"C23544BC"



STANDARD OPERATING PROCEDURES

VERSION 2.72

Version #	Date	Change	Changed By
0	25-Jul-2014	First Draft, based on Aux 1 SOPs	C. Hawkswell
1.0	25-Sep-2014	First Released Version. Includes CAPE LAZO specific changes.	C. Hawkswell
2.5	30-Oct-2014	Added Communications Systems and Changed Graphics to reflect M/V Cape Lazo	C. Hawkswell
2.51	5-Nov-2014	Changed Graphics, text to reflect M/V Cape Lazo	C. Hawkswell
2.54	14-Nov-2014	Changed Graphics, text to reflect M/V Cape Lazo	C. Hawkswell
2.56	19-Nov-2014	Changed text to reflect M/V Cape Lazo	C. Hawkswell
2.57	28-Nov-2014	Changed Graphics, text to reflect M/V Cape Lazo	C. Hawkswell
2.58	10-Dec-2014	Changed Text page 7	C. Hawkswell
2.59	4 th Jan 2015	Minor grammar changes added Reg No.	C. Hawkswell
2.6	23-Jan-2015	Added MMSI #	C. Hawkswell
2.61	18-Feb- 2015	Modified vessel name	C.Hawkswell
2.7	25-Feb -2015	Major changes to towing section, minor changes to startup/shutdown procedures	C.Hawkswell
2.71	22-Mar-2015	Added Phone No. EBIRB No. Datum Beacon Info	C.Hawkswell
2.72	20-Sept-2016	Name change back to Cape Lazo	C.Hawkswell

Specifications

Length:	36' 5" (swim grid included)
Beam:	11' 9"
Draft:	2' 4"
Gross Weight:	4.94 GRT
Power Plant:	Twin Volvo Diesel D6-435 Horsepower ZF 220 Transmission
Jet pumps:	Hamilton 274 Jet pump
Fuel Capacity:	1086L (286 US Gallons)

Performance

Cruise speed:	32 knots
Max speed:	40 knots
Operational Fuel Range:	260-325 nautical miles

Maximum rpm in forward or reverse propulsion is 3500 rpm.

Ideal cruising speed is between 3100 and 3150 rpm.

Cruise speed:	32 knots
Max speed:	40 knots

Operational fuel range is dependent upon speed (figures approximate):

35 knots	3500 rpm	44 gph / 166 lph	7.5 hours	260 miles
30 knots	3200 rpm	30 gph / 114 lph	11 hours	325 miles
25 knots	3000 rpm	25 gph / 95 lph	13 hours	325 miles
20 knots	2800 rpm	20 gph / 76 lph	16.3 hours	325 miles
Maneuver	2000 rpm	10 gph / 38 lph		
Idle		2.5 gph / 9.5 lph		

Communications

VHF MMSI = **316028759**

EPIRB UIN = **278C75313CFFBFF**

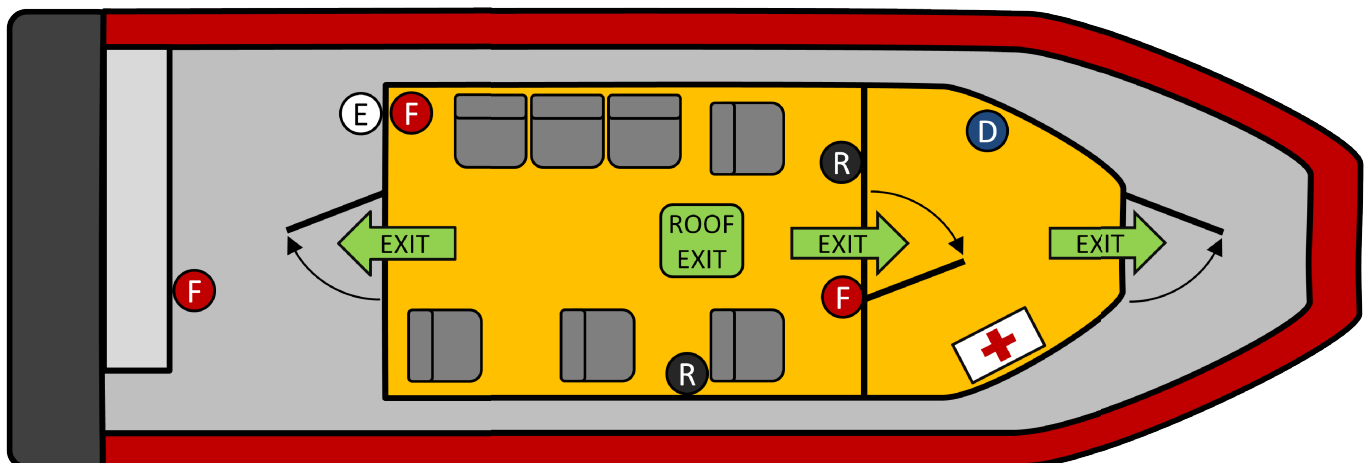
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Safety Information

F FIRE EXTINGUISHER **D** DITCH KIT: FLARES **E** EPIRB BEACON **R** VHF RADIO  FIRST AID



Warnings and Cautions

IMPORTANT

Do not operate the diesel engines at power until they have reached a minimum operating temperature of 125 ° F.

There are 2 doors and 2 hatches located on board. For the purposes of this document, any compartment divider that has a latch and stays closed without being dogged will be referred to as a door (entrance to the cabin from the aft deck and the entrance to the survivor compartment from the cabin). Any compartment divider that must be dogged to be securely closed will be referred to as a hatch (access way from the survivor compartment to the front deck and the access way to the top of the cabin from within the cabin).

While on plane, all doors and hatches must be closed. Additionally, the front door leading into the survivor compartment must be dogged.

All doors (2) and hatches (2) are to be closed and latched in seas more than 3 feet or wind speed exceeding 30 knots when underway and making way.

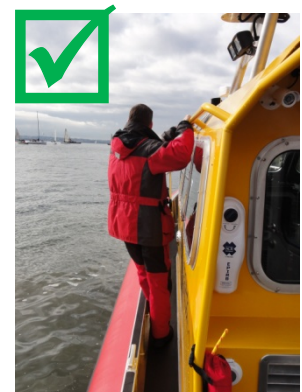
Seat belts must be worn when underway and making way in seas more than 3 feet or wind speed exceeding 30 knots.

PFD's must be worn when underway and making way. Flotation collars (Mustang MD3153T2 are the only ones approved for use) are an acceptable form of PFD but members must also have equipment vests, floater coats/suits and proper exposure apparel on board with them at all times.

Helmets must be brought on board as part of crew member Personal Protective Equipment (PPE) and will be worn at the Coxswains discretion and as warranted by section 5.4.1 of the Safety Management System.

When moving along the side decks, crew must **not walk on the edges of the tubes**. Crew must walk on the side decks, holding on to the upper rail.

Safety harnesses must be worn to work on the swim grid. Crew must be tethered to the aft guard-rail.



Crew Standards

Under the RCM-SAR crewing standards, the Falkins Class of vessels requires a minimum crew of 3 for all operations, one of who must have completed SEN Limited or the SARnav (original or SARnav 2) Course. This is broken down as follows at the minimum level:

- 1 qualified Coxswain
- 1 crew with Crew Level
- 1 crew with New Crew Level

All must have the requisite sea-time as outlined by the RCM_SAR Safety Management System. (All Crew Members must have current PCOC, ROC(M), SFA+CPR(C).)

Unit 60 recommends a minimum crew of 4. If the mission is such that extra crew on board would be prudent, extra crew should be requested by the Coxswain.

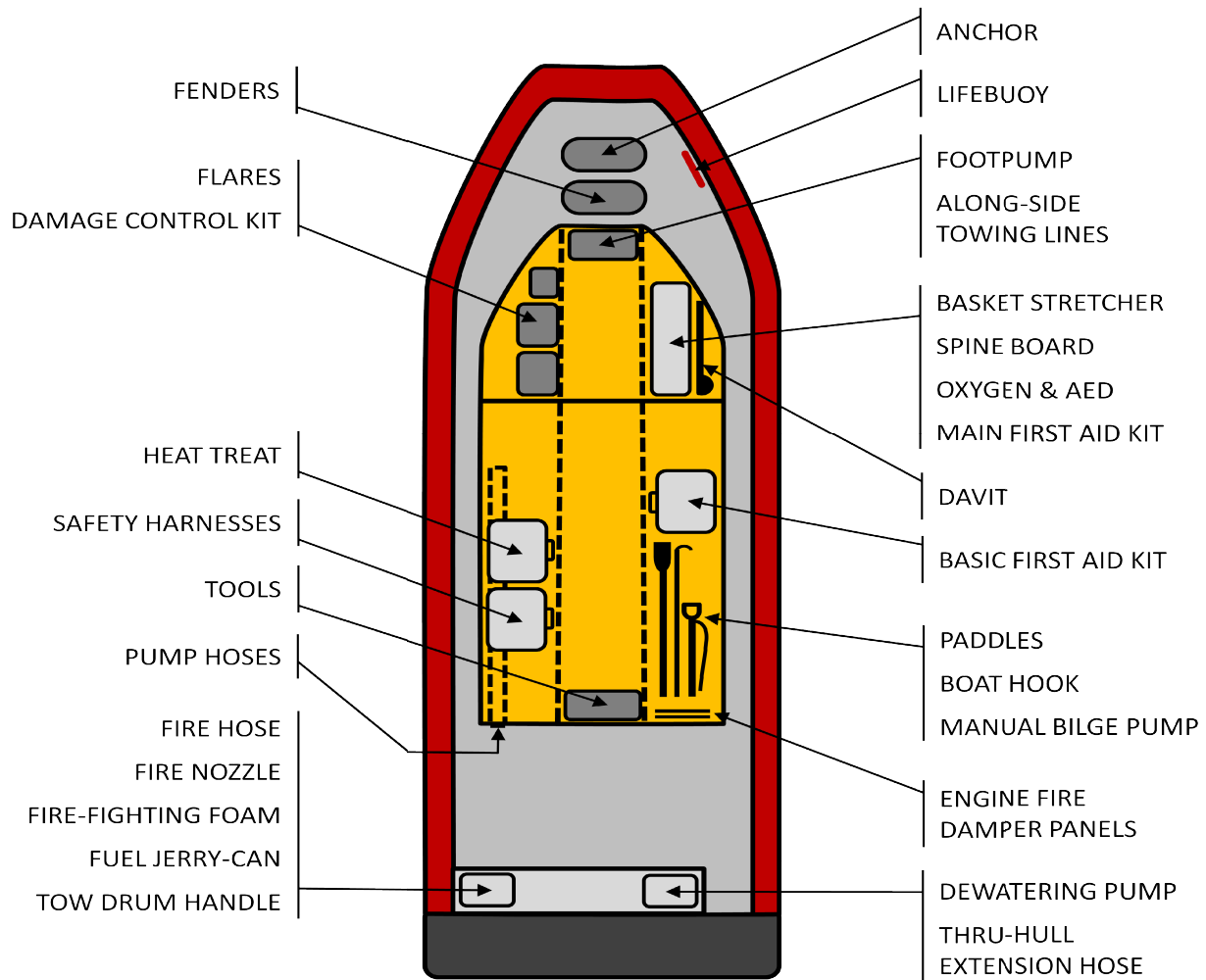
Remember to leave all crew member names on the Check out sheet when going out.

Keys

There are three keys on the boat ring. One for Rescue Station, one for the rear door and one for lockers. The keys float if dropped in the water.

Vessel Equipment Stowage Summary

The Weekly Handover checklist contains a more detailed equipment stowage list



Vessel Start-Up Procedures

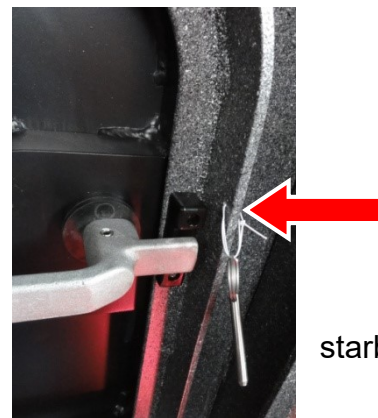
Do not deviate from the order of the start-up procedures as outlined below.

CAPE LAZO operates on diesel engines and jet drives, so the start-up procedures must be followed in a **precise sequence**

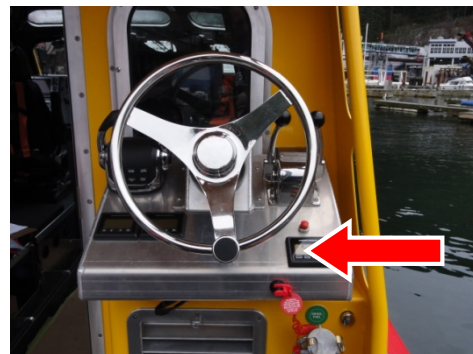
1. Before boarding check the stance of the vessel (i.e. is the vessel listing or level, etc.) and tubes on both sides.
2. Before boarding unplug the shore power cord from the power station - slight twist clockwise with both hands and pull. After the Dock plug has been disconnected, unplug the yellow power cord from the vessel. Leave the power cord on the dock, off to the side so it is not a tripping hazard.
3. Check Engine Oil and Coolant levels
4. Turn all three battery switches to the ON position by sliding the black covers down and pressing on the red buttons.



5. Turn on the cabin lights.
6. Unlock front hatch by removing the locking pins by the dogs.



7. Disconnect and stow the electrical heater.
8. Place Aft Equipment in their brackets. Attach a throw bag to port handrail.
9. Insert the kill switch lanyard at the aft station.
10. Unlock the rear deck equipment lockers.



At the forward helm position:

1. Turn on the navigation lights.
2. Balance the buckets by putting the bucket controls in the Neutral position.
3. Ensure throttles are in Neutral and Press ignition buttons.
4. Select forward control station by pushing the STATION button until a solid green light illuminates on the button. Lock the forward control station by pushing the STATION button again until a red padlock light illuminates on the button.

N.B.: A solid green light illuminated on the STATION button indicates that this is the active station. A red illuminated padlock on the button indicates the active station is locked. The two green "N" lights indicate that both throttles are in Neutral.



Press and hold a Start/Stop Port button until the engine turns over and starts, then press and hold Starboard Start/Stop button until engine turns over and starts.



5. Observe oil pressure on Volvo gauges. Pressure should be at a **minimum of 30psi** upon startup. It will drop off slightly as the engine warms up and increase when the engine is under load. To increase engine rpm while in Neutral, push the THROTTLE ONLY button until the green light on the button illuminates. Slowly push the throttles forward to increase engine revolutions to 800-1000 rpm for warm-up.

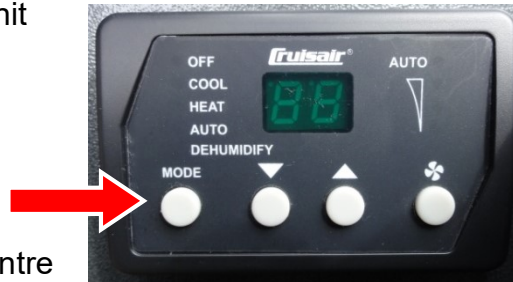


6. Turn on the navigation system (top port screen first, then lower port screen, then mid-cabin screen and finally helm screen).
7. Turn on the loud hailer system and the radios: port forward radio on channel 16, starboard mid-cabin radio scanning channels 19, 61A, and 83A.

8. Switch on the inverter unit.



9. Switch on the air conditioning unit using the MODE button.



10. Turn on the rear fans (centre knob).
11. Switch on strobe lights (on tasking only).
12. Check all deck and search lights.
13. When all crew present and buddy check completed, call into Comox Coast Guard Radio on 61A and log on. Page out. Commence keeping deck log.
14. Coxswain to conduct briefing relating to mission / on-the-water training.
15. Once the engines have reached 125 degrees F (approx temp. if block heaters are plugged in), lower the engine revolutions by bringing the throttles back to Neutral position.

At the aft helm position:

In order to operate from the aft helm position after the engines have been started, adhere to the following protocol:

There must be an operator at both stations prior to switching control

1. Ensure that the forward helm station is unlocked by checking to ensure that the red padlock shaped light is not illuminated and the forward helm is in Neutral.
2. When ready to get underway, the buckets must be in the balanced position and the throttle back to the Neutral position.
3. Select aft control station by pushing the STATION button.
4. The green light on the STATION button should be illuminated. Lock the aft station by pushing the STATION button again to illuminate the red padlock light.
5. Let go mooring lines, and wait until they are clear.
6. When you are free and clear of the dock, place the transmissions back in Neutral and balance the buckets.
7. You can now switch and drive the vessel from the front helm station.
8. Once clear of Marina, Turn on radar

Vessel Shut-Down Procedures

Do not deviate from the order of the shut-down procedures as outlined below.

The shut-down procedures must be followed in a **precise sequence**.

1. Secure vessel to moorings.
2. Log off with Comox Coast Guard Radio on channel 61A. Page back in
3. Place the transmissions in Neutral. Turn off all navigations screens (first the helm screen, then the mid-cabin screen, then the lower port screen and finally the upper port screen), radios, and loud hailer system, heating fans and accessory switches on the rear panel located above the rear starboard seat.

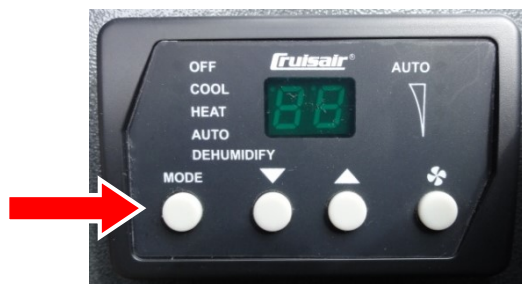


4. Turn off engines after the engines have idled for 1-2 minutes.
5. Remove kill switch lanyard from aft station and place on shelf at centre of dashboard.
6. Attach the yellow power cord retainer to the outlet on the port side of the rear door. After the power cord is attached to the vessel, plug it in to the Dock 25 amp outlet.
7. Turn off the three battery switches by sliding the black covers to the up position and pressing the red OFF buttons.
8. The inverter should read "Shore Charging" and all three green lights should be illuminated. (Note: if the batteries have been run down, the charger will read, "Bulk Charging").



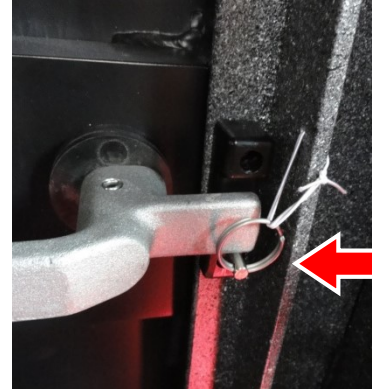
Step 8 cannot be missed. The inverter will charge the 3 batteries and supply power to the diesel engines' block heaters.

9. Set the air conditioning unit to dehumidify using the MODE button. The display should read HU and the DEHUMIDIFY green light should be on.

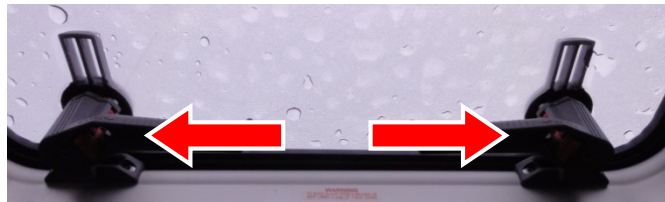


10. Check the engine room: **Look, Smell, Touch.**
 - Look for leaks (bilge water, oil runs, fuel, and cooling water)
 - Smell for gases (exhaust pipe broken), burning

- Touch to find loose connections, hoses clamps, electrical
 - Keep bilge water clean and minimal, to prevent fire and rusting
 - Keep engine compartment clean
 - Look for changes
 - Clean Water Filters
 - Check Jet Pump Oil Levels
11. Make note of fuel level.
 12. Sweep out the cabin area and wipe down all of the areas in the cabin that are wet or damp (the seats, consoles, etc.).
 13. Raise all inner armrests, and clip seatbelt harnesses on seat backs.
 14. Lock the forward hatch from the inside by inserting the locking pins by the starboard dogs.



15. Lock the roof hatch by pushing the red levers outwards.



16. Discard any garbage.
17. Stow Aft Equipment inside the cabin.
18. Switch on the electrical heater if required.
19. Close and lock the rear door. Lock the two rear deck equipment lockers.
20. Hose down the exterior areas of the vessel. Double check vessel and gear is properly secured.
21. Record any defect in the maintenance log, record on white board in shed, and if necessary notify Maintenance Officer.
22. Record fuel status on board in station.

If after an operation, the vessel needs serious work before being returned to operational, Comox Coast Guard Radio and JRCC must be so informed as well as the Unit Maintenance Team and Unit Leader

If gear is missing after an operation, ensure it is retrieved or replaced as soon as possible and inform Unit Leader

Fuelling

CAPE LAZO is fuelled with **diesel** fuel.

It has a single tank with a capacity of 1086 litres. The filler tube for the tank is situated on the outside rear of the cabin on the starboard side. Even though diesel has a higher flash point than gasoline, precautions still need to be taken.

The procedure for fuelling is as follows:

1. Secure vessel to mooring.
2. Shut down engines.
3. Ensure all non-fuelling crew are ashore.
4. Shut off main power.
5. Place fire extinguisher on standby.
6. Close all doors and windows.
7. Have fuel station staff set the fuel flow to a slow-medium flow rate
8. Fuel slowly to prevent spillage
9. Listen for fuel level rising up filler tubes
10. Avoid over-filling to allow for expansion.
11. Wipe up any spillage.
12. When fueling is completed secure the filler caps using locking pins on caps.
13. Turn on blower and allow to run for 4 minutes prior to engine startup (not required but recommended for diesel engines).



When refueling also check and refill as needed:

- Fuel for dewatering pump and jerry-can (aft lockers).
- Windshield washer fluid



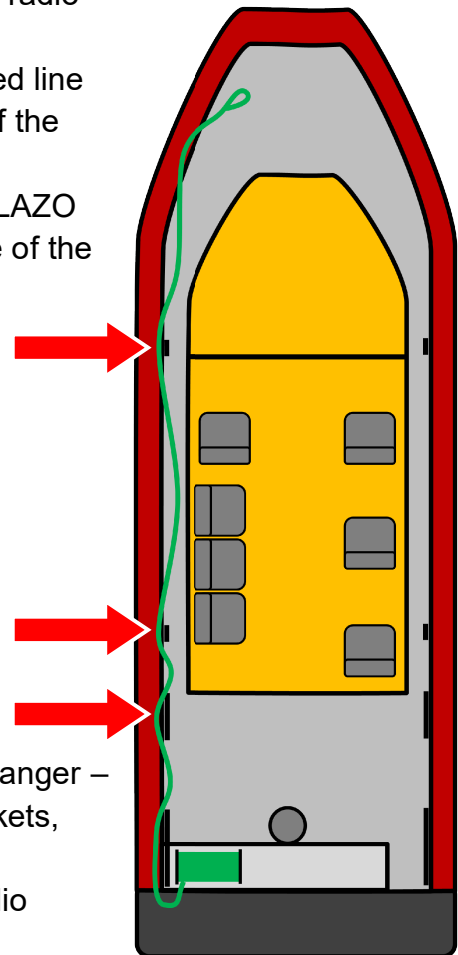
Towing Operations

Considerations before Towing

- Size (length, beam, draft, displacement), type and stability of casualty
- Prevailing weather conditions
- Capability of crew on casualty – need to transfer personnel to and from the casualty
- Manner of tow (alongside tow appropriate?)
- Means of communication throughout tow.
- Nominated personnel for particular tasks (look out, communications, etc).
- Manner of quick releasing tow in emergency (if safest thing to do)

Astern / Long Line Tow

1. Communicate with vessel to be towed about intentions and get permission from JRCC to set up the tow.
2. Get a Towing Waiver completed, either verbally over the radio or on an official Towing Waiver form.
3. Remove cover from the tow line and flake out the required line laterally across the stern of the aft deck. One full width of the drum equals roughly 60 feet of line.
4. Take the eyelet end of the tow line to the front of CAPE LAZO along the **port** side, making sure to keep the line outside of the cleats and safety railings.

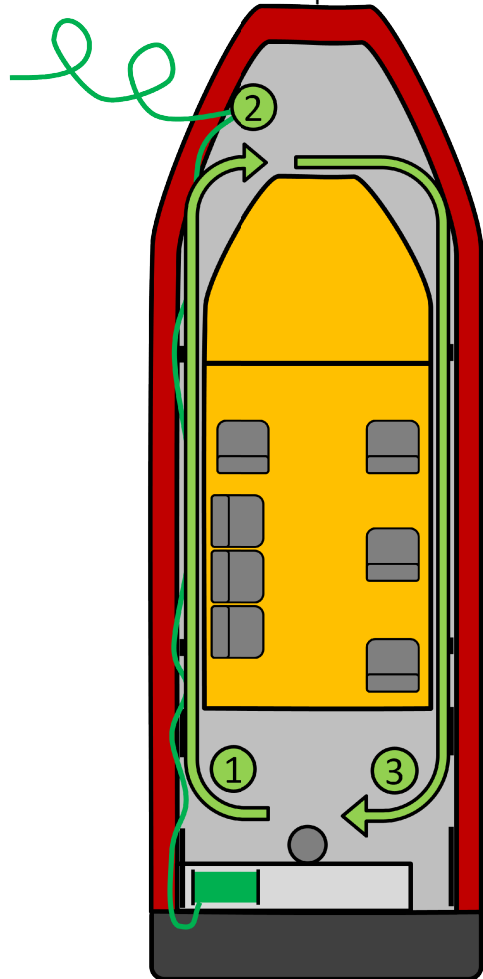


5. Appoint one person to watch for existing or developing danger – especially slack rope in the water that may foul jets, buckets, keel or rudder of the vessel to be towed.
6. Transfer crew to towed vessel if necessary, ensuring radio contact between the two.

7. Approach vessel by crossing the "T" (if appropriate) keeping speed and revolutions low, bow into the wind.
8. Await instructions from navigator to throw or clip on line.

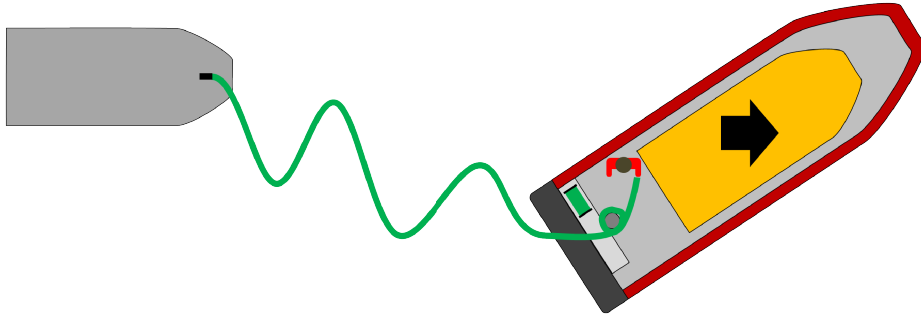


9. Once line is secured on towed vessel, the line handler should return to the aft deck using the **starboard** side-deck.
10. Have all crew take the tow line around the post the same way, so danger area from a breaking line is always on the same side. See procedure on page 23. Do not apply power until everyone is in a safe position and clear communication has been established among crew members.
11. Ensure enough line is paid out to ensure correct catenary characteristics.
12. Ensure clear, two-way communication when securing the towline. See next page.
13. A spotter must be in place at all times and aft video camera switched on. The spotter should stand on the port side of the vessel so that the camera can monitor both him and the tow line.
14. Once underway, spotter can sit in the rear port side seat if turned to provide a clear view out of back windows and door.
15. Before docking, switch to an alongside tow.

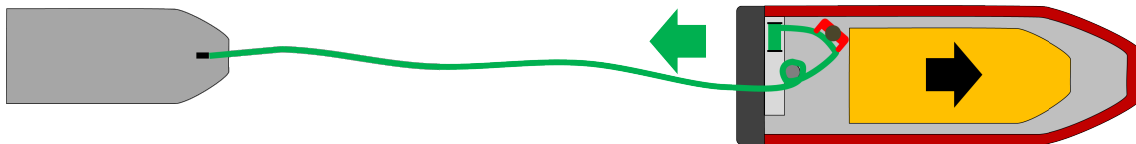


Long Line Towing Communications

1. Line handler to be positioned on port side of aft deck, tucked against the small railing. Call **"SLOW AHEAD"** and wait until line slack has been absorbed.



2. Pay out additional line until correct catenary characteristic is achieved.



3. Call **"STOP"**. When CAPE LAZO comes to a halt, move to starboard side of aft deck, secure the line to the samson post.



4. When line is properly tied up, move back to port side and call **"SLOW AHEAD"** to straighten the line.



5. When line is close to taut, call **"COMING UP ON TOW"** so helmsman can adjust speed and dampen the shock.



6. When the towed vessel starts moving, call "**IN TOW**" and start monitoring the towed vessel. Line handler may request a change in speed if required to stabilize the towed vessel.

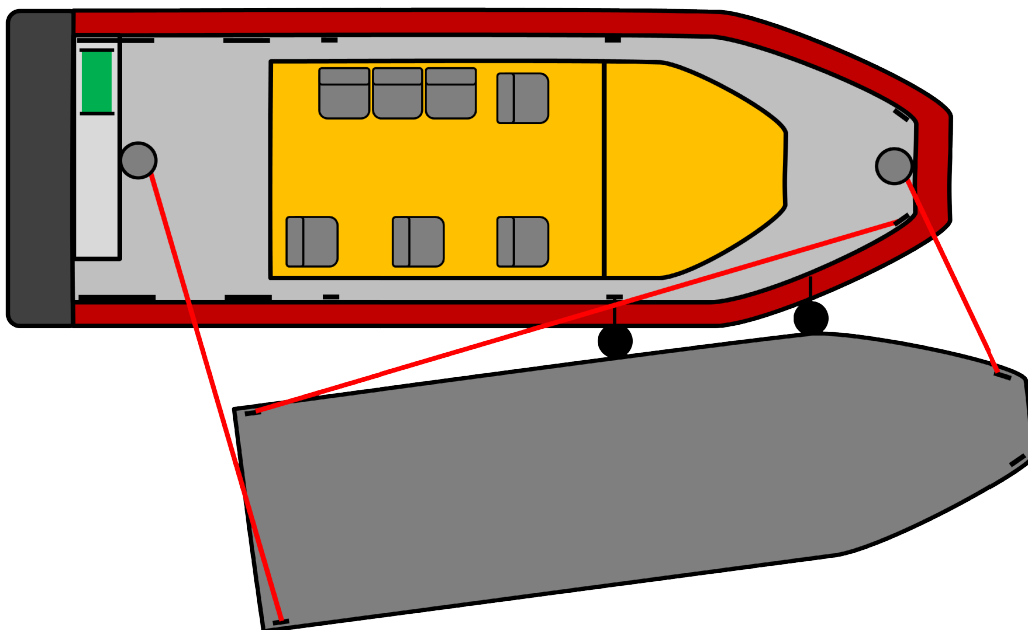


7. At the end of the tow or in case of emergency, call "**STOP**" and if applicable signal the towed vessel crew to let go the tow line once slack. If switching to an alongside tow do not untie the towed vessel. Monitor the position of the towed vessel to avoid a potential collision with CAPE LAZO. Reel in the towing line.

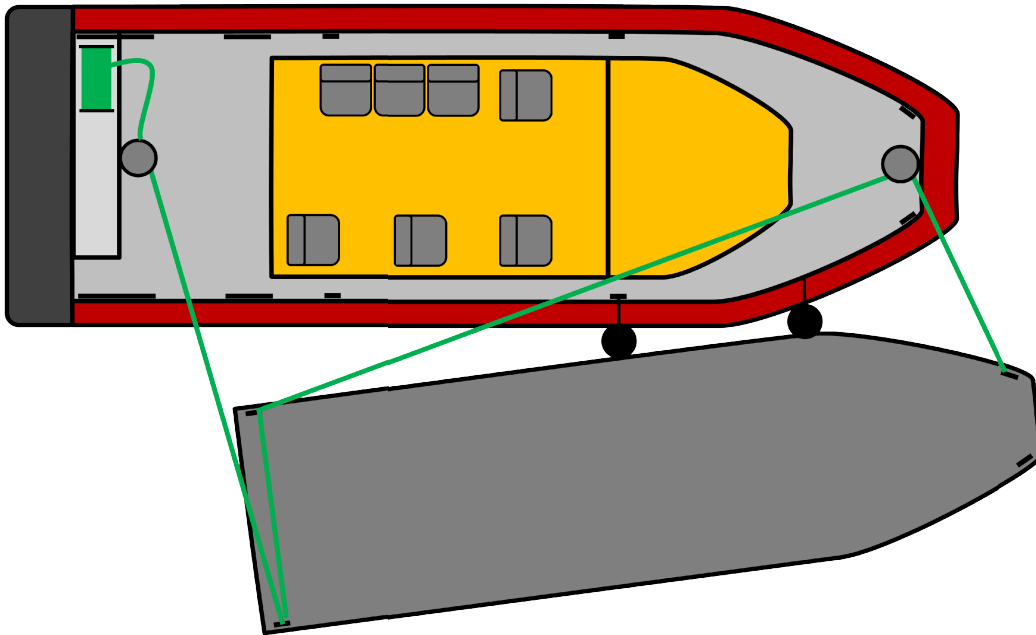


Alongside Tow

1. Reduce throttle and decrease speed.
2. Switch to outside helm.
3. Appoint one person to watch for existing or developing danger.
4. Set up white towing lines on starboard side (preferred side, however alongside tow can be set on port side at the coxswain's discretion depending on conditions) and rig fenders on tubes (and on the cabin, if required) to protect the vessel and CAPE LAZO.
5. Place the buckets in reverse and back up slowly while crew takes in tow line. If using the tow line as a forward spring, leave it attached to the towed vessel.
6. Maneuver alongside the towed vessel. Ensure CAPE LAZO's stern is aft of the towed vessel, and under a slight angle. Avoid reverse thrust as this pushes the stricken vessel away from rescue boat.
7. Secure lines following alongside towing guideline – bow, stern and spring lines. The exact configuration will depend on the length of the towed vessel and the availability of cleats or posts. Typically, a line connects the bow Samson post to the towed vessel's bow; a spring line connects one of the forward cleats on CAPE LAZO to an aft cleat on the towed vessel; and a line connects the aft Samson post to the far end of the towed vessel's stern.



8. If in a rush, CAPE LAZO's tow line can be used for all three connections, starting from the bow of the towed vessel and working your way aft.



9. Increase / decrease speed gradually, as every change in speed will result in a course change.
10. Decide how to dock the tow. If it is a light vessel, dock CAPE LAZO and then tow the stricken vessel by hand to its dock to prevent damage.
11. When docking with alongside tow, it is generally not necessary to side step by splitting the buckets, as this is not very effective but can be done if dock space or conditions warrant.

Tow Line Turn Up Procedure

Always use same method



1. One full turn anti clockwise around the post, under both lower ears and then above Port lower ear
2. First part of first figure eight, across Samson Post down and under Starboard lower ear



3. Second part of first figure eight, over Starboard lower ear, across Samson Post, down and over Port lower ear.
4. First part of second figure eight, over Port lower ear, across Samson Post down and under Starboard lower ear



5. Over Starboard lower ear, a counter clockwise round turn between the upper and lower ears.

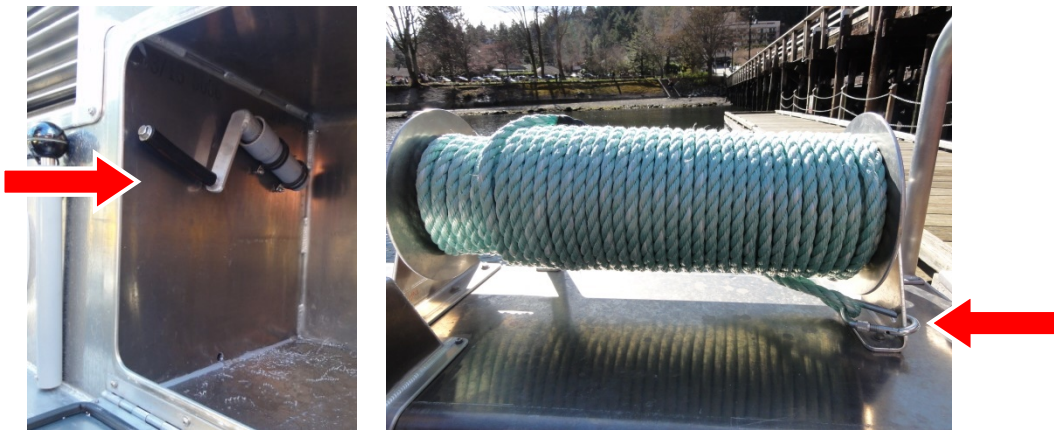
6. Tighten up top and bottom round turns and figure eights. Line may be held, or dropped to hang under lines own weight

The **danger area** with this set up is everywhere to the starboard side of the tow post and aft of the tow post. The line handler is to stand to port side and forward of the tow post.

Gloves are not to be worn while changing or turning up the tow line on the Samson post. They may be worn when on a prolonged tow, when not actually working the lines.

Stowing the tow line

The handle for the tow line drum is in the locker under the drum.



Attach the end of the tow line to the carabiner on the port side of the drum mount.

Enclosed Spaces / Oxygen Deficient Atmospheres

Everyone is to be aware of the possibility of oxygen deficient atmosphere when attending rescue. If there is any doubt as to such an atmosphere existing on board a casualty vessel, a SAP is to be performed, before any entry is made.

It is too easy to get drawn into a situation where an unconscious or even sleeping person is seen in the vessel, and rescuers get drawn into danger. Always ventilate if possible.

Own Vessel Emergencies

The likely scenarios are:

1. Man overboard and Victim Recovery
2. Engine compartment fire
3. Cockpit fire
4. Abandonment
5. Flooding
6. Sealed Compartments
7. Pollution Control

1. Man overboard and Victim Recovery

If you see somebody go overboard raise the alarm e.g. "MAN OVERBOARD STARBOARD SIDE"

1. Start slowing the vessel down (but not an emergency stop). Turn on the spot and go back in own white water
2. Hit the MOB button for 3 seconds on the GPS – it may prove vital if visual contact is lost.
3. Make MAYDAY call → this can be omitted or postponed...use discretion
4. Have a spotter pointing to the direction of the victim.
5. SAP – Move to aft helm
6. Keep visual contact at all times:
 - a. Appoint a second spotter if needed.
 - b. Spotter to stand so helmsman can see you.
 - c. Give verbal relative position of victim (Distances)
 - d. Point with moving forearm when victim in sight or extended arm towards last seen position when lost sight.
7. If person is out of sight and not found immediately
 - a. Make MAYDAY call
 - b. Perform expanding square search
8. Once located, approach the victim into the wind.
9. Keep the PIW on your starboard side. Keep speed slow and controlled.
10. Get boat hook/ pole ready for victim to hold when alongside boat.
11. When victim is abeam of the helmsman and is holding boat hook – turn the vessel to port and then place engines in neutral and buckets in neutral position.
12. Guide the PIW back to the swim grid and prepare for recovery.

13. All crew who are assisting victim into boat from the swim grid are to be **wearing a safety harness and to be tethered to the aft guard rail.**
14. Retrieve the PIW.



Getting PIW Aboard - Aft Deck

Following Canadian Coast Guard guidelines, not knowing if the victim is hypothermic or not, all victims will be brought on board the vessel in the horizontal position.

1. Get the victim to swim to the swim grid or maneuver him there using pike pole or ropes if he is unresponsive
2. If a diver, remove weight belt, tank and if possible the fins.
3. Try and keep casualty as horizontal as possible and face up, and handle with care.
4. If floating stretcher is available take to swim grid to place under victim.
5. Tethered crew can then secure PIW to the stretcher and bring aboard **head first**. Use the aft storage area to support the stretcher and allow crew members to maneuver through the opening from the swim grid to the aft deck. Maneuver through the aft door into the cabin and place the stretcher onto the aft seating bench. Secure the stretcher into place prior to transport.
6. If floating stretcher is not available place backboard on swim grid.
7. Use slings under casualty so a controlled slide can be used to get them on back board. Slings should be placed under the arms and legs. Careful consideration must be made to support the head.
8. Once on backboard, secure victim and bring onto vessel head first. Follow protocols outlined above to bring the stretcher on board and secure it in the cabin for primary assessment.
9. Administer first aid and treat for hypothermia
10. In any circumstance that the casualty is seen with their face under water, approach as quickly as possible and recover as quickly as possible – every second counts.

Getting Patient Aboard - Forward Deck

A lifting davit can be utilized to get patients and crew members on board from the front of the vessel during shore/shallow water extractions.

1. Remove the lifting davit from storage, beside the stretcher on the starboard side of the survivor compartment.



2. Place the lower end of the lifting davit (with the winch and crank handle) into the tube on the front deck beside the Samson post.
3. Place the upper end of the davit into the tube at the top of the first section and lock it in place with the pins.



4. Feed the rope over the end of the davit arm and lower the end of the rope to the ground.
5. Ensure the patient is securely fastened in the stretcher and attach the lifting harness to the end of the line.
6. Secure guide lines to the stretcher to ensure it does not swing when lifting.

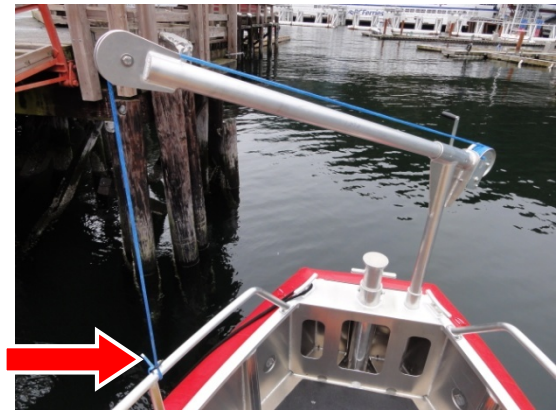


7. Slowly raise the patient in the stretcher up to deck level. Swing the stretcher over the side



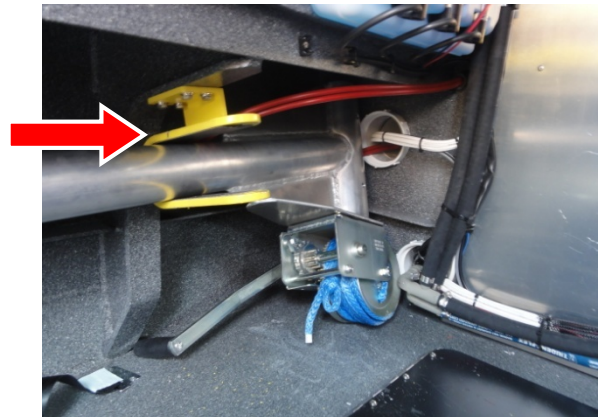
rail and gently bring it down at the entrance to the survivor compartment, feet first.

8. The davit can also be used to lift crew/able patients by looping the carabineer on the end of the line back onto the line to create a loop for the person's foot to sit in as they are lifted.
9. The lifting davit can be left on while underway if properly secured to the forward rail and snugged down so it cannot swing freely.



Stowing the davit

This is best done with the basket stretcher removed. Stow the lower part of the davit (with the winch and crank handle) first, with the winch end facing aft and the handle facing forward (see picture). Beware not to snag the two red lines - they operate the jet buckets. Stow the upper part of the davit next, with the pulley end facing forward. Secure with the two wing bolts.

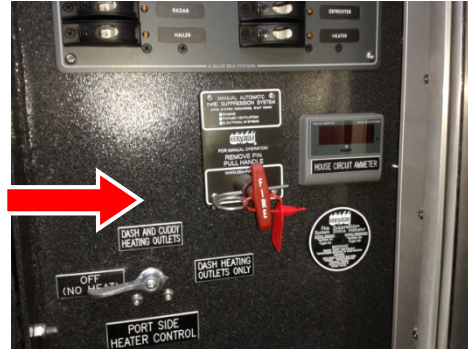


2. Engine Compartment Fire

1. Alert those on board that there is a fire.
2. Shut down engines and fuel supply if practical.
3. Make distress call (DSC / Mayday) or inform Coast Guard Radio of situation, while electrical power available if instructed to do so at the Coxswain's discretion.
4. **Do not open hatches** if there is evidence of fire. In the case of a severe fire, ensure engine hatches are closed and dampers are deployed.
5. In the case of a severe fire, ensure engine hatches are closed and dampers are deployed. Gather crew and move from the engine compartment area after deploying dampers. Close the aft cabin door and pull the manual fire suppression system. Continue moving into the forward cabin, closing the cabin door on the way. Move through the forward cabin onto the front deck as far away from the engine compartment as possible. There are three fire damper points. Two are located outside the cabin on either side of the door and are deployed by fastening the plates, located behind the rear starboard seat in the cabin, over the intake grate. The third is located aft on the back deck in the walkway to the swim grid and is deployed by pulling the pin.



The manual fire suppression system is activated in the cabin, port side in the stairwell leading down to the cuddy cabin.



6. Begin boundary cooling immediately, using dewatering pump, and inspect adjacent compartments.
7. Deploy drogue and/or anchor, if necessary.
8. If fire is contained, **do not open engine** compartment hatches.
 - Advise Coast Guard Radio and wait for tow.
 - Maintain fire watch and engine room temperature by feeling engine space hatches with back of hand.
 - Prepare to receive tow.
9. If fire is out of control or crew are in danger of smoke inhalation, then prepare for abandonment (wait for verbal command from coxswain).
10. Advise Coast Guard Radio and upgrade to MAY-DAY.

3. Cockpit Fire

In the event of a cockpit fire use the portable fire extinguishers available situated:

- At the rear of the cabin at the port side
- In the entrance to the Cuddy Cabin at the foot of the step next to the helm seat
- Besides the aft samson post



DO NOT

- Cross fire line to reach an extinguisher
- Turn your back on a fire, even when you think it is extinguished
- Re-enter area if you have to abandon

DO

- Raise the alarm to alert all crew
- Wait for coxswain instruction before making a distress call
- Try to prevent the situation from becoming worse
- Monitor situation once the fire is extinguished
- Escape by the fastest route if fire cannot be contained, and seal area if possible

4. Abandonment

Abandonment is the last resort for the safety of the passengers and crew: Collisions, out of control flooding, out of control fires, smoke inhalation and capsizing are some of the reasons for abandoning a vessel.

1. Send distress alert, if not already sent
2. Coxswain will say “Abandon Ship” when danger aboard becomes too great.
3. All personnel shall gather necessary materials (flares, flotation aids, lines to keep the group together) and muster on stern (any passengers will already have lifejackets/ Personal Flotation Devices on)
4. Assist coxswain in taking a head count to make sure all are accounted for.
5. Activate and take EPIRB (located on the rear deck, on the port side of the cabin door).



6. To activate the EPIRB, turn blue knob and remove EPIRB cover. Pull EPIRB out of housing and flip the latch on the top of the unit all the way over (180 degrees). The unit will also activate if it gets submerged. See page 48 for details.
7. Once in the water another head count should be taken. Everyone is to stay together as a group and adopt the Heat Escape Lessening Position (HELP).
8. Where proper distress message has not been sent or acknowledged, fire off one flare if there is a reasonable chance of it being seen. Use remaining flares when the possibility of being sighted is at its strongest.
9. If a MAYDAY call has not been made thus far – do so now (using waterproof handheld radio).

Remember: The coxswain is still in charge and everyone will be looking to the coxswain for advice, comfort and strength.

5. Flooding

Signs that a sealed compartment might be flooding:

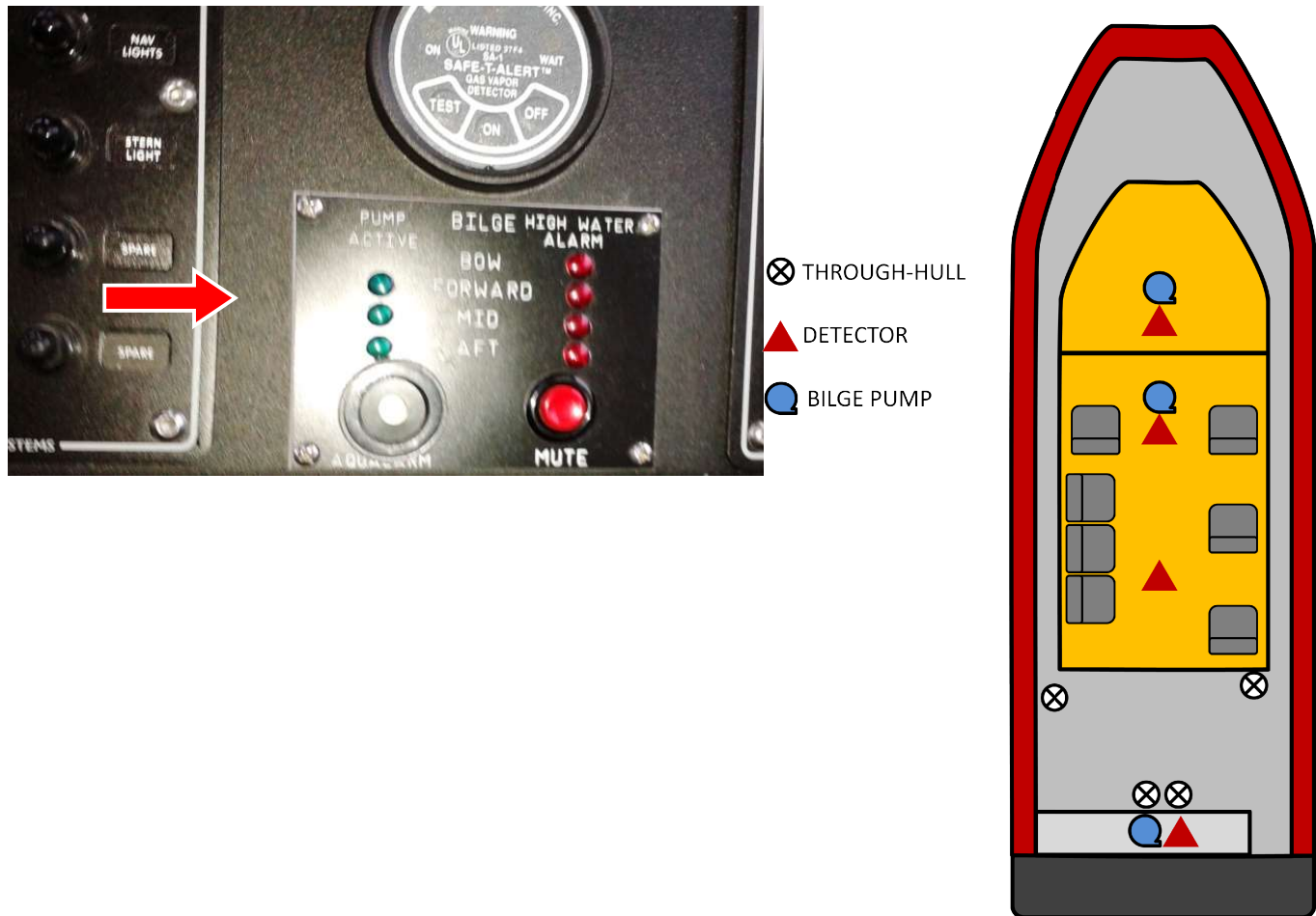
- Slowing of velocity compared with revolutions
- Sitting lower in the water; watch how the vessel sits in the water.
- Engine Temperature Rise: Could be a ruptured raw water cooling line.
- Sluggish steering or decreased stability.
- Grounding.
- Collision with another vessel, floating debris or fixed object.
- Excessive vibration.
- A big bang

When signs of flooding become apparent then certain steps need to be followed:

1. Raise the alarm
2. Establish where the water is penetrating the vessel's watertight integrity.
 - Above waterline.
 - Below Waterline (through one of the three through-hulls or through a hole caused by a mechanical impact).
3. Establish the degree of water entering the vessel.
 - None.
 - Slight, pumps can keep up with ingress, reduce ingress and run to closest port.
 - Major, pumps cannot keep up with ingress, reduce ingress by any means, and:
 - a. Prepare for abandonment
 - b. Beach vessel.
4. Inform coxswain of location and degree of seriousness.
5. Make emergency call according to prevailing circumstances.
6. Make sure electric bilge pumps are running (can clog, or limber holes can get plugged)*.
7. Repair any effected equipment, e.g. ruptured raw water line can be fixed with hose clamps.
8. If there is a hole in the hull, the ingress of water can be slowed by use of the damage control equipment stored under the seats on the starboard side of the cabin (mid-cabin under the radio seat). Use dewatering pump as necessary
9. Inform coxswain regarding status of water in hull. Is the level increasing? Decreasing? Maintain a watch over breach point until safe.
10. If pumps cannot keep up, prepare for abandonment (wait for signal from coxswain before abandoning).
11. Keep radio watch, upgrade emergency call where applicable and keep JRCC informed
12. Don't forget to cancel emergency call if situation is brought under control.

6. Sealed Compartments

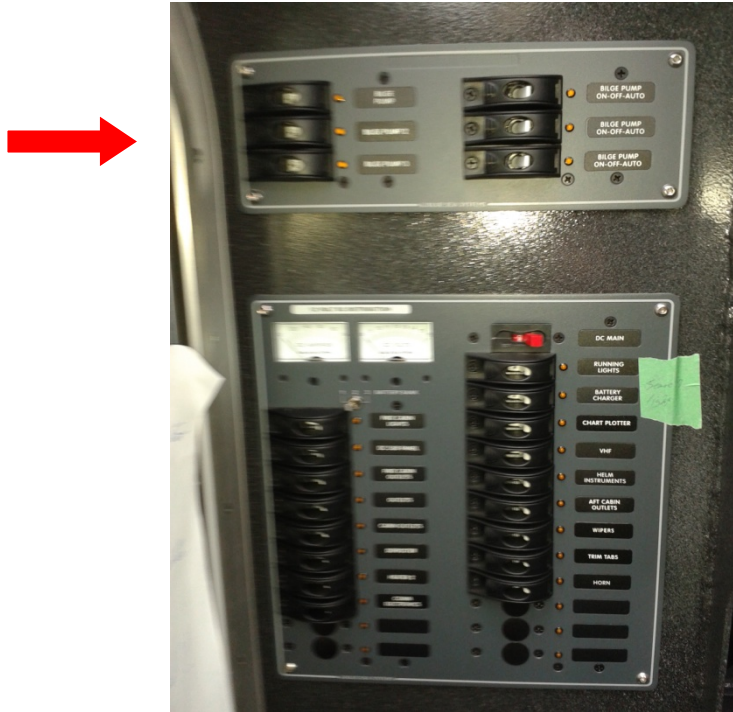
There are three sealed compartments built into the hull design of the Falkins Class. Each compartment has an automatic bilge pump and a high water alarm associated with it. The alarms are situated on the dashboard behind the steering wheel



The engine room compartment also has a manual bilge pump situated under the aft engine vent.



The electric bilge pumps can be operated manually by the switches on the 12V DC distribution panel. The breakers for the bilge pumps are also here.



7. Pollution Control

In the event of a fuel, oil, engine oil or coolant leak:

1. Turn off the Auto Bilge Pump to that compartment.
2. Try to isolate the leak. If only one engine is leaking, turn off the engine and advice JRCC and return to port.
3. Clean up leak thoroughly to minimize chance of pollution or fire.
4. Notify maintenance officer who will then advise the Unit Leader of the status of the vessel.

Medical Procedures and Survivors

Recovery from Water

See procedure under Man Overboard page 25.

Recovery from a Vessel or Land

On all occasions the situation will be discussed, and planned as part of the SAP process. The process of preparation of equipment is not to start until the vessel is off plane.

The crew attending will set up communications with CAPE LAZO, don protective gloves and masks where available, and take:

- a. stretcher or spine board or both. If the patient is brought on a spine board, laying the spine board on a layer of blankets in the basket stretcher can make the casualty more comfortable.
- b. first aid kits / oxygen
- c. blankets (if needed)

The stretcher will be generally placed on board CAPE LAZO on the port side of the main cabin. This is the best position for monitoring the ABCs of a patient and administering CPR if required. It is also best if the patient can be laid on the spine board with blankets underneath to provide insulation.

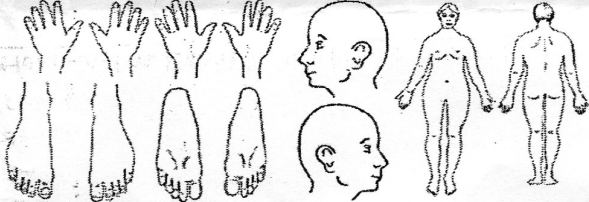
Heat treat if required can be administered on board CAPE LAZO. See page 42.

The vessel will be driven at an appropriate speed to allow care for the patient en route, giving due consideration to the comfort and condition of the patient, and superior level of care that can be provided by EHS once ashore.

If there is any doubt as to the condition of the survivors, vessel is to specifically ask JRCC for EHS to attend nearest practical location. All patients must be treated all the way to the dock, and handed over to EHS with full history (see next page) and advice as to what treatment has been applied up to the handover.

Multiple survivors may require distribution around the vessel, subject to the mission.

Stock No. 343-08-BC – September 2009

MARINE FIRST AID - PATIENT CARE RECORD			
Date _____		Location _____	
Patient name _____		SECONDARY SURVEY – History (SAMPLE)	
☐ Male ☐ Female ☐ Age _____		Symptoms _____	
Address _____		Allergies _____	
City _____		Medications _____	
Province _____ Postal Code _____		P/P Medical History _____	
Phone _____		Last meal/Doctor's visit _____	
First Aider		Events leading to incident _____	
Name _____		PAIN (OPQRST) non-trauma head/chest/abdomen	
Address _____		Onset _____	
City _____		Position _____	
Province _____ Postal Code _____		Provocation _____	
Phone _____		Quality _____	
History of Illness / Mechanism of Injury		Radiation _____	
		Relief _____	
		Severity _____	
		Timing _____	
SECONDARY SURVEY - Vital Signs		Head-to-Toe Exam (mark injured or exposed areas)	
Time _____	LOC		
	Eyes		
	GCS or AVPU		
	Verbal		
	Motor		
	Breathing		
	Rate		
	Effort		
	Pulse		
	Rate		
	Strength		
	Rhythm		
	Skin		
	Colour		
	Temp		
	Condition		
	Pupils		
	Size (L/R)		
	Reaction +/-		
Pupil Sizes		Physical Findings _____	
		Critical Care	
9 mm 8 7 6 5 4 3 2		airway ☐ cleared ☐ maintained ☐ oral airway	
AVPU Score		☐ nasal airway ☐ oxygen ☐ LPM ☐ BVM	
A = alert V = responds to voice P = Responds to pain U = Unresponsive		☐ suction ☐ AR ☐ assist breathing	
Glasgow Coma Score		☐ CPR ☐ bleeding controlled ☐ assist with meds	
E = Best Eye Opening Response V = Best Verbal Response M = Best Motor Response		☐ Other _____	
4 = Eyes open spontaneously		Ongoing Care	
3 = Eyes open to voice		☐ Spinal Immobilization	
2 = Eyes open to pain		☐ Limb immobilization ☐ Heat ☐ Cold	
1 = Eyes do not open		☐ Traction ☐ Transportation (specify) _____	
Comments:		☐ Other _____	
5 = Oriented			
4 = Confused			
3 = Inappropriate words			
2 = Incomprehensible sounds			
1 = No response			
		6 = Obeys commands	
		5 = Localizes pain	
		4 = Withdraws from pain	
		3 = Decorticate response	
		2 = Decerebrate response	
		1 = No response	

Basket Stretcher

The basket stretcher is stowed in the forward cabin on the starboard side. It should be properly lashed when under way. All medical equipment is stored in the stretcher and should be properly secured.

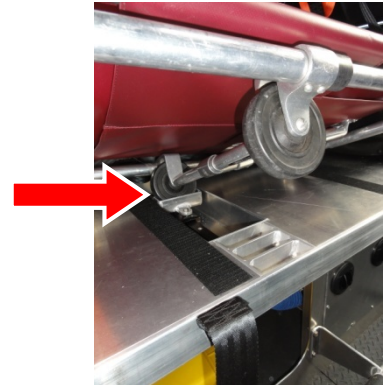
Ambulance Stretcher

CAPE LAZO can accommodate a standard #9 ambulance stretcher in the main cabin on the port side bench.

1. Remove the bench cushions and the white foam inserts.
2. Carry the stretcher into the cabin with the wheels facing forward.



3. Insert the port wheel in the forward sliding groove, and the port foot in the aft sliding groove.

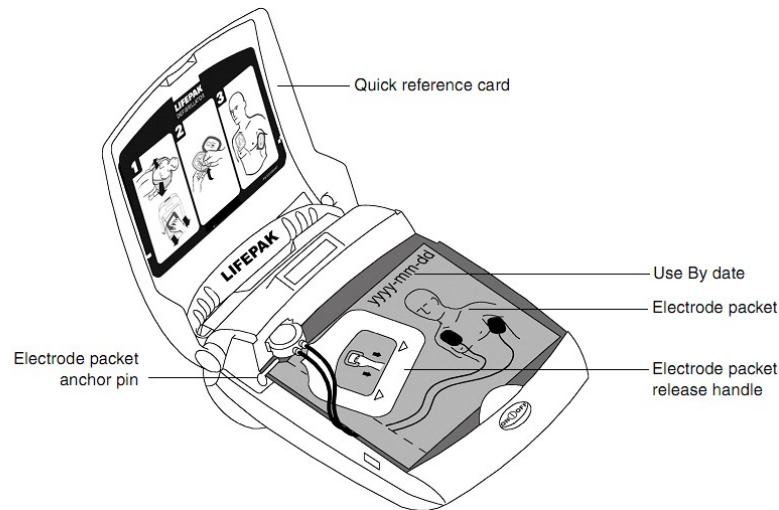


4. Slide the stretcher sideways into position and place the starboard wheel and foot in the fixed grooves.
5. Secure the patient and stretcher with the two safety belts.



AED

CAPE LAZO carries a LifePack CRPlus AED .



Voice instructions and tones:

Defibrillator voice instructions provide clear, step-by-step instructions for responding to a victim in cardiac arrest. In addition, your defibrillator may emit sounds that alert you to the actions that the defibrillator is performing.

Note: A few seconds may pass between voice instructions and tones. Always wait for further instructions before taking action.

Note: Some voice instructions will repeat during the defibrillation process.

Responding to an SCA emergency using the defibrillator involves these basic steps:



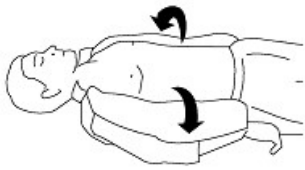
1. Determine if the victim is in SCA. A person in SCA will not respond when you try to shake him or her.



2. Check for breathing by listening next to the victim's mouth and looking for chest movement.

Use your defibrillator only if the victim is not responding, not moving, and not breathing normally or not breathing at all. If in doubt, use your defibrillator.

Place your defibrillator near the victim and on the side next to you. Press the ON/OFF button to open the lid and turn on your defibrillator. Remain calm. Your defibrillator will guide you through the defibrillation process.



3. Expose the victim's chest. If the chest is excessively hairy, quickly shave the hair in the area where you will place the pads. If the chest is dirty or wet, wipe the chest clean and dry. If there are medicine patches on the victim's chest, remove them.



4. Hold down the left side of the electrode packet with one hand and pull the red packet handle down with the other. The electrode packet tears open.

Tear open the packet completely to remove the pads. A small piece of the packet will remain attached to your defibrillator.



5. Separate the electrode pads, one at a time, from the blue plastic. Use these pads on adults or children 8 years of age or more, who weigh 25 kg (55 pounds) or more. For infants or children who are less than 8 years of age or who weigh less than 25 kg (55 pounds), special electrodes are needed.

WARNING!

If you cannot determine a child's age or weight, or if special infant/child electrodes are not available, proceed with the existing electrode pads, and continue on to the next step.



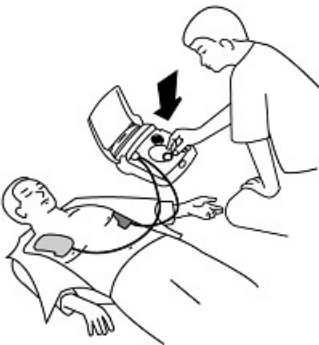
6. Apply the electrode pads to the victim's bare chest (exactly as shown in the picture on the pads). Be sure to press firmly so that the pads completely adhere to the victim's chest.

Note: Be sure you do not place the electrode pads over an implanted device such as an implanted pacemaker or ICD.

An indication of an implant is a protrusion in the chest skin and a scar. If you are in doubt, apply the pads as shown on the labels.



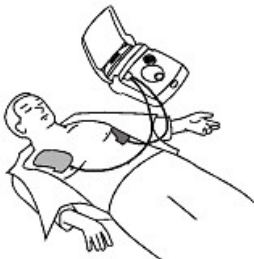
7. Listen to voice instructions and do not touch the victim unless instructed to do so.



8. If the defibrillator heart rhythm analysis determines that a shock is needed, the defibrillator will announce *PREPARING TO SHOCK*, and then instruct you to *PRESS FLASHING BUTTON* to administer a shock (semiautomatic model) or it will announce *PREPARING TO SHOCK*, and then automatically administer a shock without requiring further action (fully automatic model).

Do not touch the victim while a shock is delivered.

Regardless of which model you have, continue to follow the voice instructions.



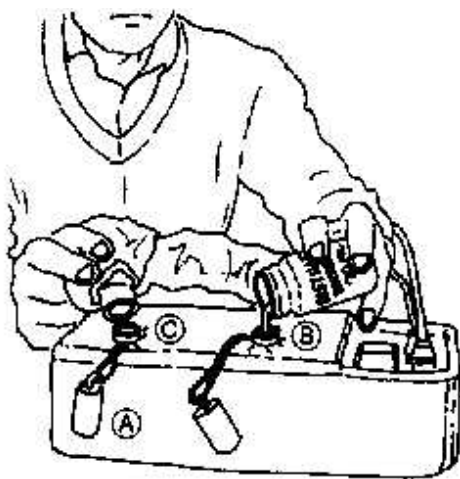
9. Do not remove the pads or disconnect them from the defibrillator until emergency medical personnel arrive. If the victim starts moving, coughing, or breathing regularly, place the victim in the recovery position (as instructed in CPR training) and keep him or her as still as possible.

Use of Heat Treat (Res Q Air)

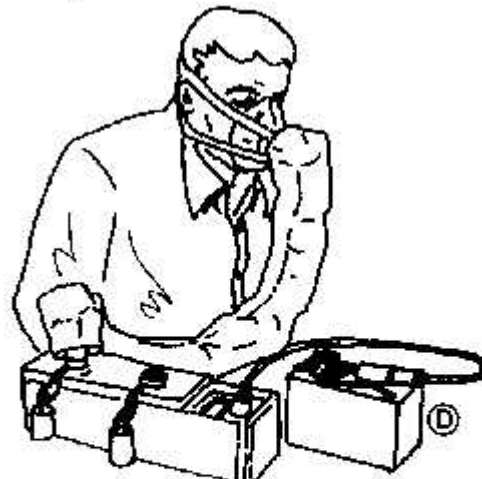
CAPE LAZO carries the HT 1000 Res Q Air.



This is a method of providing core warming to a hypothermic patient. It may be applied directly through a facemask, or in conjunction with rescue oxygen.

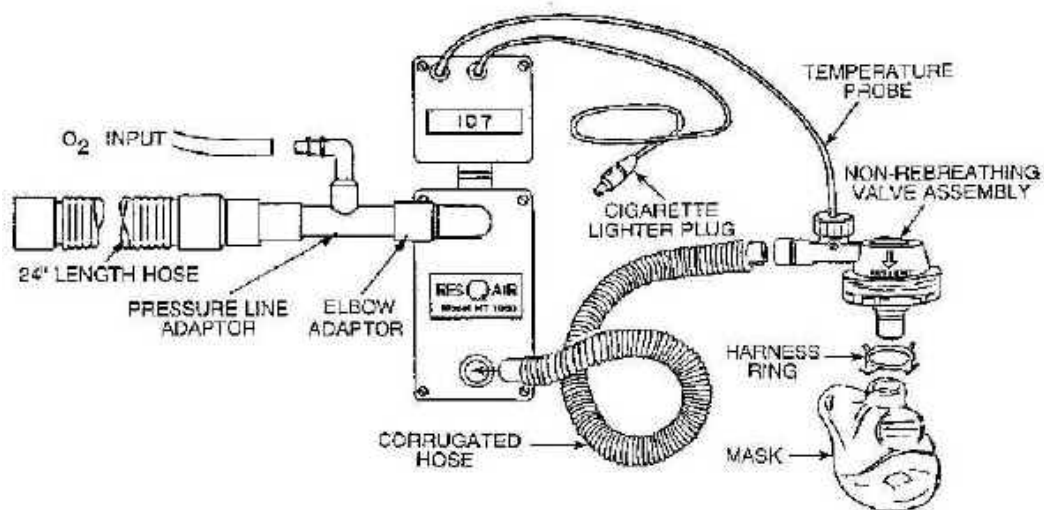


1. Remove protective dust caps (A) Do not replace when unit is in use.
2. Pour 70 ml (2.5 oz.) distilled water into inlet port (B)
3. Attach airway to lower port (C)

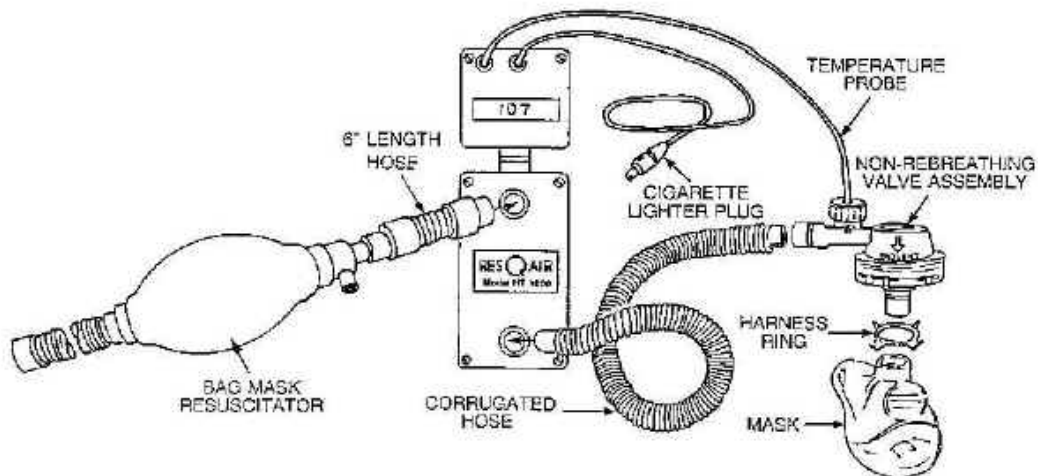


4. Attach power cable to battery (D) (or 12VDC power supply or vehicle power)
5. Attach mask and head harness to patient making sure HT 1000 is positioned lower than the patient's face

WARMING AND HUMIDIFYING O₂ HOOKUP PROCEDURE



BAG MASK RESUSCITATOR HOOKUP PROCEDURE



Raymarine E-Series Networked Displays

CAPE LAZO uses Raymarine E90W Electronics. There are three screens on board the vessel. Two are located at the front of the cabin, on the port side navigation seat. The other is located mid-cabin, on the starboard side at the radio seat. There is also an information screen located on the starboard side of the helm seat.



The top screen at the navigation seat is the master. It should be turned on first and shut down last in the start-up sequence. As indicated by the vessel start-up procedures, the electronic screens should be turned on in a counter-clockwise direction starting from the master screen (indicated in the photos above).

For more information on the operation and use of the Raymarine E90W Electronics, please refer to the Falkins Class Training Manual.

Cleaning the display

Take care when cleaning the display, to avoid damaging it.

- Do not wipe the display screen with a dry cloth, as this could scratch the screen coating.
- Do not use acid, ammonia based or abrasive products.

Regularly clean your display as follows:

1. Switch off the power to the Display.
2. Wipe the Display with a clean soft cloth. To remove oily finger marks use a spray cleaning agent of the type used for cleaning eyeglasses. A suitable micro-fibre cloth is supplied with your display and spray can be purchased from your local optician.

Communications

Loudhailer

CAPE LAZO uses the Raymarine RAY430 Loudhailer. The Loudhailer unit is located in the navigation seat to the right of the E90W units.



The Loudhailer unit allows for inside-outside communications between crew members or from vessel to vessel in a close quarters situation where VHF communication has not been established. The Loudhailer can also be used as a fog signal/siren/yelp.

Loudhailer Operation

1. Turn the ON/OFF button clockwise to turn the unit on. This button also adjusts the dimmer backlight.
2. Turn the Hail Output button clockwise to control the output volume of the external speakers.
3. Adjust the Listen Control button to adjust the sensitivity of the input speakers on the fore and aft decks.
4. Select the Hail, Fog or Aux buttons to select mode.
5. Select the Forward, Aft, or All button to select speaker outputs.

Always perform a test with a crew member on the outside deck when setting up the Loudhailer. It is very difficult to gauge the volume level from inside the cabin.

For more detailed instructions on operation and use of the Raymarine RAY430 Loudhailer, refer to the Falkins Class Training Manual.

VHF Radios

CAPE LAZO uses iCOM VHF Radios. There are two located on board; an IC-M504 forward in the navigation seat on the port side of the vessel and an IC-M504 mid-cabin on the starboard side.



Radios should be on High Power (25 Watt) and checked frequently for proper Squelch levels. Standard settings are Channel 16 on the forward radio and scanning channels 19, 61A and 83 on the mid cabin (Radio Seat) radio.

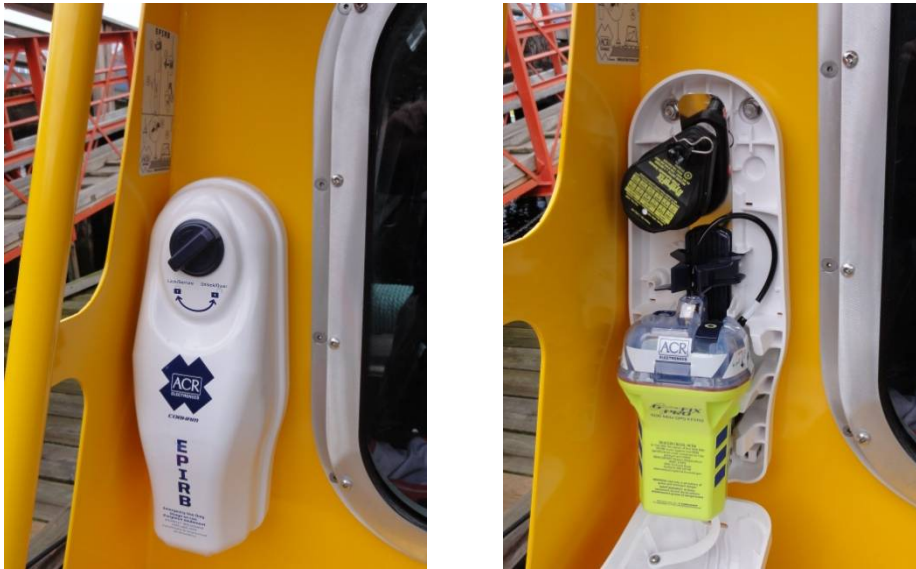
For more detailed instructions on the functions and use of the iCOM IC-M504 and IC-M504 radios, refer to the Falkins Class Training Manual.

Personal VHF

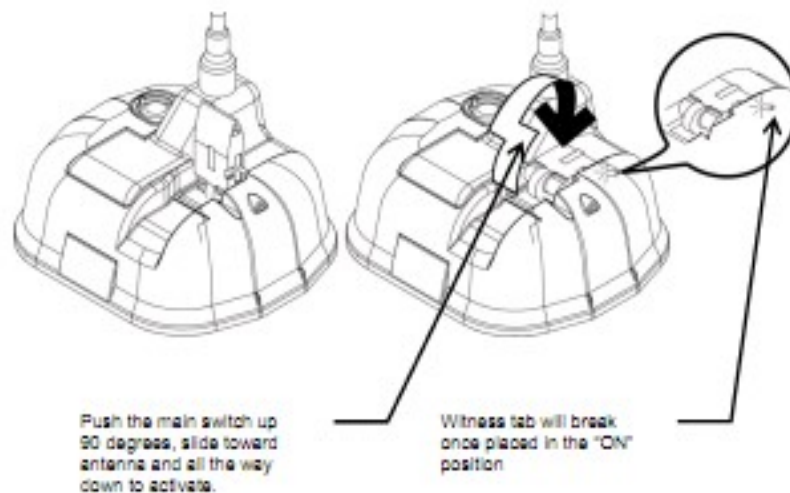
There are numerous models of portable VHF's that crew members must carry in their SAR vests. These VHF's are waterproof but are not intrinsically safe, and therefore are not be used in potentially explosive atmosphere, such as during fuelling. On operations portables will likely be set on 19A.

Emergency Position Indicating Radio Beacon (EPIRB)

CAPE LAZO has an ACR GlobalFix iPro EPRIB on the port side of the cabin aft bulkhead.



Manual deployment and activation



1. Rotate the housing release knob anti-clockwise to release the housing cover.
2. To remove the housing cover,
3. Remove the EPIRB from the bracket.
4. Lift the switch to a vertical position.
5. Slide the switch towards the antenna.
6. Push the switch down to the opposite side of the beacon.

The EPIRB will now be operational. For best performance it is important that the EPIRB is in an upright position with a clear view of the sky and as far away from any metallic structures as is possible.

Take the EPIRB with you if you abandon CAPE LAZO. A lanyard is provided to tether the EPIRB.

Automatic Operation

The EPIRB will sense when it has been placed in water and automatically begin to operate, after a short delay, in the same manner as described above.

Note: as the EPIRB is mounted in a float free housing, in the event that the vessel sinks the EPIRB will automatically be ejected from the housing allowing it to float to the surface and begin transmission.

TO STOP BEACON: If the EPIRB has been inadvertently activated or the emergency situation has passed, it can be turned off simply by returning the switch to the OFF position

If the EPIRB was automatically activated by placing in water, remove from the water and dry. The EPIRB will automatically switch off after approximately 15 seconds.

Please notify the Station Leader if the EPIRB needs servicing.

False Alerts

If a false alert is initiated, by any means, it is important to contact the nearest search and SAR-authority and inform them of the false alert. Report the following information:

- a. EPIRB UIN = 278C75313CFFBFF
- b. Date, time and duration.
- c. Cause of activation.
- d. Location when the alert was activated.
- e. Location at time of deactivation.

Datum Marker Buoy Beacon



CAPE LAZO carries a Novatech RF-7000 Beacon as Datum Marker Buoy. The beacon emits single bursts on VHF Channel 15 and can therefore be located with the Radio Direction Finder described below.

1) Activating the beacon:

Always first attach the DMB beacon to the Man Overboard Pole and Strobe to the Plastic ring above the skirt.

To switch on the DMB beacon: turn the plastic top cap clockwise. Do not over tighten. After a second or two the red LED light in the cap will start flashing. This confirms the beacon is emitting. You can easily check if the beacon is working by tuning one of the VHF radios to channel 15 and hearing the bursts every two seconds.

2) Deactivating the beacon:

To switch off the DMB beacon: turn the plastic top cap 1/2 turn anti-clockwise, until the LED stops flashing.

3) Troubleshooting:

If the beacon does not emit: do not over tighten the cap! Brute force has already killed this beacon a few times. Remove the cap and:

- check the batteries;
- check if an excess of silicon grease might be insulating the top of the battery tube;
- check if the rubber gasket is properly positioned in its groove above the threads in the cap;
- check if the cap was properly threaded on to the tube: put the cap back on, turn anti-clockwise until you feel a "click", then gently turn clockwise to tighten the cap.

4) Replacing Batteries:

When replacing the batteries, make sure the threads of the tube are properly greased with silicon grease and that the gasket is properly positioned in its groove above the threads in the cap. Both silicon grease and the gasket are needed to ensure proper waterproofing.

To put the cap back on, turn counter-clockwise until you feel a "click", then gently turn clockwise to tighten the cap. Turn the cap all the way to ensure the LED flashes, then go 1/2 turn anti-clockwise to deactivate the beacon.

Radio Direction Finder

VHF / 121.5 Radio Direction Finder

CAPE LAZO carries a TD-L1550A radio direction finder. It is primarily used for 2 purposes



- Tracking the position of the Datum Marker Buoy on Channel 15

- Finding the bearing of a vessel which has an open microphone (continuous transmission) on Channel 16.

Mobile Telephone

Installed At Communication Position **250 897 4150**

Intercom System

SAR-1 is equipped with a David Clark crew intercom system. This system allows up to seven crew members to clearly hear all crew communications and any incoming calls on both VHF units. Five headsets are wired (fixed) units. Two headsets are wireless and can be used on deck. The wireless units are stored in a blue pouch on the aft port wall of the main cabin.

Intercom System use

If the intercom system is used, **all** crew members must wear their headsets to ensure proper communication.

1. When ready to use the intercom system:
 - a. Coxswain calls “**On Comms**” and **all** crew put on their headsets.
 - b. Coxswain does a role call to verify proper intercom communication with every crew member.
 - c. Crew in seats #2 and #3 adjust the volume on the VHF units.
2. When any crew member needs to remove their headset to move around the cabin:
 - a. Coxswain calls “**Off Comms**” and **all** crew remove their headsets.
 - b. Crew in seats #2 and #3 adjust the volume on the VHF units.

At the coxswain’s discretion if headsets are impeding a search (or any other) operation, **all** crew must go off the intercom system and the vessel loudhailer system must be used for proper communication with the crew on the outside decks.

The intercom system is exclusively for use on SAR-60 and on vessels tied alongside SAR-60. The intercom system must **not** be used by crew members on third party vessels, or on shore. In such cases the portable VHF radios must be used (usually on channel 19A).

Intercom Operation

All headsets are controlled by a central intercom control box mounted on the side of helm dashboard. During normal operations the settings of the central control box should not be altered. To change a setting: press MODE until the desired setting is displayed, then use the up/down buttons to alter the setting. The TX1 and TX2 buttons allow to select which VHF unit will transmit when the push to talk buttons at seats #1 and #2 are used. The VHF at seat #2 is TX1, and the VHF at seat #3 is TX2.



Wireless communications are managed by a base station mounted on the side of helm dashboard. During normal operations the settings of the base station should not be altered.



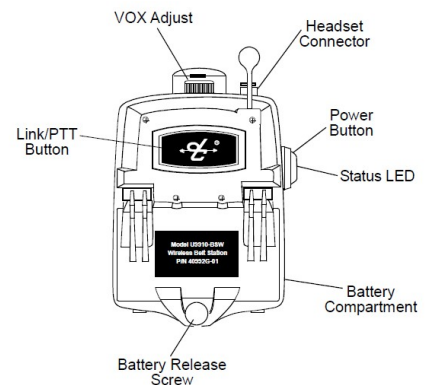
Crew members can adjust the volume for each ear on their headsets. The headset can also be placed in mute mode by pressing the switch on the dome opposite to mike boom. Pressing the switch again enables the mike.



Headsets are of the “behind the head” type. The adjustable Velcro strap goes over the head; the solid clamp goes behind the head.

Place the microphone directly in front, and very close, to your mouth – no more than 1/4” from your lips. The microphone has a noise cancelling filter which will cut out all transmission below a certain noise level. You must therefore speak clearly and close to the microphone.

The wireless units must be turned on by pressing the round power button on the side of the battery pack for 2 seconds, and then waiting until you hear the message “connection established”. If the connection fails, press LINK on the base station and the PTT button on the battery pack simultaneously for approximately 1 second. This procedure will sync the units together.



The VOX level should be adjusted as follows:

1. Stand in the noisy environment where you will be using the system but do not speak.
2. Turn VOX knob fully counter-clockwise. You will hear a continuous tone.
3. While continuing not to speak, slowly turn the VOX knob clockwise until the tone stops.
4. VOX is now optimally set for your environment.

The wireless units have a push-to-talk button on the battery pack that overrides the noise cancelling – this is useful in noisy environments such as the back deck. Press the PTT button to talk.

When done using the wireless unit, switch the unit off by pressing and holding the power button for 2 seconds. The status led will turn red and then off.

Batteries must be swapped at every Weekly Inspection and/or after prolonged use during a mission.

Mechanical Problems

There are a number of potential issues, which can cause alarms on-board. It is important to log and troubleshoot each alarm as thoroughly as possible. When an alarm goes off:

1. Determine the source and type of alarm
2. Take note of the alarm details from the Warning Manager on the 4" Volvo screen
3. Acknowledge the alarm by pushing the OK soft key.



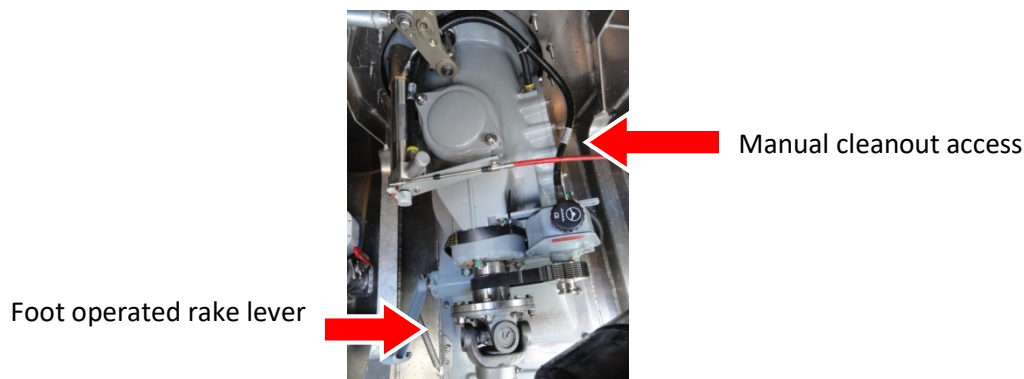
4. Refer to the Troubleshooting section of the flip chart on board the vessel.

Maximum rpm in forward or reverse propulsion is 3500 rpm. Ideal cruising speed is between 3100 and 3150 rpm

Fouled Jet

If engine loses power, vibrates or revolutions fluctuate, the inlet screen on a jet may be partially or completely blocked. Rectify by:

1. Bring vessel to complete stop. Place bucket control levers in the full forward position.
2. Place the transmission in reverse, one engine at a time to try and clear the blockage.
3. If no success, ensure bucket of fouled jet is up (jet lever fully forward), transmission is in forward gear on the non fouled side and the non-fouled bucket in reverse (aft position) at 2000 rpm's, to make sternway, to create backflow through the fouled jet.
4. Run for approximately 10 seconds
5. If this does not work, try to clear the object using the foot operated rake lever in the engine compartment at the rear of the vessel
6. This should clear input screens. If pump (jet) does not turn when engaged, return to home port. Manually cleaning out the impellers should **not** be attempted when underway.



ENGINE ALARMS

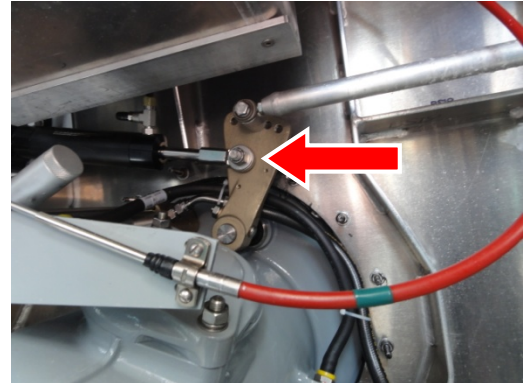
If the engine alarm sounds, check the gauge cluster to see what is causing alarm to sound. Log error and notify maintenance officer at the earliest opportunity.

If practical, use the vessel-troubleshooting checklist to attempt to resolve the problem.

Emergency Steering

Steering is hydraulic.

1. Disconnect hydraulic cylinder from steering rod (under the engine batteries, starboard side)
2. Push and brace nozzles in amidships position
3. Steer with bucket control or varying revolutions on engines
4. Return to the Rescue Station. Maneuvering ability will be greatly reduced.



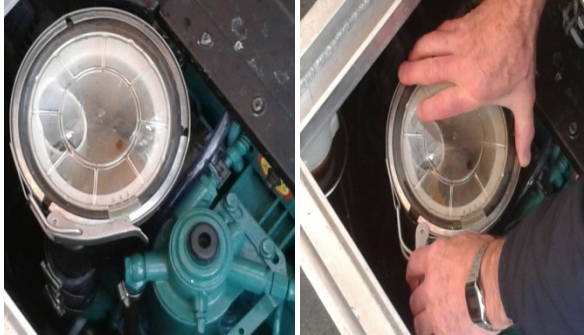
Emergency Stop

1. Emergency stops are very hard on equipment and should only be used in situations where there is no other option.
2. When under way and making way if an immediate stop is required, pull the buckets quickly back from full ahead to full astern. The bow of the vessel will dip down and the vessel will stop rapidly.
3. It is **critical to sound a verbal warning prior to making an emergency stop.**

Overheating

During shallow water operations, it is very easy for the raw water coolant intake to become clogged, causing the engine to overheat.

1. Following all shallow water operations, check the raw water intakes for debris.
2. Upon return to the Station, clear out the raw water intake strainers
 - a. Remove the strainer caps using quick release clamp. Ensure "O-Ring" is not displaced.



- b. Pull the strainer out. Reach into the strainer cup to remove any excess debris.



- c. Dump debris out of the strainer.
 - d. Re-insert the strainer; seat it properly in the cup.
 - e. Check the "O-Ring" is in place and replace and secure the cap