



IRB Buoy Laying Operations and Procedures

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Contents

Introduction	4
Work, health and safety	4
Equipment required	4
2. BUOY COLOURS	5
Buoy colours and distances	5
3. ANCHOR, LINE AND BUOY SET-UP	7
IRB set-up	7
Buoy anchor set-up	8
Single craft buoy set-up.....	9
Single cone buoy set-up	9
String/Trip line set-up	10
Boat Buoys Lines and Anchors	11
Four Buoy Line.....	12
Undertaking buoy laying	13
4. STOWAGE	14
5. LAYING ANCHORS, STRING LINES AND BUOYS	15
General	15
Course laying – Swim course string	15
General Arrangement of Swimming Buoy Lines and Anchors	16
Course laying - IRB competition	17
Typical Inflatable Rescue Boat Competition Area	17
Spacer string lines	18
Mid – IRB string line	18
Single line craft buoys	18
Single line cone buoys	18
6. TENSIONING OF LINES AND BUOYS	19
Method 1	19
Method 2	19
Buoy string lines	19
Single craft line buoys	20
Single cone buoys.....	20
7. TOWING AND ADJUSTMENT	21
Adjustment and towing buoy string lines	21
Moving struck strings and single lines and buoys	21
Getting anchors from under rocks	21
8. RETRIEVING GEAR FROM WATER	22

Introduction

This must be read in conjunction with the Powercraft Training Manual 8th edition. Inflatable Rescue Boats (IRB's) play an important role in the successful conduct of SLS events. The number of IRB's available for use at carnivals will depend on how many areas are run on the day. IRBs have multiple responsibilities which include: the laying and adjustment of buoys, rescues during competition, recovery of capsized craft, judge in boat duties and general surveillance duties.

Work, health and safety

As a member of a powercraft team, you are covered by the same work, health and safety legislation that applies to any other place of work. Please refer to the Powercraft Training Manual, chapter 1 for further information on the following points:

- Risk management, safe operations
- Personal protective equipment (PPE)
- Powercraft code of conduct
- Personal imitations, lifting and carrying
- Sun protection, hydration and fatigue

Equipment required

- All-Terrain Vehicle (ATV) or a four wheel drive (4WD)
- Side-by-side vehicle (SSV) or tractor
- Fully equipped IRB
- Two-way Radios (If radios aren't available use hand signals or flags to setup the course)

For the course:

- Anchors (size varies according to buoy size)
- Plastic crates or buckets with string lines.
- Trip lines
- Bubbles (200 DIA polystyrene float)
- Buoys



Note:

- Prior to loading the IRB, lay all equipment out on the beach, double check everything required is available.



2. BUOY COLOURS

Buoy colours and distances

Swim string lines, IRB string lines, Surf Boat Relay and Lifesaver Relay boat use nine coloured buoys in their area:

- No 1 Red/Yellow
- No 2 Black
- No 3 Green/White
- No 4 Red
- No 5 Blue/White
- No 6 Yellow
- No 7 White/Black
- No 8 Orange
- No 9 Green/Gold
- 4 buoy string line only will use four small Black/White buoys only

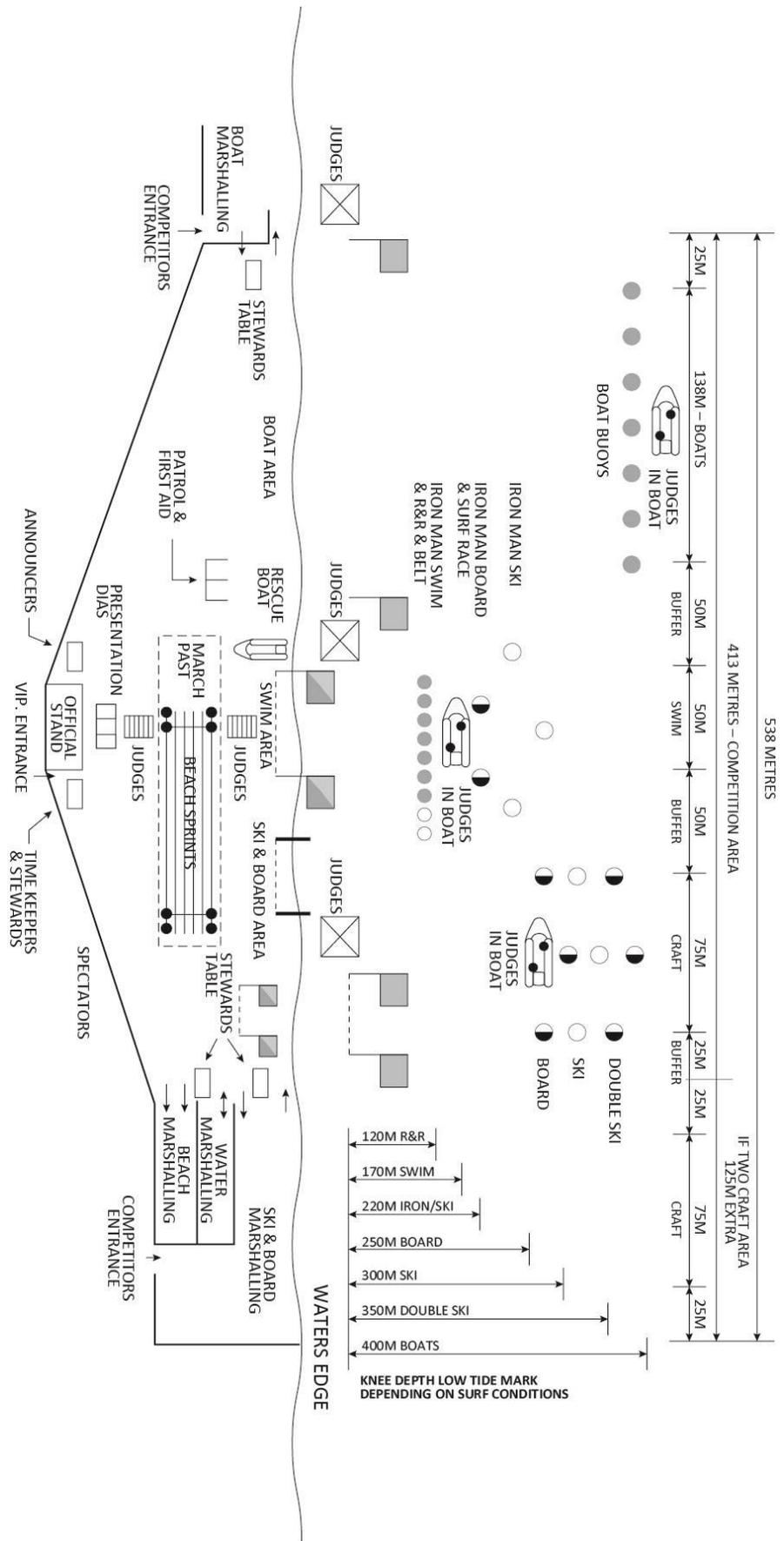


Three single craft buoys are set behind small black/white buoys, three more sets of single craft buoys are set behind first single craft buoys. Coloured single buoys can vary based on areas set at branch, state and Australian competition. The course being set and distances required will determine which colour buoys are used. Distances may range from 120 to 400m.



Note:

- Distances may vary depending on surf conditions.
- Buoys could be red/yellow or green/gold depending on which direction you are going to lay the swim string line



LAYOUT OF TYPICAL SURF CARNIVAL

3. ANCHOR, LINE AND BUOY SET-UP

IRB set-up

- Release motor spin clamps and move the motor to the port side of the transom plate, re-tension the motor spin clamp.



- Make sure there is at least a 5cm gap between the starboard side of the transom plate, this will allow the trip or towlines to pass the outboard motor easily reducing the chance of getting caught.



Note:

- This will not affect the way the IRB operates in the surf zone.

- Clip the rescue tube under the spray dodger (starboard side).
- Clip tow rope under the spray dodger (port side).



- Ensure IRB is operational.

Buoy anchor set-up

- Create a clove hitch in the trip line



- Attach the clove hitch to the spade end of the anchor



- Clip the trip line to the D shackle



- Lift the anchor by the rope to tighten the clove hitch



Single craft buoy set-up

- Single craft buoys have string lines and clips attached. Clips will be attached to the last link of the chain; opposite end of the chain will be attached to the anchor.
- If you require a third single craft buoy, initially get the assistance of a second IRB to help.
- If a second IRB is not available, store the anchor at the stern in between the starboard and port anchors. The third buoy is then placed on top of the other two buoys in the centre of the IRB.



Single cone buoy set-up



- 1m of chain attached to the centre ring with the first anchor (No2 dreadnought).
- Next is a string line attached to centre ring of buoy with clip attached to last link of chain (The other end of chain should already be attached to the second anchor No 3 dreadnought).
- There should be 3 metres to 5 metres of No 10 link chain on No 3 dreadnought anchor.
- Bubble (with trip line) is secured around the spade end of the second anchor. Check cone buoys ensuring they have enough air inside to stay afloat in the water.



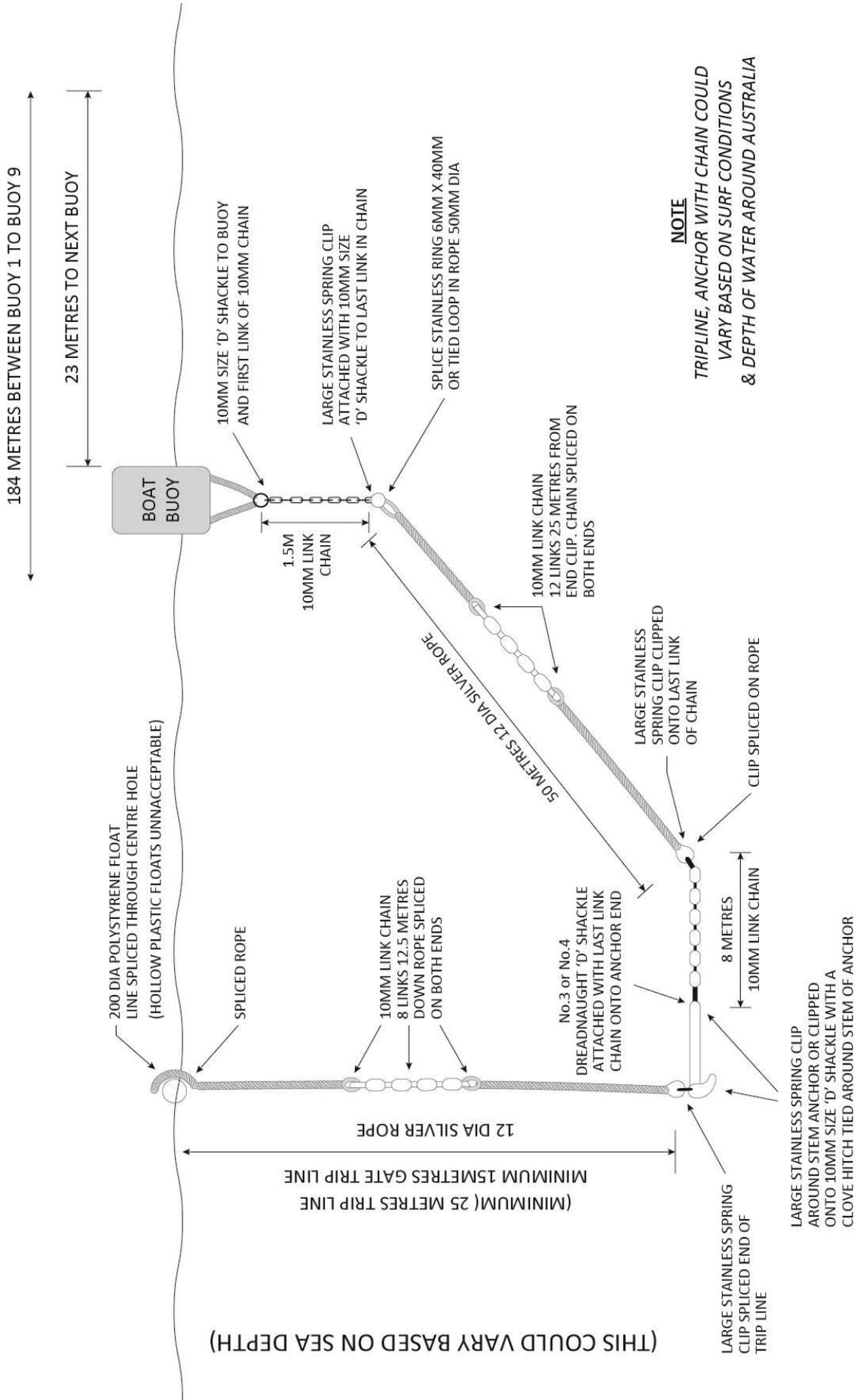
String/Trip line set-up

- Swim string line minimum No 3 to maximum No 5 dreadnought with minimum 5m to maximum 10m of chain to anchor. Trip line 15-20m long.
- 4 string line No 3-maximum dreadnought with minimum 5m to maximum 7m of chain to anchor. Trip line 15m-20m long.
- Swim string line of 9 and 4 string line after last buoys both sides must have at least minimum 25 to 30 metres of line with clip each end and No 10m 6 links of chain in the middle of line to stop line floating over distance.
- Single craft buoys maximum 1m chain. Craft line minimum 15m to maximum 25m long. Minimum No 2 to No 3 maximum dreadnought with minimum 1m to maximum 2m of chain to anchor.
- Craft line/trip line must have at least minimum of 5m above water level once line and anchor are on bottom of ocean floor.
- Single cone buoys 1m chain maximum with maximum No 3 dreadnought attached to bottom ring to cone in centre. Cone buoy line and trip line minimum 25m. Chain minimum 5m with a minimum No 3 to No 4 maximum dreadnought.
- Boat string line and gates/IRB line minimum No 3 to No 5 dreadnoughts with maximum 10m of chain to anchors. Trip line minimum 25m. Gates minimum 15m.
- Boat/IRB line of 9 or 10 after last buoys both sides must have at least a minimum 50m of line with clip each end and No 10m 6 links of chain in 2 sections of line to stop line floating over distance.

Note:

- Minimum and maximum may vary depending on surf conditions.

Boat Buoys Lines and Anchors



Undertaking buoy laying

- When releasing the anchor line, always pull with hands cupped around the line so that the line can be released instantly if necessary.

Note:

- Never wrap/ loop rope around hands.
-
- Driver and crew should work together when retrieving anchor and chains. This way the Crew doesn't get exhausted.
 - Ensure string lines/ropes stay clear of the propeller.
 - Do not overload the IRB. Ensure that the maximum gross weight limit is not exceeded.

4. STOWAGE



- The driver and crew must be able to place their feet into the IRB foot straps.
- Anchors should be stored at the stern of the IRB (starboard initially, then port with spade facing stern), lay chain alongside or on top of anchor followed by trip line and bubble. Ensure that all lines are separated.
- Swim string line- position in the centre of IRB.
- clip one swim buoy to a swim string line and clip the other swim string line to a bucket or crate handle
- store second swim buoy under spray dodger
- in the event the IRB capsizes all gear will be clipped together (except the swim buoy stored under spray dodger, this will float)
- Single cone buoy - “V” end of cone buoy on starboard side of IRB, (will stick out approx. 1m of the stern of the vessel) and the base end of buoy diagonal to port of IRB. This allows for the driver and crew to sit in their normal position.

Note:

- Utilise a second IRB to assist when setting the course.
- Ensure you take caution when proceeding through a surf zone (even in a small surf).

5. LAYING ANCHORS, STRING LINES AND BUOYS

General

- The powercraft coordinator, referee or course supervisor will guide the IRB where to drop the anchor, trip lines and string lines.
- If the Driver and Crew notice hazards such as: rocks, strong currents and large surf, they should advise the powercraft coordinator, referee or course supervisor as soon as possible.
- Use the direction of the wind and currents to lay string lines, likewise when retrieving equipment post event.

Note:

- Keep an eye out for breaking waves and proximity to the surf zone when laying the course.

Course laying – Swim course string

- Once at the required location the Driver selects neutral, the Crew unclips the swim string bucket or crate and starts paying out the bubble, trip line, anchor and swim string line.
- The powercraft coordinator, referee or course supervisor will then instruct the Driver to commence driving towards the next location. The crew continues to pay out the swim string line.
- Before reaching the first rings or loop on the swim string line, the Driver slows and selects neutral.
- The buoy (which could be red/yellow or green/gold depending) is clipped onto either the swim string lines or loops depending on the conditions.
- Complete this seven times until they reach the last two rings, at this stage the Driver will put the IRB into a neutral gear if appropriate.
- The crew must clip the swim buoy onto the last two rings or loops on the swim string line.
- The driver will then proceed along the course whilst the Crew pays out the rest of the swim string line.
- Prior to reaching the end of the swim string line, the Crew can then unclip the bucket or crate.
- The Driver passes the chain to Crew who attaches the last link of the chain to the swim string line, along with the trip line with bubble attached.
- Crew then pays out the anchor and chain, followed by the trip line with bubble attached on the starboard side of the IRB.

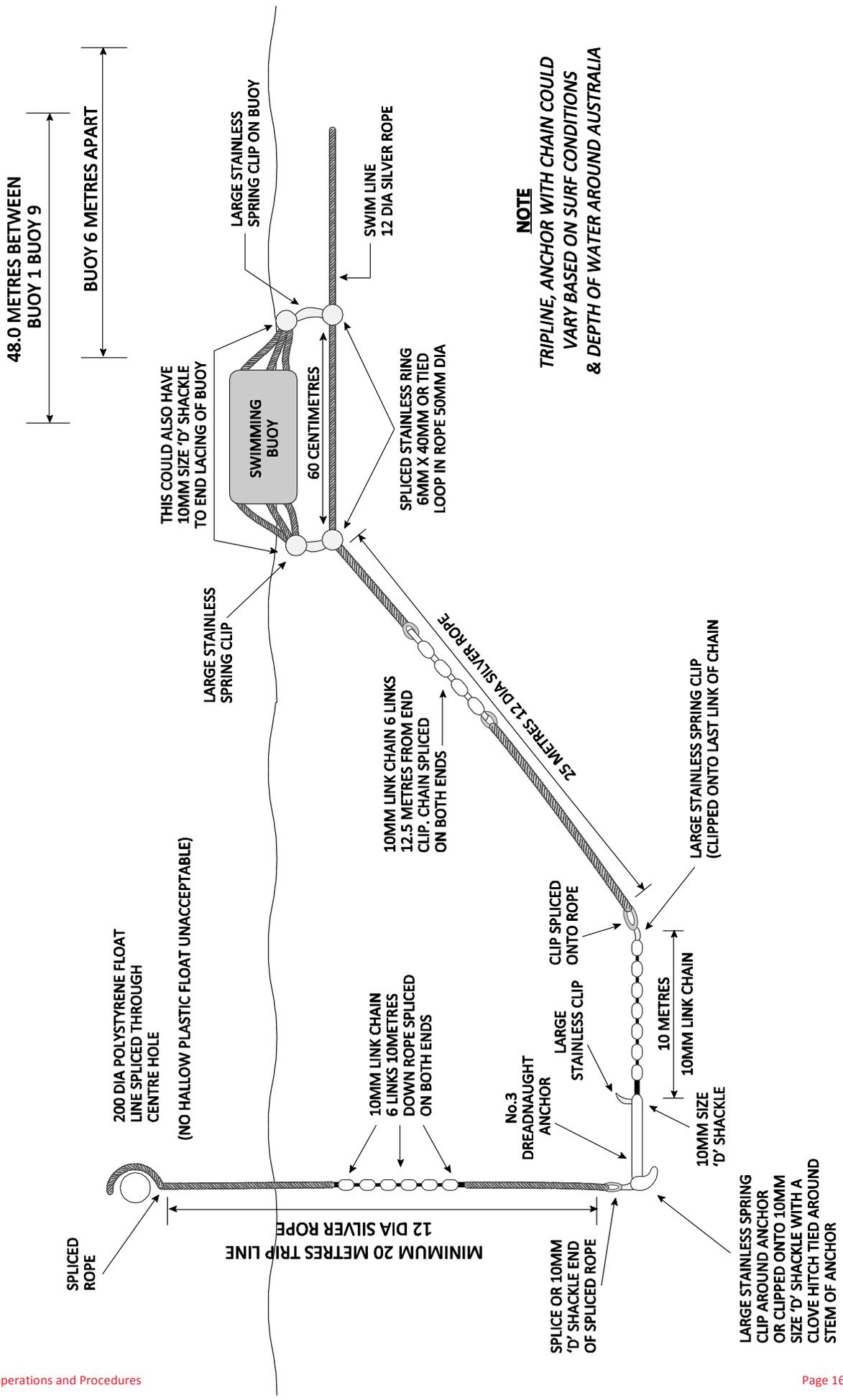
Note:

- Ensure the trip line touches the ocean floor with 5 metres of trip line and bubble to spare.
- If laying more than one string line next to each other, make sure they don't get tangled up.
- If required - shank one trip line closest to other trip line to keep them apart.
- Utilise a second IRB to assist when setting the course.

- The same procedure applies for the following: 4 buoy string lines, boat buoy string lines, boat gate buoy string lines and three IRB buoy string lines.
- At the direction of the referee additional buoys may be added if there are extra competitors.
- Turning buoys for ironman/women and craft events (at large events these may be of different colours depending on the area).



General Arrangement of Swimming Buoy Lines and Anchors

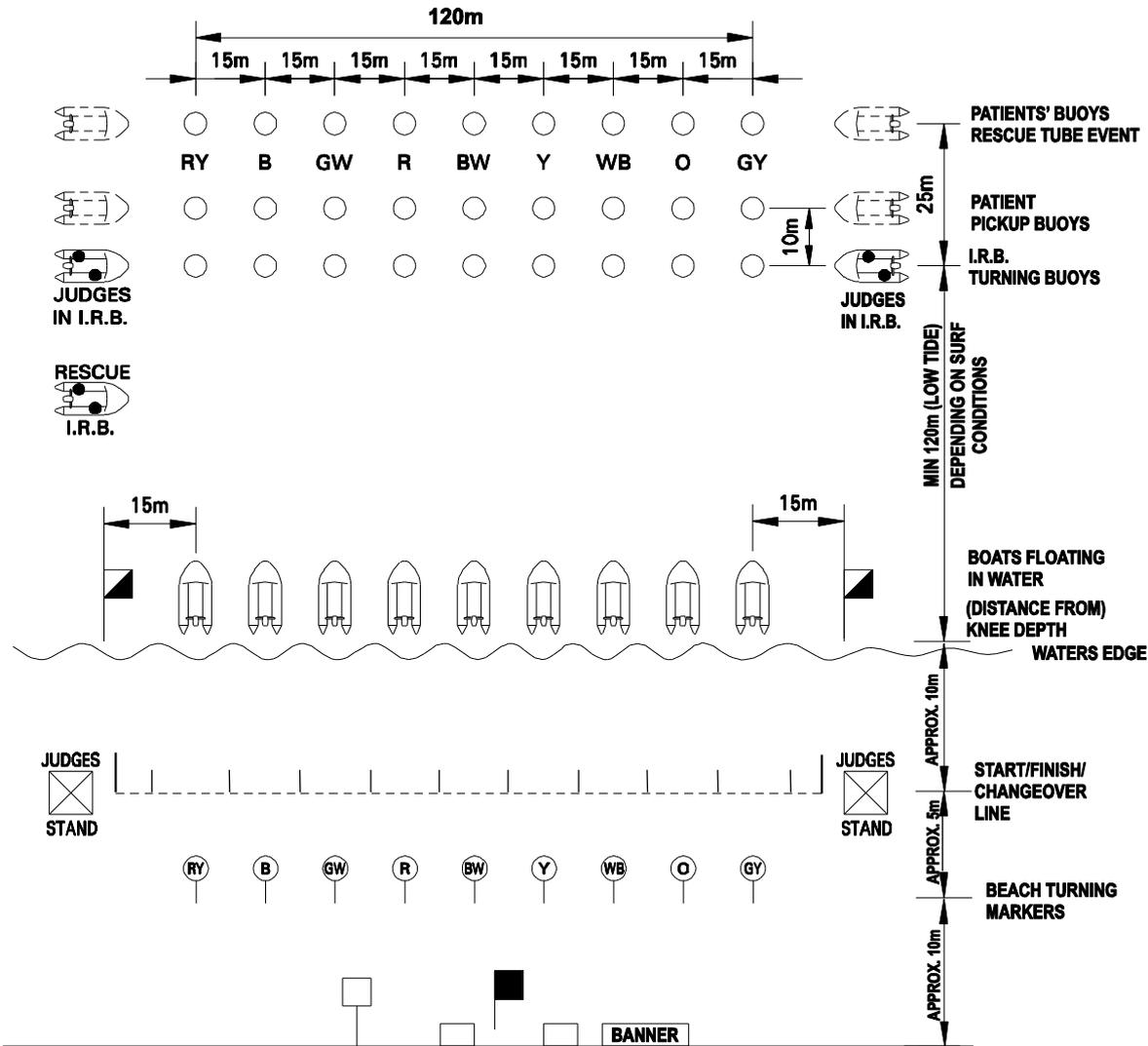


Course laying - IRB competition

Comprises of string lines, buckets or crates, anchors, trip lines and bubbles with red/yellow to green/ gold buoys

- Front (landward) set buoy string line are laid behind the surf zone.
- The rear set (seaward) IRB buoy string line is set approximately 40 metres behind front set IRB buoy string line
- Align rear set red/yellow and green/gold buoys up with front set IRB buoy string line.

Typical Inflatable Rescue Boat Competition Area



LEGEND

	ORANGE & BLUE AREA FLAGS		LANE MARKERS (RED OR ORANGE)
	PRE-START FLAG OR TIMING LIGHTS GREEN-YELLOW-RED		BUOY COLOURED BEACH FINISH AND BEACH TURNING POSITION MARKER
	I.R.B. DANGER WARNING SIGN		"I.R.B. SIMULATED RESCUE EVENTS"

(Distances approximate only)

Note: The beach setup relative to the positioning of the buoys may be adjusted dependent upon the prevailing surf conditions

Spacer string lines

- Return to shore and pick up two spacer string lines (25m). One end should have a ring or loop 10metres from one end of the spacer string line.
- Clip spacer string line onto the same ring or loop as front (landward) set red/yellow buoy.

Note:

It is important that the 10-metre ring or loop is closest to the front (landward) set red/ yellow buoy.

- Once clipped on, Crew pays out spacer string line until they reach the 10m ring.
- The Driver puts the motor into neutral as Crew clips centre red/yellow buoy or trip bubble onto the 10-metre loop.
- Driver puts motor into gear and idles towards the rear set (seaward) buoys, whilst the Crew pays out remainder of spacer string line.
- Once at rear IRB set Driver then puts motor into neutral and assist Crew to clip the spacer string line onto the rear set (seaward) red/yellow buoys.
- Complete task again for the Green/Gold buoy at opposite end of front/rear string lines

Mid – IRB string line

- Return to shore to collect the middle set IRB buoy string line, anchors and bubbles.
- Proceeds out to sea past the Front (landward) set buoy string lines and bubble. The Driver lines up the bubbles of the front string line and rear string line
- The Driver will also line up the trip bubble which is on the spacer string line, the Crew will then clip the line and the red and yellow buoy on the spacer string line.
- Driver then proceeds to the second spacer string line, puts motor into neutral, Crew will then clip the middle line and the green and gold buoys string line onto second spacer string line at the opposite end.
- Driver puts motor into gear and idles along until there is tension on the middle string line.
- Driver puts motor into neutral, Crew pays out anchor, trip line and bubble.

NOTE:

- This procedure can be done in opposite direction by laying middle set buoy string line from green/gold end of course.
- Always make sure motor prop guard is on opposite direction of spacer string line in which you are heading when clipping on buoys.
- Additional IRB's can assist when attaching buoys to the front, middle and rear sets of the string lines.
- Powercraft coordinator, referee or course supervisor will advise if the string lines require adjustment.
- Powercraft coordinator, referee or course supervisor will instruct which anchor will need to be moved to align the competition course.

Single line craft buoys

Once at required location the Driver puts the motor into neutral, Crew then places the single craft buoy in the water followed by craft single line and anchor (make sure that the single craft line is not tangled).

Single line cone buoys

- Once at required location the Driver puts motor into neutral. Crew will place the cone buoy, anchor and string line on the bottom centre of cone. These are paid-out making sure first anchor and string line don't get tangled up with each other.
- This is then followed by the second anchor which is attached to string cone line centre and also has the trip line and bubble which is secured at the spade end of anchor.

6. TENSIONING OF LINES AND BUOYS

Two methods are used to tension lines:

Method 1

- Driver motors up to the bubble, if appropriate select neutral, Crew retrieves bubble and part of trip line (starboard side). Crew hands bubble to Driver who then puts part of trip line around starboard rear cone of the IRB.
- Driver tucks trip line underneath motor bolt tilt tube transom with approximately 1m of trip line and bubble, rear pontoon cone.
- The trip line is then wrapped around the motor spinner clamp thread once anti clockwise and then pulled back with left hand towards Driver.
- The Driver then let's go part of trip line with bubble and puts motor into gear and quickly grabs part of trip line with bubble as motor starts to idle forward.
- Driver then slowly throttles on to take up the slack on the trip line. Driver will feel tension on trip line and bubble taking the strain and then throttles motor fully on. Driver keeps hold of the trip line bubble.
- Driver continues driving straightening out the buoy string line until Powercraft coordinator, Referee or course supervisor instructs Driver to stop.
- Driver throttles off completely. As the IRB springs back, Driver puts motor into neutral if appropriate and releases trip line with bubble, anticlockwise turn around thread motor clamp spinner and throws trip and bubble out (starboard side) rear of IRB then puts the motor into gear.

Method 2

- A short tow line no longer than 5m will be used to tow string lines and buoys.
- Driver will motor towards the bubble, if appropriate select neutral, the Crew retrieves bubble (starboard side) clipping the tow line rope to the bubble.
- Driver will then hook the tow line around the starboard side of motor clamp spinner.
- Driver will make sure tow line rope is tucked underneath motor bolt tilt tube.
- Driver puts motor into gear slowly adding throttle, taking up the slack on the line, once there is tension add more throttle, moving forward straightening up the 9 buoy string line until the referee advises the Driver to stop.
- Driver puts motor into neutral if appropriate, Crew retrieves tow line, unclipping the bubble and stowing it away.

Note:

- If the IRB is under strain the spinner clamp will start to slip. Release the trip line and bubble.
- The trip line will slide clockwise around the spinner clamp thread until it reaches the bubble. The bubble will lock itself up against motor spinner.
- If towing, continue to drive until the Powercraft coordinator, Referee or course supervisor instructs you to stop. Or stop, put motor into neutral and reset trip line with bubble and then continue.

Buoy string lines

All other buoy string lines are also set as detailed above. This includes:

- swim lines
- 4 buoy string lines
- boat buoys
- boat buoy gate lines
- IRB buoy string lines

Single craft line buoys

- Once at the required location the Driver puts motor into neutral, Crew pays out craft single line and chain making sure it doesn't get tangled up.
- Crew clips tow line to ring under craft buoy chain as per procedure detailed above.
- Crew will then pass single craft buoy to the Driver who will have approximately 1m of craft line from buoy chain end.
- Driver places part of the craft line around the spinner. The Powercraft coordinator, Referee or course supervisor will advise Driver where anchor and craft buoy should be located.
- When adjusting single craft buoys you must always lay the anchor into the wind or ocean current and take the slack out of single string line buoy. Tow single craft buoy.

Single cone buoys

- Once at the required location the Driver puts motor into neutral. The cone buoy is placed in the ocean, ensuring the anchor and string lines don't get tangled up. The anchor will stabilise the cone so it stays upright.
- The centre string cone line which has a second anchor attached is then placed in the water with the trip line bubble attached.
- Powercraft coordinator, Referee or course supervisor advises Driver where anchor and cone buoy should be located.

When towing cone buoys, the cone buoy will be approximately 15m behind IRB. Follow the procedures above when laying cone buoys. The powercraft coordinator, Referee or course supervisor will advise if the cone requires adjustment.



7. TOWING AND ADJUSTMENT

Adjustment and towing buoy string lines

Once string lines, anchors and buoys are set, the Powercraft coordinator, Referee or course supervisor will measure the course with a range finder. Powercraft coordinator, Referee or course supervisor will advise which side of the course is not square. There are several methods which adjustment can be made:

1. Once the trip bubble is attached the Driver puts motor into gear and drives towards the string line with buoys attached. The Driver passes first buoy and continues until first buoy starts to move. Driver then turns back in the opposite direction and estimates distance in or out from the other buoys still in line. Driver will now drive towards a land mark, for example; buildings, cliff tops, bushes, power poles. Otherwise estimates from the white turbulence water left by the IRB motor to estimate distance in or out if no landmarks example only ocean. The powercraft coordinator, referee or course supervisor will radio to stop when the buoys are square and course is set. This process may take a few attempts until the course is correctly set.
2. Bubble is picked up by Crew whilst motor in neutral until they feel the anchor is off the ocean floor. Once this has been done Driver will put motor into gear and idles along the estimated distance before Crew releases string line to ocean floor. Powercraft coordinator, referee or course supervisor will radio the Driver to stop if buoys are square and course is set. This could take few times until till course is right. This can be done also from other end of course by grabbing the bubble.
3. In big surf the Crew picks up the trip bubble with line and places it in the rear corner opposite the Driver and against the transom and pontoon with the rest of the line behind IRB. Both Driver and the Crew place a foot on the bubble to hold it in the boat whilst towing the buoy string line. If a large wave looks to endanger the IRB, then the Driver and Crew lift their feet off the trip bubble and let it fly out the rear of the IRB which allows immediate action to run away from a wave.
4. Where adjustments of less than 10m are required, lift the trip bubble line until you feel tension on the anchor. Lift the anchor approximately 1m off the ocean floor. The Driver will then motor IRB to required distance and drop anchor. Crew and Driver will then retention the strong.
5. If the buoy string line has been put out too far, it is best to get two IRB's working together to adjust the course. With one IRB on each side, both Drivers can drive at a 45° angle keeping the string line tight while moving the line closer to shore. This technique can save a lot of time.

Moving struck strings and single lines and buoys

- If buoy or string line anchors become stuck, drive the IRB in the opposite direction to where you came from to release the anchor.
- If this doesn't work, keep trying the same method at different angles until you have made a complete circle (only on sand). Do not complete full circle if there are rocks as this will snag or tension the line around the rocks.
- If the anchor will not dislodge, a diver may be require to retrieve it. A trip line bubble should remain attached so that the line can be found.

Getting anchors from under rocks

- You will need 30m of line (i.e. two tow lines connected).
- Lower the angle of the tow line to pull for chain and anchor at spade end. The anchor should open up and roll over rock ledge.
- This method is rarely used – a diver may be a better option.

8. RETRIEVING GEAR FROM WATER

Pack down

- Have buckets or crates ready to retrieve buoy string lines. Ensure anchors, chains, lines and buoys are retrieved in the exact same way.
- At major carnival events, there will be a work force team available to help retrieve equipment and take it back up to the club house.

