



# VOGELVLEI YACHT CLUB RESCUE MANUAL

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# 1. Introduction

The purpose of this document is to provide a common point of reference and to set a minimum standard for rescue duty at Vogelvlei Yacht Club (VYC). This rescue manual is by no means a complete and comprehensive reference document. It is intended to be an evolving document, its contents should be updated on a regular basis to encourage lessons learned from experience to be shared and communicated to all involved.

Currently, VYC has 3 primary rescue crafts and 1 general purpose rubber duck:

- **Ceaser Duck** 5.5 meter rigid inflatable boat (RIB) with a single 90HP four stroke Honda fuel injection engine. It's an electric start motor with a combination gear and throttle selector.
- **Wild Gander**. 16ft vessel with twin 30HP Yamaha two stroke engines. It has combination gear selectors and throttles for both engines.
- **Wild Gosling**. 14ft vessel with twin 30HP Yamaha two stroke engines. It has combination gear selectors and throttles for both engines.
- **Rubber Duck**. Inflatable vessel with a single 30HP two stroke engine. It is stored in the workshop garage and should only be used as an emergency rescue boat on non-racing weekends. It is not locked and can be used by any VYC member in the event of an emergency. It is also used as a general utility boat during organized events and racing weekends.

## 2. Power Boat Basics

### 2.1. *Fueling*

The two stroke engines of the VYC rescue craft require that two-stroke oil is mixed in exactly the correct ratio of 1:100 with unleaded fuel. At VYC, we follow a convention that when a fuel tank is refueled, it is always pre-mixed with the correct ratio of two stroke oil. In other words, a stored fuel tank should always be pre-mixed with exactly the correct ratio of fuel and two-stroke oil at any time. Please do NOT add two-stroke oil yourself. The tanks should be topped-up and ready before each race weekend.

The four stroke engine which is the Honda engine on the Ceaser RIB is ONLY to be operated with clean unleaded fuel. The boat will be refueled by or on command of the rescue committee member. The boat has built in fuel tanks with fuel caps on the back of the transom.

## **2.2. Boat controls**

### **Controls for all craft except the Ceasar RIB:**

At VYC, the rescue boats have simple steering wheel clusters with gear selector and throttle controls. There is no electric starter. At the back are one or two engines (depending on the craft), each with a manual starter, kill switch, choke, tilt lock mechanism and manual rubber fuel pumps leading to the fuel tank.

### **Controls on the Ceasar RIB:**

The Ceasar has a steering console with the steering wheel, fish finder GPS, speedometer, rev counter and tilt meter mounted on top. The gear and throttle selector is mounted on the side with the key hole in the bottom. It's electric start operated with no choke as it's fuel injection. On the throttle unit are two lights, one for the engine checks and the other for the battery charging. The emergency switch and cord is also on this unit and sits towards the front of the key.

### **2.2.1. Throttle and gear selection on Wild Gosling**

The port and starboard engines are controlled from 2 combinational throttle and gear levers (the same lever controls throttle speed and gear selection). The centre position is idle and can clearly be felt as the position where there is no friction. Pushing the gear lever(s) forward engages forward gear, and backward reverse gear. Never go from forward to reverse without waiting for the revs to drop in idle. The more forward (backward) the gear lever, the higher the revs in forward (reverse) gear.

Increasing the revs when gear is in neutral, is done by pulling the gear lever base plate firmly outwards the sides, and then pushing the lever(s) gently forward.

### **2.2.2. Throttle and gear selection on Wild Gander**

The port and starboard engines are controlled from 2 combinational throttle and gear levers (the same lever controls throttle speed and gear selection). The centre position is idle and can clearly be felt as the position where there is no friction. There is a red locking mechanism in the handle of the throttle lever which needs to be pushed in to put the lever in either reverse or forward.

Increasing the revs while in neutral is done by the flat idle levers below the gear selector. Note that when these levers are engaged the gear selectors will not go into forward or reverse.

### **2.2.3. Engine Tilt**

#### **All craft except the Ceasar RIB:**

To tilt an engine, press the small square lever on the engine mounting bar down with one hand, while lifting the engine using the recessed handle at the back of the engine. When in tilted position, lock the engine in the tilted position using the black small round knob on the left of the engine to insert the lock bar into the mounting hinge.

#### **Ceasar RIB:**

There is two tilt/lift switches on this boat. The one is located on the side of the gear/throttle selector handle and the other is on the right side of the engine. There is also a tilt meter on the dashboard that will show you how far the engine is tilted. Note this is only for the tilt of the engine and not for the lift. When driving the boat the tilt meter needs to be in the middle of the gauge showing a level engine.

To lift the engine just keep tilting it up until u can see the engine lifting up faster. Be careful to not lift the engine too far. The engine should not be touching the A frame on the back of the boat.

### **2.2.4. Starting the engine (NEVER start an engine on land!)**

#### **All craft except the Ceasar RIB:**

Before attempting to start an outboard, make sure the rubber fuel pump on the fuel line is pumped to make sure there is fuel throughout the whole system.

When cold, a moderate amount of choke should be used (about half way position) before starting the engine using the pull chord. Always make sure the engine gears are in neutral, and always apply a small amount of throttle (with gears neutral). Be careful not to flood the engine(s), and rather keep the throttle position slightly above idle position (but gear(s) must remain in neutral) while using the choke conservatively.

Before starting an engine, ensure that the safety circlip is engaged and that the lower part of the engine (propeller) is submerged in water.

#### **Ceasar RIB:**

For the RIB the only thing you need to do is to turn the key. Only turn it over until it starts, or if it doesn't start the first time, not more that 5 seconds at a time or until it started.

Once it started let it idle for 10 - 20 seconds or so before you put it in gear. Unless it's very cold it is not necessary to rev the engine and it doesn't have a choke. It's a fuel injection engine and will regulate the revs with the computer, so just give it a few seconds to 'warm up'.

Before starting the engine make sure it's lowered till the engine it submerged in the water.

### **2.2.5. Safety Cut-Off and safety switch**

#### **All craft except the Ceasar RIB:**

On the right front side of the engine is a red button with a plastic circlip. To stop the engine, press the red button. In an emergency, simply pull at the rope attached to the plastic circlip to disengage the circlip. Remember to re-insert the circlip before starting the engine.

#### **Ceasar RIB:**

Just in front of the key is the red cut-Off switch. The red cord must always be worn when driving the boat. If the cord is pulled and the circlip pulls out, the engine will be cut. In the top part of the control unit there is a spare circlip slided in a slot for emergency use.

When operating the boat in normal situations, the engine is stopped by simply turning it off at the key.

## **2.3. Starting up**

- Always check that the bungs are inserted and secured before launching a rescue boat into the water,
- Never start an engine unless the propeller is submerged in water. The water is sucked into channels which cools the engine. Starting an engine which is not water cooled will cause the engine to overheat instantaneously and can cause permanent damage.
- When in shallow water, make sure the engines are tilted so that they do not touch soil & stones at the bottom.
- Push the boat to a depth where the engines can be lowered without touching the bottom. To release the tilt lock, pull the lock pin on the side of the engine with one hand, and lower the engine with the other hand.
- Ensure that the kill switches are in the running position.
- Ensure the fuel tank(s) are full and connected to the engine(s).
- Make sure the air vent screw on the fuel tank is not tight. It should be half a revolution open to allow the tanks to breath.
- Pump the small rubber black fuel pumps manually until the fuel enters the engine's carburetors. When all the air is out, the rubber will become hard when filled with fuel.
- Open the choke slightly.
- Ensure the engine(s) is out of gear.
- Make sure that there is no-one near the engine in the water.
- Start the engine(s). Be sure not to flood it with too much open choke.
- When an engine fires up, provide sufficient throttle (still out of gear) to prevent the engines from dying, but DO NOT OVER-REV a cold engine.
- Be sure to keep those props away from shallow water and people. If necessary kill the engine immediately by pressing the kill switch on the engine.

## **2.4. Taking the boats out of the water**

The Ceasar RIB is not be dragged on tires at any time. It should always be launched last, so the trailer is still hooked up, and gets taken out first.

The craft are not be driven onto the trailers by unauthorized skippers. Driving a boat onto a trailer when you don't have sufficient experience can be tricky with the wind blowing and waves coming from behind. Making a slight error could cause major damage to the boat.

Maneuver the boat slowly to the rear side of the trailer and have someone drag the boat onto the trailer by hand or if it's still too heavy winch it up. Make sure the boat is on the rollers or in its track correctly.

When taking out a craft after a regatta on a Sunday, while on the trailer and still in the water, unplug the fuel lines at the engine and let it idle till it dies by itself. Not doing this will clog up the carburetors over time.

The Honda cannot and don't need to be run dry.

Always make sure the boat is hooked up to the trailer before you pull it out of the water.

After the craft is taken out of the water but still on the slipway, take out the bungs so any water can drain out. Put the bungs on the transom so it can't fall of.

## **2.5. Maneuvering**

When maneuvering a boat, always remember that any adjustment to speed and steering is indirect, i.e. the boat's hull takes time to react on any changes in steering inputs, especially at slow speeds. In other words, decrease speed well before the point where you want to stop, because the boat has momentum and will continue to move. Similarly, the steering takes time to react on the hull at slow speeds.

Before attempting complicated maneuvers, first practice on a stationary buoy before a race starts.

If you have a choice, approach a boat or person in the water against the wind, especially in strong wind. Remember, at slow speeds, the rescue boat is pushed in the direction of the wind, and therefore it is impossible to come to a complete standstill with the wind from behind unless the reverse gear is used.

Again, when the wind is moderate to strong, practice approaching an object in water (such as a buoy) when you have a moment, both downwind (using reverse gear) and upwind.

If at all possible, approach a sailboat or sailor in the water against the wind during a race. It is much easier to approach an object in the water against the wind, an approach with the wind will cause the rescue boat to drift into the object and may require difficult and dangerous maneuvering using the reverse gear.

Approaching a buoy downwind will result in the boat slightly running over the anchor ropes when pulling up the anchor which is not an ideal situation as the rope can get caught in the propeller.

## **2.6. Safety Procedures**

- Never let an engine run with the propeller not submerged in water.
- An engine in gear with the prop spinning is similar to an electric carving knife – keep it far away from people or obstacles.
- If an unsafe situation arises, prepare and instruct your crew to pull the safety cord of the cut-out switch without hesitation. Practice this (not with a person in the water ☺).
- When picking up a person in the water, or even just approaching a person in the water, always keep a safe distance between the engine and the person. If the boat drifts dangerously close to a person in the water, select neutral immediately when the engine is within 3 meters from the person.
- If the rescue boat drifts by accident over an object and the object is beneath the boat, select neutral immediately. In the unfortunate event that a person is in the water and comes close to the engines (or beneath the boat), cut the engines instantaneously.
- If a rope gets caught in the prop, switch off the engine before tilting it and removing the rope.
- When in shallow water, be very aware of stones, tree trunks and the bottom. If you approach the water edge sideways or with the aft side towards land, switch off and tilt the engine(s) a few meters before you touch the water edge.
- Life jackets are mandatory. If the wind picks up, the skipper and crew must wear their life jackets.

## **2.7. Radio Operation**

VYC has a number of two-way push-to-talk VHF radios. Channel 17 is used. Each rescue boat is assigned a call ID, typically “Rescue 1”, “Rescue 2”, etc, while the bridge officer is “Bridge”. When using the radio, press the PTT (push to talk) button for at least a second, speak into the radio handset, and then release the PTT button and wait for a response.

Always first establish radio communications with the other party, before stating your message. For example, say “Rescue 1 to Bridge, please come in”, then wait for an answer. Do not just start to talk, because the receiving party may not be attending to the radio at the time, or busy with something else. The other party should acknowledge the caller by stating “Bridge to Rescue 1, send over”. Try to end your speech with the word “over”, then

release your PTT button immediately, so that the other party knows when to reply. When you have completed the dialog, say "Out".

If you are on rescue duty, never leave the radio unattended. If you are the skipper, it is often more convenient to delegate the radio operation to a crew member.

## **3. Rescue Operations**

### **3.1. *The Rescue Axiom***

**"Safety comes first, always."**

### **3.2. *Race control***

All primary rescue craft (not the rubber duck) are under control of the bridge during a race and also during preparations to lay the buoys before the race. Rescue boats may return to shore after the race only when the bridge declares that the race is over and gives the rescue team permission to leave the water.

Rescue boats are for the use of race organizing and safety purposes. It's not there for joy rides around the dam while racing is on. Thus if you are not busy with a direct order from the bridge or with a rescue operation you are supposed to throw out your anchor, in order not to drift off too far, shut off your engines and stay where you are. Fuel is expensive and not to be used just for the sake of driving around.

The only reason for pulling up anchor would be a direct order from the bridge or if the skipper has reason enough to believe that his assistance might be required by a sailing boat.

### **3.3. *Laying and picking up of buoys***

The laying of buoys will happen on the instruction of your bridge officer. He will tell you more or less what distance he wants for the legs and will tell the rescue team exactly what to do. At laying the second mark (windward or leeward) it will also be required of the rescue to square up the course. It is therefore advisable to have a birgie on board to accurately determine the wind direction at the time.

The following is just basic tips when laying and picking up buoys.

#### **Laying a buoy:**

Always make double sure that the buoy, anchor and counterweight is attached to one another so you don't accidentally throw away a counterweight. (It has happened before...) Always try to throw an anchor into the wind so that you don't drift over the anchor rope while laying the mark.

When the dam are low, let the anchor down till where you feel it has definitely reached the bottom and tie up any excess rope so you don't have 15 meter rope drifting on top of the water.

**Dragging a mark:**

If the buoy is only to be moved a bit, first pick up the counterweight into the boat and hold on to the anchor rope while you slowly drag the mark to where the bridge wants it (be very aware of where the anchor rope is relative to your engines). When the order 'drop the mark' is given, throw out the counterweight away from the boat.

When the buoy needs to be moved, always pull up the anchor as well so that the move can take place quickly as this is mostly done just before the start of a race and dragging a mark that far will waste a lot of time.

**Picking up a buoy:**

When picking up buoys it's normally easier to approach a buoy from its leeward side. Head straight for the buoy until a meter or so away, bear of a little to stay on the leeward side of the buoy and have the crew on the right side waiting. Try to keep the anchor rope away from the side of the boat as far as possible. Over the long run the boats pick up significant damage to the sides from pulling up anchors with the rope chafing on the side.

Start buoys need to be put inside the boat where as the big inflatable buoys can be detached from the anchor and counterweight and clipped onto the stainless steel frame at the back to be dragged behind the boat.

The buoys must be lifted into the boat before the boats are taken out of the water so the buoys don't drag on the ground.

### **3.4. *Returning to the club during a race***

No rescue craft may return to shore during a race unless:

- The skipper requests and obtains approval from the bridge to collect refreshments during a very long and wind still race; or
- A passenger is on board that requires urgent medical attention (the skipper should still inform the bridge, but does not require permission if it is a life threatening situation); or
- A dangerous storm is raging and all sailors have safely returned or been returned to the shore; or
- The rescue craft is in danger of sinking.

### **3.5. *Right of way***

Sailboats always have right of way. Keep a safe distance from sail boats, and be careful not to create a wake behind the rescue boat which can disturb a sailboat. Also remember that a sailboat can tack at any time, so do not assume a straight line of projection, the sailboat can turn at any time and then the rescue boat must be out of its way.

### **3.6. *Positioning during the race***

During a race, do not enter the race zone, unless there is a sailboat in trouble. Keep well away along the perimeters of the race course, and do not cross the racing course unless there are no sail boats nearby.

A good place to “park”, is on the outside of a buoy (i.e. not in the racing area). Keep a safe distance away to allow sailboats sufficient maneuvering space.

Try and spread the workload between rescue craft by splitting the race course into sections. E.g. Rescue 1 operates on the north side and Rescue 2 on the south side.

### **3.7. *Casual communication between rescue and sailors***

Casual communication between a rescue boat’s crew and sailors are not permitted and may result in unwelcome disqualification of the sail boat. The rescue team should only communicate to sailors to provide official instructions as directed by the bridge, or to ask if rescue assistance is required if and as appropriate.

### **3.8. *Providing rescue assistance***

When approaching a capsized sail boat, first observe and assess the situation. Providing assistance to sailors results in immediate disqualification.

If it seems apparent that the sailor or sailors are struggling to regain control of a capsized sail boat and become fatigued, the skipper of the rescue boat should ask at his discretion if rescue assistance is required. If the sailor confirms and requests assistance, the rescue team should immediately assist as appropriate and either help the sailors to get the sailboat upright, or pick up the sailors from the water if they become too fatigued or the situation becomes too dangerous. In either case, the sail boat is disqualified and the rescue boat must radio the status to the bridge.

The skipper of the rescue boat should also exercise discretion and make a decision weather a sailor or sail boat should be rescued. In this event, the skipper has the right to step in and take action against the will of the sailor, and should throw a rope over the bow of the sailboat to indicate that it is being rescued. Although the sailboat is disqualified at that point, the safety of

the sailors always takes priority and it is within the judgment of the rescue boat's skipper to decide to intervene for the sake of safety.

### **3.9. Towing Sailboats**

Always lift up and take out all centre boards and dagger boards. Ensure that the rope pulls the bow of the sailboat, or at least a fixture (such as the mast) positioned towards the front of the boat. On some sailboats, the mast is positioned towards the centre if the point of momentum, and this can cause the sailboat to change direction under tow.

The tow rope must never be fixed with a knot to the rescue boat, because it must be possible to release the rope instantaneously if something goes wrong. Let the rope wrap around a fixture point two or three times, and let a crew member hold the end of the rope by hand. Releasing the rope by hand must free the sailboat in the event of an emergency.

If possible, also have a sailor hold the other end of the rope in a similar fashion, while operating the rudder to steer the sailboat.

Any boat, whether a sailing or other rescue boat, must be towed at low speed!

Remember, rescuing a person always takes priority over rescuing a vessel.

### **3.10. Refreshments**

The skipper and crew must ensure that they have sufficient liquids on board (soft drinks and drinking water) for the duration of the race, especially in summer. Energy bars or chocolates should be taken onboard during long races, especially in cold weather...

**Note:**

***The use and consumption of alcohol during a rescue session (i.e. during a race) is strictly prohibited, no alcohol is allowed on a rescue boat during rescue operations. This accounts for the whole rescue session until racing is suspended for the day, Sunday morning before racing started is also seen as part of the session. This is not just a club rule but national law.***

### **3.11. Essential Equipment**

- Life jackets for all crew
- Two way radio
- A sharp knife to cut a rope in an emergency
- Bucket to bail water out of a boat.
- Something warm to wear. The weather can change and can get very cold.

If you feel that anything is left out of this document or if you don't agree with some of the methods/statements, please feel free to contact your committee member for rescue with suggestions or any other contribution.