LYME REGIS SAILING CLUB Ltd

Safety Boat Driver Handbook (May 2018)

By Chris Joyner

INTRODUCTION

- This handbook was initially produced from an exercise to pool the collective experiences of the 2008 team of RIB drivers.
- Although produced some time ago, the information is still relevant and has been updated to include issues from recent incidents.
- The aim is to provide an aide memoire for experienced safety boat drivers, an update on equipment and procedure changes and a useful guide for the less experienced.
- The first part of the document deals with equipment and general issues to do with boat usage and operation.
- It includes health and safety issues and equipment damage risks highlighted by recent incidents, and precautionary measures to prevent further occurrence.
- In future, more serious issues that arise will also be publicised as safety boat driver updates and disseminated by email.
- The second part deals with operational procedures specific to safety boat drivers.

PART 1: EQUIPMENT AND BOAT USAGE

Essential Consideration for RIB Drivers

- To drive a Club RIB, drivers must be:
    - competent to a level at least equivalent to RYA PB2 or be under direct instruction, although they do not necessarily have to have a PB2 certificate.
    - registered as an approved driver by the Club.
    - be a Club member for insurance purposes.
- They should be familiar with the contents of this Handbook (see website), which should be read annually.
- They should be familiar with the Standard Operational Procedures, SOPs which apply to their operation, such as Refuelling and Launching and comply with those procedures.

- Drivers who are regularly using radios are encouraged to seek appropriate training (e.g. Marine VHF Short Range Certificate) since otherwise they are legally limited to using channel M and M2 and not international channels (including 16) unless they are under instruction.
- All drivers are reminded that it is their responsibility to check their boats against the Safety Boat Checklist to ensure that they are fully prepared and ready for service before launching and when taking over from another driver.
- They should return their boats in this condition on completion of the duty and report any faults as necessary to the Race Officer and Bosun.

- Before launching, always remember to insert drain plugs, raise snorkels and to release rear lines from the trolley where fitted.
- Radio communication should be established with the Beach Master before launching.
- When conditions are at all challenging, a handheld radio should be carried by at least one of the crew in case the safety boat rolls over resulting in the RIB radio being inaccessible.
- On no account should a RIB be operated without a crew in other than the most benign of conditions. A rescue is virtually impossible without a crew.
- RIB Drivers work under the direction of the Race Officer, who should be kept informed about what you are doing during racing events.
- Since large marks have the potential to be blown out of RIBs at high speed, they should be tied down before leaving the harbour.
- Take care to avoid fishing lines across the harbour entrance. Considerable damage can be caused to the bearings and seals on the prop shaft when nylon fishing line becomes wrapped tightly between the prop and the housing. On one occasion this nearly resulted in the lower part of the gearbox being written off at great expense.
- Be aware of local hazards such as the rocks to seaward of the Cobb, the harbour bar, other boat users entering and leaving the harbour, fishermen using the quay by the Harbour Master's office at high water and children on the beach.
- The tendency for people in the water to use the RIB steering wheel to assist themselves into the boat should be resisted, as it can damage the steering mechanism and result in the hydraulic oil leaking.
- Before engaging reverse gear, ensure that there is plenty of time for the revs to drop.
- Ensure that the engine is lifted when entering shallow water.

- Boats should never be left unattended by the steps on the North Wall. This is a particularly dangerous area during a falling tide and damage has been caused to boats left in this area.
- Registered drivers are encouraged to allow crew who have commenced PB2 Training to drive for some of a duty, if and when it is appropriate. This is one of the few feasible methods of enabling someone to gain the experience on the path to becoming a skilled safety boat driver.
- Please note that any health and safety incidents should be reported to the Club Health and Safety Coordinator by way of an Incident Report Form, copies of which are on the table in the Club Porch.

Oppie RIB

- The Icom 323G fixed VHF radio has a built-in GPS, to enable the DSG feature. This offers the operator the option to send out an emergency distress signal, whilst also transmitting the GPS co-ordinates and an MMSI number to enable the coastguard to understand what type of vessel you are and what resources may be needed in a rescue.
- Since our boats do not have MMSI (Maritime Mobile Service Identity) numbers, we cannot use this option.
- However, every time the radio is turned on, a message appears (see picture below) asking for an MMSI number and the radio beeps continuously.

- Respond to the message and stop the beeping by simply pressing the CLEAR button on the right-hand side of the radio screen.
- The radio will then display the following screen and be ready to use.

- If the radio is not tuned to channel 37a, then use the up/down arrows to select the channel and then press ENT to confirm.

Lyme RIB (i.e. 4.6m Highfield)

- Incidents have occurred because of the sensitivity of Lyme RIB's controls. Drivers should exercise caution until they become fully aware of its handling characteristics. Compared with the Humber and the old Rib Craft, the Highfield's controls are very free running. There is much less movement of the lever between engagement of the gear and the revs picking up and its lighter weight can make the initial acceleration quite fierce.
- Replace the drain plug before launching. This is on the transom connecting to the under-deck buoyancy tank.
- Make sure the electrical isolator is switched on. It is located forward of the controls.
- The bow of the RIB has a flat section which is vulnerable to impact. Extreme caution needs to be exercised especially when approaching steps or other solid objects which may slide under the tube distorting the flat plate and puncturing the Tubes.
- The fixings of the safety ropes on the top of the tubes are weak and showing signs of tearing. Drivers should endeavour to stop people using the ropes for pushing/pulling the RIB when launching and recovering it.
- Since the large metal lug on the bow can damage a dinghy when undertaking a rescue, the approach must be made at a suitably acute angle to avoid contact.

- The transom is quite low and when reversing water will slop over onto the deck. Since the seal between the deck and the under-deck buoyancy tank is questionable, take care to minimise this.
- Although the boat is quite responsive, it is light and short and may not handle so well in steep seas.
- Do not use the bow roller to guide a mooring line, as it has a sharp edge that has chewed through a 10mm line while moored to the pontoon.

Humber RIB

- Humber RIB has a new purpose built bunked trolley. The front bar drops offering articulated steering, and there is also a 3-metre extension bar to allow attachment to a vehicles tow-bar.
- Please note the two strips of yellow material stuck onto each tube aft of the centre line (see pictures below). These are markers which must always be lined up with the new side roller bars. This will ensure correct weight distribution which is important as we are dealing with nearly 1000kg in total.

- Although Humber has a Mercury 75HP two-stroke engine, it is not a two-stroke as many will remember. It is 45% more fuel efficient than the equivalent four-stroke and oil is not mixed with the fuel creating blue smoke.
- Check the oil reservoir prior to use. It sits under the cover at the top of the engine. As it only feeds the parts that need oil, it should require relatively infrequent topping up. There is a warning sound, if the level gets too low.

- The controls are exactly as before, but the electrical isolator switch, which is where the old one was, no longer has a detachable plastic key. Instead there is a switch which is clearly labelled on and off.
- *It is important that the switch is turned to the off position, when the boat is put away. If left on for a long period, the battery will go flat enough to stop the engine from firing, even though it may still turn over.*
- A separate switch, which isolates all the console electrics, is positioned on the top left of the console. It is mounted upside down so that it turns everything off (including the radio) rather than on, if hit accidentally.
- The instrumentation consists of a digital display which registers the tilt angle when operating the trim and RPM when moving the lever. It also provides running time and other information.
- There is no oil sump and therefore no dip stick on the new engine.
- The fuel gauge on the Humber has been replaced. It still registers lower than it should, but this may be due to uneven surfaces. Since its response is slow and the tank is not large, take care to avoid over-filling when refuelling. Look down the spout to gauge the depth.
- When putting the large Humber RIB back on its trolley do not be tempted to drive it on, as the corners of the trolley can puncture the sponsons. Always manhandle it into position.

Rescue 1

- Rescue 1 has been fitted with a new engine which requires a running in period. During this time the engines revs should be varied throughout the range and not allowed to idle at constant revs for prolonged periods.
- An electrical isolator switch has also been fitted forward of the controls.
- A rear line, attached to the trailer, must be secured over the sponson to the eye at the rear of the transom to prevent the boat slipping when towed up the slipway.
- It is also essential that the rope is fitted when launching with a vehicle. When the trailer's rope is secured to a tow hitch and the boat runs down the slipway, the jolt as the rope goes tight is enough to cause the boat to slip off its trailer.
- The engine must be centred before it is lifted fully to prevent the cowling from scraping the-A frame. This is not a problem when the prop is lifted partially to drive in shallow water.
- Do not lift the engine excessively (i.e. much beyond what is necessary to avoid its skeg contacting the ground) as it can strain the steering mechanism.

PJ Use

- *PJ Drivers should familiarise themselves with the content of the checklist.*
- *They should also have watched the advice video on the Club website about getting PJ on and off the mooring.*
- PJ is on a mooring against the North Wall. The mooring instructions, which are both on the website and under the clear instrument cover, should be followed carefully.
- Make sure that the rope and chain does not rub over the gunnels when lifting and dropping the anchor and marks, as this is causing considerable damage. Please ensure that the two rollers are used both for lifting and dropping.
- Drivers must check the water level in the bilges before starting PJ's engine by lifting the front floorboard in front of the engine cover. The electric pump must not be covered. (See separate Instructions.)
- Record any problems on the white board just inside the right-hand garage door on the wall nearest the changing rooms.

PART 2: RESCUE TECHNIQUES

General Considerations for Safety Boat Driving

- This section lists general considerations for safety boat drivers before outlining the main specific problems that may be encountered on a duty and possible solutions.
- No solutions are definitive as situations vary according to the boats concerned and the conditions prevailing.
- It is the responsibility of safety boat drivers to decide which method is most likely to be successful.
- Drivers must at all times maintain clear communication with their crew, who should act as an observer and respond to the driver's instructions.
- Drivers and crews should also continually assess the potential risks of all situations, taking account of weather, sea state, lea shore and other hazards. Larger waves occur infrequently, but the margin of safety must take account of these.
- They must inform the Race Officer, if they consider that conditions are beyond their capabilities. See LRSC Ltd Safety Boat Driver Training Policy.
- In all situations drivers should give safety priority in the following order:
    - The personal safety of themselves and their RIB crew
    - The safety of other boat crews
    - The rescue or prevention of damage to vessels or equipment.
- It is strongly advised, in matters other than suspected entrapment, that RIBs are never operated in any part of a rescue situation with only the driver on board. There is little that can be done by the driver alone and there is also a safety issue.
- To be effective during rescues, safety boat drivers will be required to exercise their judgement and skills without necessarily having to refer to the Race Officer. However, the Race Officer may well require that a particular rescue is aborted in response to a more serious situation.
- The control of specific rescues is in the hands of the driver.
- In a rescue situation, sailors must follow the safety boat driver's instructions if they are to retain the support of the safety boat.
- Occasionally dinghy helms in difficulty refuse to obey the instructions of the RIB driver. This often involves the continuation of a course of action which has proved unsuccessful and which has tied up the safety boat for some time, thereby compromising the cover of the rest of the fleet.

- Where this happens, it needs to be made very clear to the casualty that his action is compromising the race and the safety of other competitors. The situation also needs to be communicated to the Race Officer.
- If casualties fail to comply with instructions, the RIB Driver may leave the rescue after a clear warning.
- However, be aware that exhaustion and cold can affect a person's ability to make sensible decisions.
- If the safety boat driver assesses a rescue situation as potentially hazardous to themselves and crew, they must instruct the sailors to abandon their dinghy and to enter the RIB.
- Should the sailors fail to comply, the safety boat should leave the rescue and stand-off at a safe distance.

Rescues in Shallow Water

- Particular care must be taken when trying to help a dinghy where waves are breaking in shallow water, since boats are most vulnerable to swamping when aft or beam on to breaking waves
- If possible such situations should be avoided.
- Early action is always preferable and it is up to the safety boat driver to assess the risk of the casualty entering a dangerous area of breaking waves and render suitable assistance before that occurs.
- This could be achieved by:
    - Anchoring the boat
    - Towing or preventing further down wind drift
    - Directly assisting to right the dinghy
    - Leaving the dinghy with a view to later recovery.
- Using a RIB to rescue boats from lea shores should be undertaken with great care using the floated line method outlined in the RYA Safety Boat Handbook.
- All Club RIBs and PJ are equipped with throwing lines which may assist the recovery of individuals in the water and possibly in boats. This is to be added to the Safety Boat Check List.

Approaching, Standing Off, and Coming Alongside a Capsized Dinghy

- Be aware of objects and people in the water.
- Count heads as you approach in case there is a possible entrapment.
- Have default plan ready in the event of the situation changing.

- Position strategically up wind, aft of the dinghy, close enough for clear communication and in a position from which it is reasonably easy to manoeuvre without delay in forward gear alone alongside the dinghy should this be required.
- There should be no chance of drifting or being swept by waves into contact with casualties.
- Watch personnel and be prepared to kill the engine should anyone drop into the water close to the propeller and aft of the console.
- Communicate with all regarding engine state (e.g. engine in neutral, engine off, moving forward).
- Keep the Race Officer informed of your situation and function.
- To come alongside, approach from the windward side.
- Manoeuvre precisely and efficiently taking account of the sea state, wind and other conditions prevailing.
- Ensure that there are no ropes or other objects which may wrap around the prop.
- In windy conditions, when the dinghy is securely alongside, motor slowly to windward to keep both boats head to wind or with the RIB slightly to windward of the dinghy. This should keep the dinghy's boom out of the way and more comfortable for the dinghy crew.
- In extremely windy conditions the windage on the sail may mean that the dinghy must be shifted further forward of the RIB, to enable the RIB to steer to windward. This is the same principle as positioning the RIB in a side tow well aft of the transom of the towed vessel.

Retrieving People from Water

- Approach from downwind.
- Communicate with the casualty before approaching with the engine in neutral if possible.
- Stop at the casualty without using reverse.
- Crew at bow should call contact.
- The engine is cut unless it is deemed unsafe to do so (e.g. close to a point of danger; risk of engine not starting).

Methods of Assisting Casualties into RIB

- **Method 1:** The casualty faces forward and the helm and crew each take hold of a hand and the top of an arm and pull. See picture below.
- Generally, this is best done on a count of three with a dunk first then pull.
- **Method 2:** The casualty can face away from the sponson and trials have shown that this is easiest. See below.

- However, care needs to be taken to avoid spinal problems.

Forward Facing Method.

Backward Facing Method.

- **Method 3:** Casualties face the RIB with an arm over the tube. See picture below.

- They are then instructed to raise their knee.
- The crew reaches down and lift it up to the tube.
- Having hooked their leg over the tube and with the assistance of the crew they can slide/roll over the top.
- A sponson tube can be deflated in extreme conditions.

- **Method 4:** A person can enter from the transom by using the anti-cavitation plate as a step.
- The hydraulic lift can also be used to raise them higher.
- However, caution is needed in big seas, as there is a risk of injury and of bending the hydraulic steering gear.
- **Method 5:** Use the painter or other rope firmly attached at one end to the boat.
- Form a loop over the side of the boat to form a foot hold for the casualty and secure the other end of the rope to the boat.
- The casualty can then put their foot into the loop and use it to step up into the boat.
- This works well for raising the casualty, but it is essential to have either something in the boat for them to grab (e.g. a short length of line secured to the inside of the boat) or a crew member to secure them and pull them into the boat.

- It is best to attempt this towards the back end of the boat where the tubes are lower.
- **Method 6:** Thanks to Bob Mercer Humber RIB has a strop type ladder, which has been tested and works well. See pictures below.
- It clips onto the seat frame with a carbine hook.
- There is a thick piece of webbing attached which forms a foot hold and the upper section forms a hand hold.

Methods of Assisting a 90 Degree Capsize

- Righting dinghies involves a series of ranked preferred options.
- In the first instance the dinghy crew will usually right the dinghy themselves with the RIB standing off to provide reassurance and advice.
- If this does not work, the RIB crew may be swapped with the dinghy crew, or direct assistance may be rendered by the RIB driver and crew (as described below).
- Where a boat cannot be sailed again, because of damage, the sails should be lowered in the water, the boat righted and then towed back or anchored.
- Each safety boat should have a small grapnel anchor, chain, line and float in order to anchor dinghies.
- If a boat is abandoned until later, a small mark should be secured to it to signify that it has been attended to and nobody is trapped or missing.
- A dinghy can be prevented from inverting during lowering of the sails, by either keeping a person on the centreboard, holding the centreboard on top of the tubes or supporting the mast.
- Righting the boat without sails is generally easier using the conventional method or one of the following.
- When evaluating a capsize situation, make a judgement about the fitness of the crew, who can rapidly become exhausted and ineffective.

- Getting the crew out of the water into the RIB takes the heat out of the situation and gives a chance to think about what to do for the best.
- Before attempting to right the dinghy, check that the main sheet is not cleated and the kicker is not tight.

Righting Techniques

- **Centreboard Method 1:** The RIB approaches the dinghy so that the crew can grab the bow or forestay.
- In rough conditions, care needs to be taken when near the centreboard to avoid it damaging the RIB tubes or people.
- A line may be used by the RIB crew to attach the RIB to the forestay of the dinghy, to give space to keep the bow of the dinghy to windward. See Holding Dinghy to Windward below.
- A crew member then stands on the centreboard to raise the dinghy as usual.
- The RIB must keep clear of the centreboard and sail as the weight on the centreboard rights the dinghy.
- Keeping the dinghy head to wind will counteract the windage on the sails.
- **Centreboard Method 2:** An alternative to putting a crew member on the centreboard, is for the RIB to come alongside the upturned centreboard and to grab hold of the gunnel.
- One or more crew members can then use one of their feet to apply a righting force to the end of the centreboard while keeping their other foot in the RIB.
- **Mast Lift Method:** Approach the mast or forestay and, with the dinghy crew on the centreboard, lift the mast by hand or with a boat hook.
- Lifting at the top of the forestay is less likely to cause damage but less force is needed at the top of the mast.
- Care should be taken in a rough sea to prevent the RIB being washed over the dinghy's sails/rig and causing damage.
- It is possible in a moderate sea to use a boat hook to put some distance between the top of the mast and the RIB, but you need to be sure that the sea is not pushing you towards the mast tip.
- If the bow of the dinghy is not to windward, the RIB crew should hold the mast while the RIB is motored slowly into the wind.
- In some circumstances it may be necessary to move the dinghy through three quarters of a circle to achieve this.
- With the dinghy crew on the centreboard and the boat to windward, allowing the wind to get under the sail as it lifts can help to right the boat.

- If there is a question about the seaworthiness of the boat before being righted, an option is to lower the sails before the boat is lifted.
- In this situation the RIB crew at the mast tip or forestay should lift the sails out of the water slightly and work their way towards the bow of the boat righting it as they do so.
- If the RIB driver motors slowly in reverse to windward, the wind on the sails will cause the dinghy to lie downwind as it comes upright, while it is steadied by the RIB crew.
- **Alternative Forestay Method:** A variation on this is to motor to the bow of the dinghy and for the crew to work their way up the forestay, lifting as they go until there is sufficient turning force to make the sail clear the water. See pictures below.
- The advantage of this is that it is possible to keep RIB and dinghy less subject to relative wave motion by holding and fendering between the boats.

- **Holding Dinghies to Windward:** Capsized performance boats with light hulls will turn quickly to float with their hulls downwind and righting them often results in the sail flipping over again as it comes up to windward.
- This can be prevented by pulling the bow of the dinghy into the wind.

- To do this, take a long length of rope from the RIB through the inside of the forestay and back to the RIB. Both ends are then held together by the RIB crew.
- The RIB then motors slowly astern in the windward direction to hold the bow into the wind.
- The dinghy crew then right the boat while it is being held head to wind.
- One end of the rope is then released by the RIB crew and the rope retrieved.
- *In extreme conditions there is a risk of pooping and keeping the rope under a steady tension. The weight of the RIB crew on the bow tends to lift the RIB's transom, giving less grip.*
- *Therefore, if possible, watch the sea approaching aft and be prepared to apply extra reverse throttle as large waves approach.*
- **Leaving the Rescue:** Once a dinghy has been righted, the safety boat should stay on the scene until all is well with the dinghy and crew.

Entrapment

- **General Information:** The RYA has been monitoring incidents of entrapment.
- A few occur each year and there have been a small number of fatalities.
- The incidents cover a range of different boats, although it is probably fair to say that trapeze harnesses getting caught is the most common single cause.
- Other boats involved in entrapment situations have included inverted day boats and catamarans.
- The Sea School is listed for trapeze and spinnaker and have taken note of the recommendations. Only the Laser 2000s have trapeze wires and they have been fitted with large buoyancy bags to prevent inversion. Testing has shown that as far as we can ascertain, it is not possible to make them invert, because of the amount of buoyancy in the bags. Trapeze harnesses are of the new type with a hook release button.
- Despite the many capsizes of our other boats (Wayfarers, Fevas, Lasers, Toppers and Picos) we are unaware of any entrapment problems either in Lyme or in other centres using these boats. We therefore feel that we do not need to add this to our list of controls.
- An additional hazard is the lack of an air pocket under more modern inverted dinghies. Since privately owned boats may be more prone to this problem, all safety boat drivers should be aware of the RYA recommendations.

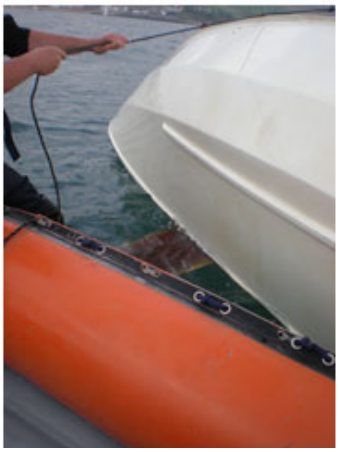
- **Procedure:** This is taken from the RYA Safety Boat Handbook.
- From the RYA's work in studying entrapment situations, these are often due to trapeze hooks becoming caught in the rigging. The RYA advice is that attention should be paid to righting the boat rather than entering the water to release the person. Based on past situations, the RYA judge that the former is more likely to be quickly and successfully completed than the latter.
- **Specific Instructions:** On approaching a suspected entrapment, the RIB crew should get onto the inverted hull and use the standard method to right the dinghy.
- This is the only rescue situation where a single person in the RIB is permissible.
- For a two-hander dinghy, the non-trapped crew should also mount the inverted hull and assist.
- The RIB should go to the side of the boat being raised and attempt to lift the bow and view the entrapped person.
- If possible, the RIB driver should also help to lift the bow and view the trapped person.
- Many modern boats with under floor buoyancy invert with very little air space underneath. Since the air pocket inside is reduced, when a person gets on the inverted hull, the situation can be helped by applying the weight of the crew as far aft as possible.

Assisting a Full Inversion Capsize

- **Centreboard Righting from the RIB:** Although there are a number of techniques of righting an inverted dinghy, this is the easiest, quickest, kindest to the dinghy and has been shown to work when others have not.
- Before attempting this, you need to decide on which side of the inverted hull to place the RIB.
- In light winds it will probably not be important, but in strong winds and big seas there is an advantage to come alongside the downwind side, because the dinghy and RIB will be blown downwind while the sails will be held to windward by the water and boats motion, thereby helping the righting process.
- Motor alongside the appropriate side taking care not to get the prop caught on any rigging.
- A rope could be passed around the forestay of the dinghy and back to the RIB where it should be fixed/held.

- Two people should stand with one foot each in the RIB and the other on the dinghy and apply downward force on the gunnel at the same time as they pull the centreboard towards them. See below.

- This manoeuvre can be awkward as you are not only trying to right the boat but you are also holding it close to the RIB. The process can be made easier if a rope is passed over the inverted hull and attached by a carbine hook to the far shroud. Both crew members then apply force to the gunnel with their feet, while one of them pulls the rope and the other the centreboard. See below.



- When the mast becomes horizontal, the centreboard will be on top of the RIB tubes.
- At this point, motor the RIB forward to position the bow head to wind before completing the righting process.
- This is done by pushing the centreboard away from the RIB until the tip clears the tubes and can be pushed down the side of the RIB.
- It may be advantageous at this stage to push the centreboard in slightly so that both boats are kept closer together but *be aware that some dinghies have centreboards that foul the boom when raised.*
- A person can then be placed on the centreboard to right the dinghy normally while a paddle can be used to push the two boats apart.
- The advantage of this is that there is reduced risk of damage to the tubes, but there is a greater risk of the boat capsizing again, since the RIB is slightly further away.
- Alternatively, both people can continue to apply force to the end of the centreboard using their feet. This method becomes much easier if a rope has previously been passed around the far shroud and back to the RIB or ideally a carbine hook and rope attached to the shroud as previously described. This enables the dinghy to be held firmly whilst providing extra

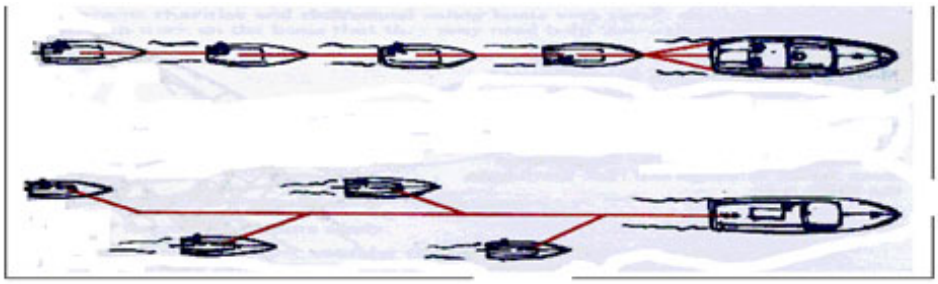
turning moment and stopping the dinghy from moving away as the downward force on the centreboard is applied.

- One cannot be dogmatic, but this method has been tested many times now and found to be boat friendly and effective when other methods have failed or have damaged the boat.
- **Lost Centreboard/Daggerboard:** During an inversion capsize it is common for the centreboard to disappear down the slot. In many cases the crew will swim under and lift or reinsert the centreboard. If there is nobody willing to undertake this the following applies.
- To deal with this, each RIB tool box should contain a length of plastic baler tape, which can in some circumstances be fed in a loop down the slot and along the centreboard and then pulled to extract the centreboard.
- If a dagger-board comes out of its slot and is to hand, it can be fed in from the outside. If not, some light dinghies may be righted using a paddle in the slot.
- Should the centreboard/dagger-board be lost, dinghies can be righted with the crew's feet on the gunnel as usual and using a rope attached to the far shroud and run over the inverted hull and pulled as described earlier.
- **RIB Pull Method:** This is an alternative method, but much more difficult than the first method above. See photos below.
- A line is secured across the inverted hull, behind the centreboard and attached to the lower part of the shroud furthest from the RIB as in the pictures below.
- The RIB then pulls the line with the crew on the gunnels, holding the centreboard, until the dinghy rolls up to be upright.
- However, this is not easy, because the RIB's position needs to be controlled with precision to avoid the rope slipping off the boat. As the rope is pulled, the dinghy tends to move forward or back and turns, increasing the likelihood of the rope slipping.
- It requires considerable skill in reversing the RIB appropriately in the correct direction, while also requiring considerable power from the RIB.
- It is essential to have someone on the dinghy to sink the nearest gunnel of the inverted hull and to hold the boat at the 90 degree point to prevent it inverting again.
- The rope needs to be attached to the RIB bow ring to prevent damage to the tubes and the force needed put considerable strain on the shroud plates, which could be easily damaged in some boats.
- Given the strain involved, there is a danger that the rope might break and injure the crew on the dinghy.

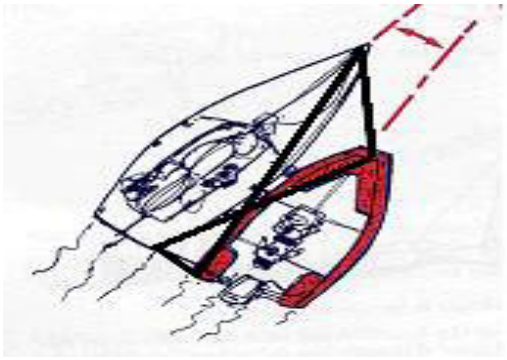
- **RIB Push Method**: This method is one of last resort, as there is a risk of causing damage.
- The bow of the RIB is tied to the bow of the dinghy, which is then pushed by the RIB positioned at 90 degrees to the dinghy.
- This spins the dinghy around causing the sails to lift to the 90 degree position, from where it may then be possible to lift the forestay to prevent further inversion.
- **Spinnaker Lift:** This is another method of last resort.
- The RIB should be positioned at the bow of the dinghy and the crew pulls either the spinnaker or the spinnaker halyard, depending on whether the spinnaker was flying or not.
- The RIB is then moved away from the dinghy so that it lies at 90 degrees to the dinghy and the crew in effect pulls the top of the mast towards him.
- It may take a lot of force and it might be necessary to cut the tack rope to the spinnaker to allow a distant enough pull.
- Whatever methods is used, some boats are very stubborn about coming away from the inversion position, often because a suction develops with the water. In the case of Wayfarers, for example, it helps to break the suction by applying one's weight to one of the rear quarters.

Towing techniques

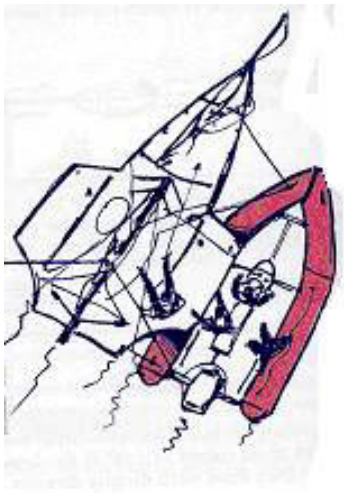
- **Line Tows:** This is the quickest and easiest method of towing a dinghy, but they provide no extra stability to a swamped dinghy.
- The line should be attached to the rear frame of the RIB and secured to the dinghy with one turn around the mast and held by the crew.
- The centreboard should be three quarters up, with the crew/helm aft steering slightly to the side of the RIB.
- When the load is reasonably light and there is plenty of sea room the tow line can be connected to one side of the RIB. Suitable single attachment points are the eye bolts or bottom of hoop. However, this can limit the ability to turn in one direction and for heavier loads central connection to a bridle is preferable.
- Beginners frequently find making upwind progress hard and a line tow up wind with sails up is easy and quick.
- Dinghies towed downwind and with the waves can surf past the RIB. It may be necessary to control the dinghy's speed by the helm trailing a leg in the water or tying a bucket or something to provide drag on the transom.
- This method should not be used for towing a boat downwind with the sails up.
- Towing several boats can be done in a line, with each helm securing a rope from the boat in front, taking a loop around the mast and holding it, as described above.
- Alternatively, all the dinghies can be tied to a single long rope in a herringbone fashion as portrayed below.
- In travelling any distance (e.g. out of the harbour for a beginner's session) the sails should be furled or in light winds the clew released.



- **Side Tows:** Another method of towing is to attach the dinghy to the side of the RIB as in the diagram below.



- This requires the bows and the sterns to roped together and two springs to keep the boats in position.
- The dinghy bow should be angled in towards the RIB bow.
- Side tows provide considerably more stability especially for a swamped dinghy, but the arrangement of four ropes takes time, and it can also be a very wet ride during which it is possible to swamp the RIB.
- Manoeuvring using a side tow is very precise, but the dinghy needs to be well forward of the aft of the RIB. The wider the boat the more aft the RIB should be, probably more than in the diagram to the right.



- Side tows of racked boats can be achieved with a bow line and sitting on the racks, although care should be taken to ensure no sharp screws protrude from beneath the racks and the tubes are not damaged.
- **Rear Tows:** Towing a dinghy backwards is useful if it has lost its buoyancy.
- However, the disadvantages are that: it is only a suitable method if a displacement boat is being used for towing; and it takes considerable time, since a cradle needs to be constructed to lift the aft of the dinghy and arranged so as not to slide off and adequate fendering is essential.