

A BTA Guide

Pilots' Pocket Guide and Checklist

Working Safely with Harbour Tugs
Reducing the Risks in Port Towage

Third Edition

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Introduction

Harbour towage is a potentially hazardous operation and should not be undertaken unless there has been a proper assessment of the risks involved. It is critical that risks are minimised, and this is best achieved through:

1. Good communication and teamwork between all parties
2. Planning clear operational limits to facilitate timely interventions – through the use of a shared mental model
3. Good seamanship skills and crew competency

Thorough training and appropriate experience are also essential in ensuring that the professionals involved are competent. To assist in this process, this Guide aims to support pilots and PEC (Pilot Exemption Certificate) holders in their daily tasks. It draws on industry best practice and uses checklists coupled with guidance to provide a handy pocket aide-memoire for those responsible for directing tugs during harbour towage.

DEVELOPING THE PILOTAGE PLAN

Think of the tug(s) as an extended part of the bridge team.

The pilotage plan should be produced openly through discussion with the bridge team and communicated with the tugs prior to finalisation as the Master/Pilot Exchange.
This promotes a proactive approach to awareness, enabling a shared mental model, and allows for easier warning and timely intervention.

A pilotage plan should be dynamic. Conditions often change, so deviation from the plan may be required. Intended changes to the plan should be communicated to all parties.

It is important, particularly when manoeuvring in confined waters, that assisted vessel engine and rudder movements are communicated to the tug master in good time. Failure to do so has resulted in incidents where the tug master has had little time and space to manoeuvre their vessel clear.

PASSAGE PLANNING & PILOT / SHIP MASTER INFORMATION EXCHANGE

When tugs are to be utilised for ship-assist towage manoeuvres, the passage plan shall include sufficient detail of the tug(s) to be deployed and the intended manoeuvres. Emphasis should be placed on providing the practical information that the ship's master requires in order to adequately support the pilot.

It should be recognised that this element of the passage plan is dynamic and will evolve throughout the operation. Information may therefore need to be updated at various stages of the ship-assist operation, both to avoid information overload and to re-emphasise critical points as the manoeuvre progresses.

The use of a standard, port-specific passage plan is recommended, incorporating a dedicated section for ship-assist towage.

Wherever practicable, the officer in charge of the tug-securing operation should be included in the information exchange. The use of visual aids (photographs, diagrams, sketches, etc.) is strongly recommended, particularly where there may be language barriers or where the ship's crew are unfamiliar with ship-assist towage operations.

PILOT / TUG MASTER INFORMATION EXCHANGE

The extent of information exchange required between the pilot and the tug master(s) will vary depending on local practices and the complexity of the operation.

Notwithstanding this, the pilot shall ensure that the information set out in the operational checklist is discussed, understood, and agreed with the tug master(s).

This information should be reviewed and updated as necessary throughout the operation and both parties should understand the need to challenge any areas of uncertainty.

It is recommended that Harbour Authorities have in place procedures that enable the tug(s) to be able to communicate its "Ready for Operation" status prior to commencement of the towing operation.

Operational Checklist

MPX: Master Pilot Exchange
TPX: Pilot Tug Master Exchange

Confirm	MPX	TPX
	✓	✓
Tug name(s), propulsion type, bollard pull, securing intention and assess any positioning risks		
VHF channel, rendezvous position, environmental limits, speed through the water (STW) limits and order of securing		
Safe working load (SWL) of fittings, ship limitations/ deficiencies, means of securing & verify not using dangerously weighted heaving line (DWHL)		
Planned manoeuvre & agree safe speed for all stages and any change of tug role/position		
Environmental limits for the operation and contingency plans		
Disconnection process and agreed safe STW		

Where a trainee pilot and/or a tug master under training is involved in a ship-assist towage operation, the above information should be communicated to the other party prior to commencement, and the operation should proceed only with mutual understanding and agreement.

Checklists are only as good as the user and can become a single point of failure.

Use of a check and verify process using closed-loop communications is recommended.

VESSEL FAMILIARISATION

To foster integration into teams, it is recommended to complete regular vessel familiarisation trips, i.e. pilots/PEC holders visiting tugs and tug masters/mates visiting assisted ships.

Familiarisation increases understanding of each party's working environment, particularly visibility from the bridges, limitations of the ships concerned and the challenges that may arise during operations.

In addition to physical trips on board vessels, the use of navigational simulators is beneficial for pilot and tug master training as it enables exposure to numerous scenarios, different ship types, varying weather conditions, etc.

Establishing a liaison group within a port, to include pilot(s), tug master(s), and Vessel Traffic Services (VTS) assists in furthering communication.

Port specific standard communication protocol for tug positioning/power applied is to be used between pilot and tug master. Pilots are reminded that the ship master/bridge team needs to be informed of the assisting tug(s) actions and vice versa.

CLOSED-LOOP COMMUNICATION

Closed-loop communication protects against false mutual understanding and promotes situational awareness. It may be considered best practice for use when communicating safety critical information.

Closed-loop communication follows three basic steps:

1. When communicating with tugs, pilots shall always precede an order with the appropriate tug name and use standard orders
2. Tug masters shall acknowledge an instruction by repeating it back to the pilot before executing the required order. If in any doubt as to a tug master's understanding the pilot shall clarify the order

   Do not 'double click' the talk (tx) button!
3. Tug masters shall reply to the pilot in the same sequence in which they receive instructions

While Steps 1 and 2 are regularly and widely used, it is important to make a specific and conscious effort to complete Step 3 as well. This will provide an additional layer of verification to help prevent miscommunication.

BRIEFINGS AND DEBRIEFINGS

Regular briefings and debriefings between pilots and tug crew are vital for continuous improvement and increased understanding. It is important to make the most of learning opportunities.

Feedback should be encouraged from both parties, tugs and pilots. Debriefings act as a useful tool to evaluate an operation (did it go according to plan, what went well, what did not, what contingencies were required, what would the team do differently?).

Analysis of the plan (Work-as-Imagined) compared with what actually happened (Work-as-Done) is hugely informative.

Debriefings may be as simple and informal as a few comments after a specific job, either in person or over the radio. They may also be part of periodic pilot/tug liaison meetings, as described at the end of this Guide.

Best Practice in Harbour Towage

AT ALL TIMES

- Remember to communicate clearly and effectively
- For safety critical information, use closed-loop communication, i.e. orders should be repeated back to confirm they have been fully understood
- Ensure agreed safe speeds are maintained for tug and tow
- Be aware of the impact of the engine power of the assisted vessel
- Emphasise the use of sand bags or a monkey's fist for safely weighted heaving lines
- The assisted vessel shall appoint a competent person designated to oversee the tug securing/disconnection operation

PREPARATION

- Pilot and tug master are to dynamically assess the risk of the operation to consider if it can be conducted in a safe manner
- Develop a shared mental model
- Plan the correct deployment of tugs provided as part of the passage plan
- Conduct a Pilot/Ship Master Exchange (MPX)
- Conduct a Pilot/Tug Master Exchange (TPX)
- Making Fast and Manoeuvre
- Only use agreed tug order terminology
- Give clear, concise and precise orders
- Use the tug's name when giving orders, or agree another tug identifier, so the bridge team can understand the orders (avoid personal names)
- Instruct the ship's master to order crew to their mooring stations in ample time
- Pass instructions for the ship's crew to maintain constant visual contact with the tug when making fast and letting go the towline and to use clear hand signals
- Ensure the ship's course and speed are kept steady while tugs are securing their towlines
- Ensure the ship's speed does not exceed the agreed safe speed through the water
- Ensure the heaving line is thrown from the agreed safe position
- Ready a spare heaving line in case the first one misses
- If the forward tug is centre lead, secure the stern tug first before the bow tug
- Ensure the tug master receives confirmation from the pilot before making an approach to make fast
- Ensure any assisted vessel engine or rudder movements are communicated to the tugs in good time

- Inform stern tug in advance to watch out for the propeller wash when engaging the vessel's engines
- Inform tugs in advance when bow or stern thrusters are to be engaged (surface wash is not always obvious)
- Instruct the ship's master, wherever possible, to turn off blinding deck floodlights at night
- Consider aborting the original plan and starting again if running out of navigable room to secure tugs in a timely and safe manner
- Where possible, turn off or divert the flow of anchor wash and overboard discharges

END OF TOW/DISCONNECTION

- Ensure the ship's master only instructs the crew to let go of the tugs when instructed by the pilot
- Tugs may need to reposition during an operation. The order of release of the tugs will be dependent on the operation
- To avoid fouling of assisted vessel or tug, or injury to crew the towline must be released in a safe & controlled manner
- The assisted vessel's competent person should maintain oversight of the operation at all times until the towline is clear from the assisted ship and recovered onboard the tug
- Ensure the ship's crew only let go of the messenger line when instructed to do so by the tug
- Ensure any engine or rudder movements are communicated to the tugs
- The pilot is to inform the tugs of any hazards in close proximity that may be obscured from the tug masters' vision, e.g. other traffic, navigation marks
- Ensure tugs are clear before increasing speed (the manoeuvre is only complete once they are clear)

KEY 'DO NOTS' FOR THE PILOT

- Remind the vessel not to use dangerously weighted heaving lines
- Do not go above the agreed safe speed
- Do not release/drop towing gear in an uncontrolled manner; only release/drop when the tug master confirms it is safe to do so
- Do not manoeuvre the ship or alter course without first informing the tugs, especially when securing/releasing towlines
- Do not address the tug solely by the tug master's personal name when communicating orders to the tugs

KEY 'DO NOTS' FOR THE ASSISTED SHIP'S CREW

- Never stand in the bight or eye of a towline
- Never walk over, stand on or straddle a slack towing or mooring line
- Never let a towline slip through the hands or slide a hand along a wire
- Never act as a human rope stopper
- Never forget that the whole of the mooring deck is a potential snap-back zone
- Never position yourself in the potential path of a recoiling towline
- Never use a dangerously weighted heaving line

IN RESTRICTED VISIBILITY

- Pilots, PEC holders and towage operators must be familiar with port and local regulations regarding towage in restricted visibility
- Tugs and pilots should only operate within the port regulations on restricted visibility
- It should be discussed and agreed with the tug master whether the ship should use its own propulsion once the bow tug is secured. If the bow tug is already connected when the visibility reduces, consider letting go, to reduce the risk of collision or girting, and reposition it on the shoulder for push only or push/pull
- Making fast to a bow tug in restricted visibility should be avoided as far as practicable
- Situational awareness may easily be lost, increasing the risk of collision with tugs



Tug Types and Characteristics

Tugs may all look similar to the untrained eye, but in reality they are very different in terms of propulsion, available power, manoeuvrability and bollard pull. Pilots and PEC holders must fully understand the type and capabilities of the tugs they are working with.

The design of the tug (its hull shape, skeg, power, winch arrangements, etc) will affect its suitability for different types of manoeuvre. Typical examples are summarised in the following tables.

ASD (Azimuth Stern Drive)



Sanmar RAmparts 2400SX MKII

Advantages	Disadvantages	Typical use
High manoeuvrability	Early European designs are less manoeuvrable and not so well suited to bow-to-bow operations	Harbour towage (push/ pull)
Good directional stability at speed	Early Japanese units with full-length keels are not compromised as such	Escort towage in port and terminal operations using the forward winch
Less bollard pull achieved when towing over the bow	Limitations on speed for bow-to-bow operations – elevated risk	Coastal and offshore towage using the after winch and associated towing gear
Modern designs deliver high bollard pull for relative size of tug		
Newer designs tend to be safer for bow-to-bow operations (based on underwater profile)		
Shallow draft compared to Voith		

Voith Tractor (Voith Schneider Propeller, VSP)



Sanmar VectRA AVT 3000

Advantages	Disadvantages	Typical use
Highly manoeuvrable in all directions and able to move position quickly	Increased complexity	Harbour towage
Lower risk of girting	Lower efficiency	Single line over the stern and can also push on over the stern
Excellent directional stability		Ideal for push/ pull operation
Good transverse manoeuvrability		

Azimuth Tractor Drive/ATT



Sanmar TRAktor-Z 2500SX

Advantages	Disadvantages	Typical use
Similar to VSP but less draft	Slower response time than VSP	Harbour towage

ASD Escort/Voith Escort



ASD 2813-DAMEN

Advantages	Disadvantages	Typical use
As with Voith Tractor but can work dynamically and inherently has high stability	Technically more complicated to operate and maintain	Escorting or powered
Due to hull form and large skeg, can be very effective at creating high steering forces when operating indirectly	Deeper draft than ASDs	Indirect assist

Conventional



STAN TUG 1606-DAMEN

Advantages	Disadvantages	Typical use
Conventional design	Less manoeuvrable	Mainly small ships, barges, jack-ups and dredging equipment
Shallow drafts	Higher risk of girting due to amidships towing point	Line running
	Low bollard pull over the bow and limited use unless hook / quick release installed	
	Have to stop engines between ahead and astern movements	

Additional safety considerations for operations of Conventional tugs are provided in the BTA/WA Gog Ropes Industry Advice Publication.

Rotor



ASD 2813-DAMEN

Advantages	Disadvantages	Typical use
High/accurate manoeuvrability	Limited number of rotor tug trainers at present	Can achieve all of the above
Winch fore and aft	Draft exceeds ASD maximums	High level of finesse available
High bollard pull		
Ability to generate towing forces without having to push/ pull by 'rotoring' the tug		
Potential reduction in number of tugs required for a move		
Seamlessly able to go from 'indirect' to 'direct'		

TRAnsverse



Svitzer Transverse Tug

Advantages	Disadvantages	Typical use
Greater effective steering forces at higher speeds	Additional training required	Ship Assist evolutions, berthing and unberthing.
Effective force generation without significant repositioning	The tug does not handle like existing tug designs	Push-pull operations alongside ships.
Faster transition between tasks	May require demonstration of capabilities for Pilots and harbour masters	Escort towage
Enhanced environmental performance		Indirect towing at speed.
Improved indirect towing capability.		

Need to Know – Tugs and Towage

USE OF TUGS

Most tugs operating in UK ports are ASDs, but not all ASDs are the same. Tug design, technology and capabilities are constantly evolving and there are always exceptions. In general, the best options for bow tug operations at agreed safe speeds, in order of effectiveness, are:

a. A tractor tug either Voith, propeller or Rotor tug
b. An ASD tug working over its stern where a suitable winch is fitted
c. An ASD working bow-to-bow.

At low speeds, all the above are equally effective, as illustrated in Figure 2.

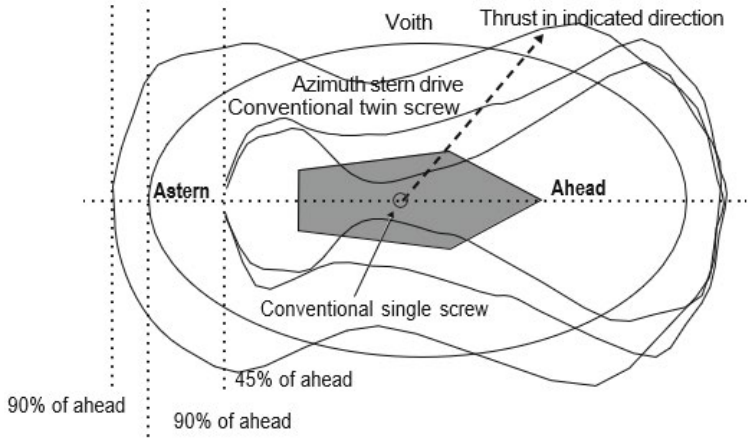


Figure 2. Propulsion effective thrust

MESSENGER LINES AND HEAVING LINES

The heaving line used by the assisted ship should be made of a small diameter rope, ideally 8–10 mm. A larger diameter makes the line heavy and much slower to bring the messenger and towline on board, requiring the tug to remain close to the ship and prolonging the most dangerous part of the assist.

The tug will take the heaving line and attached to it will be a messenger line of appropriate length (often approximately 30 m – 50 m), which in turn will be connected to the towline. The messenger line will generally be less than the length of the tug to reduce the chance of it fouling the tug's propulsion if let go in an uncontrolled manner.

The assisted vessel should use a drum end/tugger winch to heave the messenger and line on board.

Passing Over the Heaving Line

The heaving line should be thrown over to the tug from the agreed safe position. The position in front of the ship's (bulbous) bow is one of the most dangerous for the tug.

Simply lowering a heaving line from the bow is, therefore, not acceptable.

The tug will generally stay on the lee side under the bow.

On instruction from the bridge, the operation should be conducted quickly and efficiently to allow the tug to withdraw to a safe position.

USE OF DANGEROUSLY WEIGHTED HEAVING LINES (DWHLS)

The use of DWHLs is a significant safety hazard and is not an accepted activity in UK ports and harbours.

Section 26.3.6 of the Code of Safe Working Practices for Merchant Seafarers (COSWP) 2026 is clear:

> ***To prevent injury to seafarers receiving heaving lines, the monkey's fist should be made with rope only and must not contain added weighting material.***
>
> ***Safe alternatives include a small high-visibility soft pouch, filled with fast-draining pea shingle or similar, with a weight of not more than 0.5 kg.***
>
> ***Under no circumstances is a line to be weighted by items such as shackles, bolts or nuts, or twist locks.***

All incidents involving DWHLs are dangerous and must be reported to the MCA via the local Marine Office.

A DWHL thrown by ship's crew when passing mooring ropes or retrieving a messenger line can cause serious or fatal injury.

Pilots can play an important role in preventing the use of anything other than a safe monkey's fist made only of rope or alternatively a soft filled safety bag, as shown in Figure 3.

By promoting and raising this issue with the ship's master during the initial Master/Pilot Exchange (MPX), bad practice can be eliminated. Use of DWHLs could lead to a fine by Port Authorities or criminal prosecution of the ship's master by the MCA.

Pilots are encouraged to:

1. Inform all incoming vessels of their duty to follow the Code of Safe Working Practices for Merchant Seafarers (COSWP)
2. Issue vessels with MCA Safety Bulletin No. 2
3. Stress that fines, Port State Control Inspections and criminal prosecution are likely, especially should a vessel persist in use of DWHLs
4. Refer to MAIB Safety Digest 01/25 (Link)



Figure 3. Example of a soft filled bag: a safe means of weighting a heaving line

TOWING POINT

The location of the winch and the towing point (i.e. the point at which the towing forces act) on a tug greatly affects the risk of girting and capsize. The conventional arrangement is where the towing point is located amidships and propulsion aft. This traditional tug arrangement poses the greatest risk of girting and capsize.

To reduce the risk, a gog rope (sometimes referred to as gob rope) is used (see Figures 4(a) and 4(b)). The non-conventional arrangement, where the towing point and the propulsion are at opposite ends of the tug, poses a lower risk.



Figure 4(a). Vessel without a gog rope

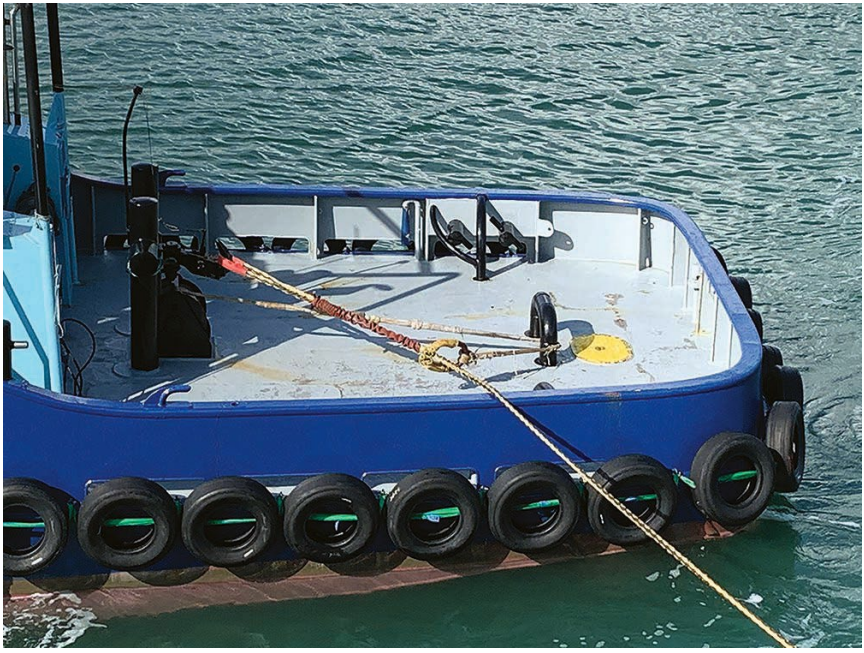


Figure 4(b). Vessel with a gog rope rigged.
To note, the gog rope is not pulled tight to the staple (gogged down hard) as it should be for safe operations, in the photo it may have been eased to allow the vessel to turn whilst loaded as necessary for a certain manoeuvre.

GIRTING – THE DANGER OF EXCESSIVE SPEED

Girting occurs when a towline is secured amidships and leads off the beam. If under tension, a heeling moment is exerted and, if the force is sufficiently powerful, it will overcome the tug's righting lever and cause it to girt.

Girting can occur very rapidly and there may be insufficient time for the winch to pay out or for the towline to part before capsize occurs. It can happen at the bow or the stern of an assisted vessel.

A conventional/single screw tug is less manoeuvrable so is particularly vulnerable and it may not be possible to get the tug out of difficulty.

Girting may occur because:

- The assisted vessel turns abruptly and without warning away from the tug
- The speed of the vessel is too high
- The tug is too far astern of its intended position, compared to the speed of the vessel

Additional safety considerations for operations of conventional tugs are provided in the **BTA/WA Gog Ropes Industry Advice Publication**.

REMEMBER:
Consider the type of tug and its propulsion as some may be more vulnerable to girting.

UNCONTROLLED RELEASE OF TOWLINE

When releasing the tow, it is important that the tug's messenger is not disconnected from the towline and the ship maintains a safe speed.

At the bow and stern, the towline must be released in a steady and controlled manner so that the towline can be recovered safely back onto the tug's winch.

Communication is critical, with the pilot advising the tug first and then instructing the ship's master to order their crew to release in a controlled manner once the tug has confirmed it is in position.

IMPORTANCE OF SPEED

The forces around the ship increase exponentially with speed and can significantly affect manoeuvring of the tug (see Figure 5).

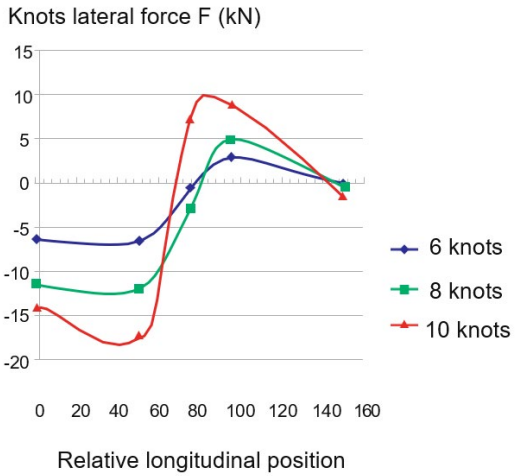


Figure 5. Relationship between ship forces and speed

'Tripping alongside' can occur when operating bow-to-bow, and the tug becomes vulnerable to the speed of the assisted vessel. If the assisted vessel utilises excess speed, the tug may lose its intended position and become subject to the hydrodynamic forces of the assisted vessel. The tug may be forced sideways, pivot unexpectedly or end up broadside against the ship's hull.

Bow-to-bow approaches for connection of tugs are shown in Figure 6. Loss of position due to excess speed during the manoeuvre can make it impossible to regain position.

This hazard is best managed by strictly limiting speed through the water, avoiding excessive steering angles under headway, and keeping emergency towline release mechanisms primed.

Hydrodynamic Interaction

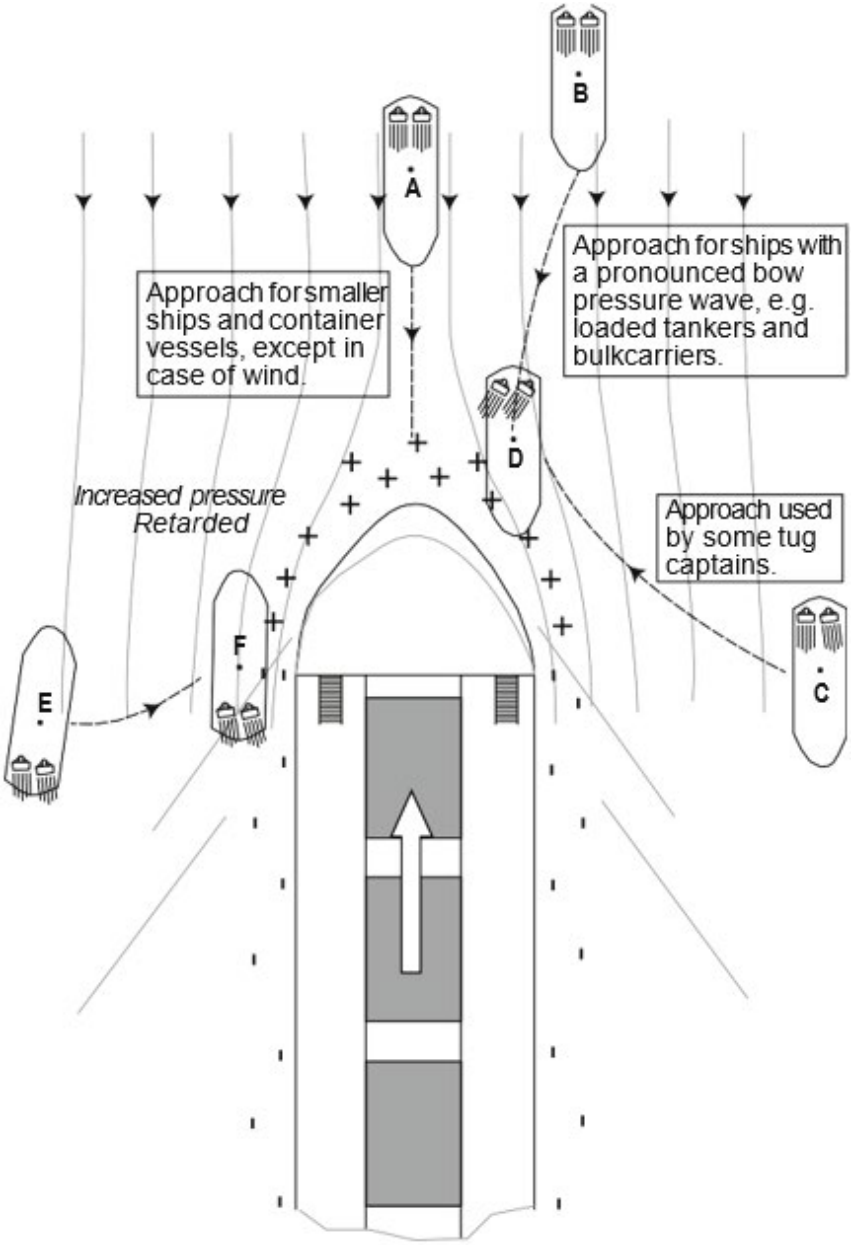


Figure 6. Bow-to-bow approaches examples for connection of tugs

ESCORT TOWAGE

There are many different types of escort towage services.

Key points are:

- **Right type of tug** – only tugs certified with an escort notation should be used for these jobs
- **Bitts and fairlead to be used during escort** – the tug master should be advised of the SWL of the bitts and the fairlead
- **Passive escort** – this is where the tug normally follows closely, but is not connected and is ready to move in at short notice if required
- **Active escort** – this is where the tug is normally connected centre lead aft and is there to assist steering the ship as and when required
- **Indirect towage** – this is where it is planned for the tug to assist steering a ship, normally around a known and agreed navigational mark, say a tight bend in a channel. The tug would use its propulsion to steer the tug away from the general direction of heading to create drag, and thus increase towline force. The tug would normally skate over to approximately 45° from the ship's heading. This can generate high towline forces (see Figure 7)
- **Powered indirect** – as indirect towage, but this time the tug actively drives forward and turns away from the direction of heading to achieve a towline angle close to 90° from the ship, generating the highest towline force possible. In many cases, this can be double the direct bollard pull of the tug and can put a huge load on the ship's Panama leads and bollards. It is normal for these tugs to achieve deck edge emersion at this point
- **Transverse arrest** – the tug is connected as before through the centre lead aft, but is used to slow and stop the ship in an emergency. ASDs are particularly good at this manoeuvre. Units are pointed outwards at 90° and power increased; this can be up to full if required in an emergency and brought around into direct pull once the speed starts to drop below 7–8 knots
- **Speed** – escort towage is normally performed at speeds above 6–7 knots to be effective, if considering indirect mode of towage

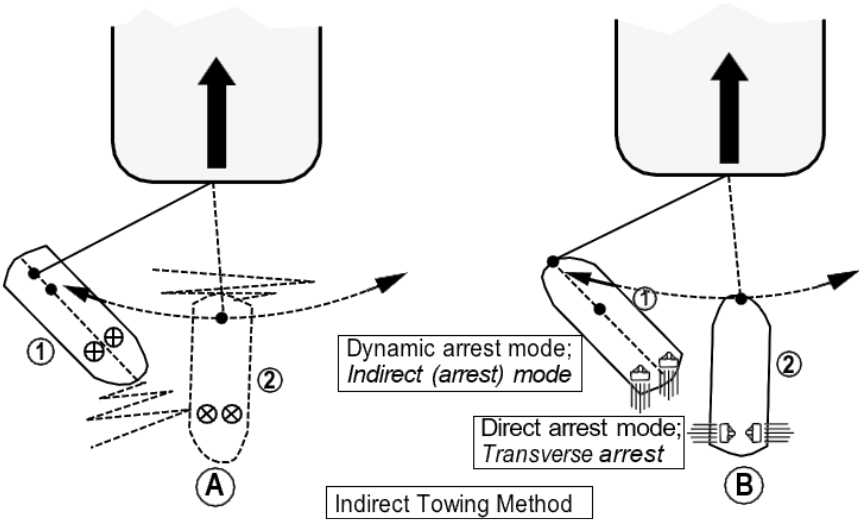


Figure 7. Indirect towing: VSP tug (A) shown left and ASD tug (B) shown right.
Position 1: steering and retarding. Position 2: retarding

CHANGING BETWEEN DIRECT AND INDIRECT TOWING

When an escort tug is tethered and is following a VLCC or ULCC, the speed is typically kept at around 10 knots and normally not more than 12 knots. At this speed, the tug would use indirect towing, in case the assisted ship needs assistance with steering.

When the speed of the assisted ship drops to about 4–5 knots, it is more efficient for the escort tug to change to direct towing mode. Some types of tug transition more easily than others.

Figure 8 illustrates how the steering force in indirect mode is dependent on the speed (red curve). The blue curve illustrates how the force in direct mode increases as the speed reduces to zero.

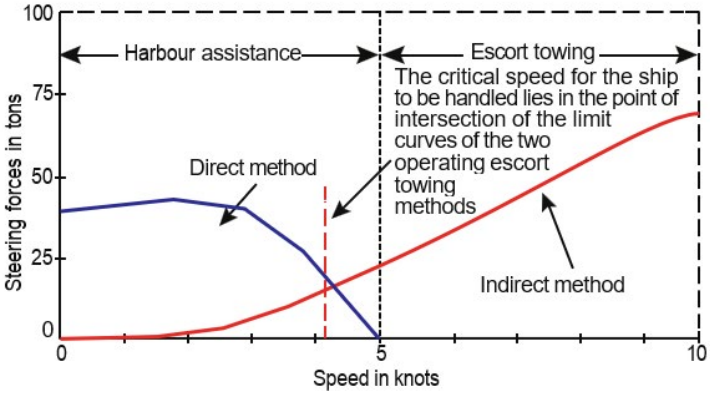


Figure 8. Tow speed versus indirect and direct towing for a 40 tonnes bollard pull tug

This example illustrates the steering forces versus tow speed for a Voith tractor tug of 40 tonnes bollard pull using direct and indirect escort towing methods. In direct mode, achievable steering forces decrease when speed increases. At speeds greater than 4–5 knots, higher steering forces (greater than 70% of conventional bollard pull) can be achieved in indirect mode.

Figure 9 shows the definitions of indirect towing forces and their direction.

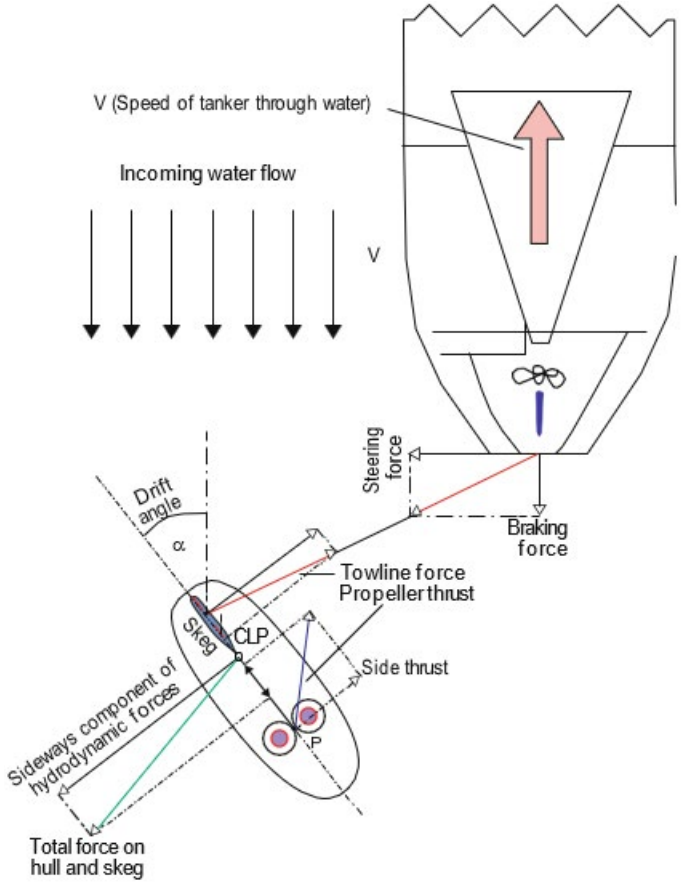


Figure 9. Definition of indirect towing forces

Risks and Hazards

Risk assessment by the pilot should start long before tugs make fast. It should be in two parts: before making fast and during the ship assist. Factors to consider include, but are not limited to:

- The ability of the tug(s) and their suitability for the task
- Weather, visibility and sea state
- Density of traffic
- The higher bollard pull of modern harbour tugs
- SWL of bollards and fairleads
- Excessive bow and stern flares and other protrusions
- Assisted vessel crew competency and examples of poor seamanship

PILOT AND TUG MASTER LIAISON MEETINGS

Regular liaison meetings are encouraged to allow discussion on safety performance and any recent or relevant towage incidents, both local and as reported by the BTA or the MAIB. Discussions should be recorded and include how to pursue or apply best practices to achieve safer outcomes in towage operations.

Points for discussion include:	
What worked well?	
What could be improved next time?	
Could communication between tug master and pilot be improved?	
How experienced are the crew members involved?	
What additional training or familiarisation could be helpful, e.g. escorting, live and in the simulator?	
How do we as a team ensure action is taken on lessons learned?	
Do we have any language or terminology issues that we need to discuss?	
Have recent incidents and near misses been considered?	
Where and how do we discuss lessons learned and ideas for improvement?	
What prevents us from being 100% safe during towage operations?	
How do we improve our towage operations based on lessons learned?	
How can we increase the value of joint training sessions?	
Is there anything further that needs to be done?	
Do we apply management of change in the port?	
When conducting towage risk assessments, are all stakeholders involved?	
Other? Review own port's Towage Guidelines. Are revisions required?	

The importance of pilot and tug liaison meetings cannot be overstressed, as encouraged within the PMSC (Port Marine Safety Code) Guide to Good Practice on Port and Marine Facilities.

FURTHER READING

Gog Ropes: Industry Advice, British Tugowners Association, Issued November 2025

Second Edition of Rope Selection, Procurement & Usage, British Tugowners Association, Issued May 2026

MAIB Report 17/2000, Girting and capsize of tug Flying Phantom 8

MAIB Safety Digest 1/2025

