



VOLUNTEER MARINE RESCUE WHITSUNDAY
STANDARD OPERATING PROCEDURE
TOWING

Version: 3
Date: 27/01/2018

1. Introduction

This SOP describes the procedures for safe towing on VMR1. It is the responsibility of every crew member to follow this procedure.

2. Reference

VMR Training – Risk Assessment 19 JULY, 2017

3. Detailed Procedures

Before Towing

The Master must consider the following before towing another vessel.

Is the tow legal or does it require a permit?

Does Insurance cover towing?

Has the vessel owner given permission?

Is the tow within the vessel's capabilities?

Is adequate fuel available?

What salvage arrangements exist (recoup cost of tow ?)

Vessels at sea are only obligated to save life, property rescue should only be considered when, in the master's opinion, there is no perceived risk to the crew or vessel.

NB. If the towed vessel has a displacement of more than 28 tonnes then the GOB ROPE must be used. The Gob Rope is attached to the stern quarter cleats and clipped over the tow rope. The Gob Rope is stored in the Port side forward cabin.



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Considerations before towing (all vessels)

Before considering a tow, ensure that:

Towline can be made fast forward of the towing vessel's rudders and props to retain steerage. Use Samson Post for all tows.

Towline is strong enough and has some elasticity.

Towline is long enough to allow both vessels to ride on the same position on their respective waves, to reduce shock loading on either vessel.

Towline can be secured to strong points on both vessels (typically winching eye on small boats, or strong cleats or bollards).

Towline can be readily slipped from one or both vessels (use bitts or cleats)

Towline can be protected from chafe (use rags/ towels to protect from chafing on bow roller, and freshen the nip on extended tows).

Towing procedure

Appraise and Communicate

Approach vessel and make appraisal of the situation

Establish communications with vessel (radio, phone, voice, signals). If towed vessel has VHF, establish channel for communications.

Instruct all passengers to don life jackets and remain seated to maintain trim and stability or have some or all of them come aboard VMR1. Decide if assisted skipper is to stay on board to steer in the wake of VMR1.

Determine suitable towing points.

Instruct skipper of towed vessel to lower outboard, or set rudder to straight ahead and follow in the wake (depending on circumstances).



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Hooking up.

If calm, come along side to leeward and pass towline.

If rough, come along side to leeward and either throw heaving line, or float towline to towed vessel.

Once the towline is attached and all passengers are seated, move away slowly, paying out towline until desired length is reached. This is typically 2.5 wave lengths minimum in calm seas, or more if in rough conditions.

Ensure both vessels are on the same position on waves, or “in step”.

Catenary and Control (Catenary is the dip or sag in the towline).

How much towline is enough? That depends on the sea state and the direction of the tow. If the tow is proceeding through open water consider the following:

Possible Complications

- * Vessel moves out of step.
- * The towed vessel may broach in heavy following seas.
- * The towed vessel may roll excessively in heavy beam seas.

In all but calm seas, without catenary if the towline went straight back to the towed vessel, every shock load would be transmitted directly through to both vessels. Enough line must be let out to ensure that this “shock-absorbing” characteristic - catenary - is present. Generally, the more line out, the more catenary there is.

When determining towline length, as well as catenary, the vessels must be kept in step. The two vessels must rise to the crest and slide into the trough at the same time. Both go up, both go down. If this doesn't happen, there will be shock loading on both vessels every time the towline goes slack and then tightens up again.

When towing a vessel in heavy following seas, as the towed vessel surfs down the face of a wave, picking up speed, it may temporarily start going faster than



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the towing vessel. If this happens, the towed vessel will start turning beam to the seas (broaching).

To minimise or prevent this, the towed vessel may have to drag a drogue or warps. In heavy beam seas, smaller vessels may broach, and some vessels, especially sailing vessels, may roll a lot.

Shock Loading

A Rescue Crew will rarely deal with only one force acting on the tow. The crew usually faces a combination of all forces, each making the situation more complex. Some individual forces are very large and relatively constant. Crew can usually deal with these forces safely provided all towing force changes are made slowly and gradually. When forces are changing in an irregular manner, tension on the towline starts to vary instead of remaining steady. Given the potential dangers of shock loading, the tow vessel must use various techniques to prevent or counteract its effect.

Reducing Speed

Slowing down lowers both the frictional resistance from drag and wave resistance. Reducing these forces will lower the total towline tension. In head seas, reducing speed also reduces wave drag, spray drag and wind drag, lowering irregular towline loads. The total reduction in forces on the tow can be rather substantial. When encountering another vessel wake in relatively calm conditions, reduce speed early enough so the towed vessel loses momentum before encountering the wake. Slamming into a large wake will shock load the towline of a small towed vessel, and may even swamp it.

Get the vessel "In step"

Extreme stress is placed on the towline in heavy weather when the tow vessel and the towing vessel do not climb, crest or descend waves together. Vessels in step will gain and lose momentum at the same time, allowing the towing force to gradually overcome the towed vessels loss of momentum, minimising shock loading. To get the vessels in step, lengthen the towline if possible.



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Lengthen the towline.

A longer towline reduces the effect of shock loading in two ways. The more line out, the greater the catenary. When tension increases, energy from shock loading is spent on straightening out the catenary.

When desired tow length is established, stop vessel and secure line to Samson Post.

UNDERWAY

Ensure towed vessel has positive trim (bow up)

Establish constant watch on tow. Use upper deck cameras on starboard flybridge screen to monitor deck and towed vessel.

Switch on towing lights or raise flag.

Take up displacement speed to establish all safe, watch to provide regular feedback.

Accelerate to planing speed if safe then maintain safe speed., 15-20 knots.

If unable to maintain a minimum speed of 3 knots, tow vessel to nearest safe anchorage and instruct them to anchor. Assist with locating suitable tow vessel, evacuate passengers if necessary.

Ensure towline maintains same catenary (slack) by controlling speed.
Under very rough conditions, you could secure a heavy weight (eg anchor) to the towline to create catenary.

Maintain watch and communications with towed vessel.

Slow vessel and shorten up tow when entering restricted waterways.

Take vessel alongside for entry to marina or boat ramp. In shallow water, use tender to tow smaller vessels to shore or ramp.



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4 Summary

If we follow these guidelines we will be less likely to have problems/injuries whilst towing.

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