



## National Workboat Association

### The Use of Workboats for Towage - Good Practice Guide







## Index

<b>Subject</b>	<b>Page</b>
<b>Preamble</b>	<b>4</b>
<b>The Tow</b>	<b>5</b>
<b>The Tug</b>	<b>8</b>
<b>The Tug Crew</b>	<b>11</b>
<b>The Towage Plan</b>	<b>12</b>
<b>During the Tow</b>	<b>13</b>
<b>Picking Up a Tow at Sea</b>	<b>15</b>
<b>Annex I Use of Gogs to Prevent Girting</b>	<b>16</b>
<b>Annex II Useful References</b>	<b>20</b>



## Preamble

These towage guidelines have been developed by the National Workboat Association in the light of recent towage incidents. They are primarily aimed at the main workboat towage areas, towing non-propelled barges and other objects in port, on coastal work sites and for coastal towage voyages, and bearing in mind that most workboats are of conventional propulsion, albeit mainly twin screw and quite manoeuvrable. Although many of the basic principles apply to both forms of towage, those engaged in 'ship assist' port towage should also refer to the more specialised guidance available, as in the references in the back of this guide.

Where the guide considers certification of the tow, it has been written with the assumption that it is a UK flagged vessel being towed under UK standard towing conditions, from a UK port, so under the jurisdiction of the UK Maritime and Coastguard Agency (MCA), the principles should be very similar with other coastal states but should be verified while planning the tow.

Additional guidance on the safe use of gogs to prevent girting has been added to the Guide as there is a lack of clear guidance available on this topic, and it is a significant risk for workboats in particular as can be seen from the girting incidents recorded by the UK Marine Accident Investigation Branch (MAIB).

This is intended to be a live document and will be updated going forward – we would welcome any comments or suggested additions you may have. In the first instance any comments should be sent to; - [secretary@workboatassociation.org](mailto:secretary@workboatassociation.org)

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## The Tow

1. The watertight integrity of the hull of the tow, the decks and any openings such as hatches, ventilation pipes, engine ventilation intakes and any other openings need to be verified by careful survey, and all weathertight and watertight closing appliances secured. Many low freeboard barges have taken water through air pipes with poorly maintained closing devices, and have capsized and even sunk as a consequence while being towed in a seaway.
2. The tow should have adequate intact stability in all the loading and ballast conditions to be used for the intended voyage. Tanks should be pressed up or emptied as far as possible to reduce any Free Surface Effect; any loose equipment, cranes or cargo on board the tow must be properly stowed and sea fastened.
3. The draught and trim of the tow must be suitable for towing. Although many tows have better directional stability when ballasted a little by the stern, this is not the case with all tows and some pontoons that are not heavily loaded may tow better at even keel trim or even trimmed slightly by the head, with less resistance, depending on the shape of their stern. List should be avoided to reduce the likelihood of taking water on the low side, to make it easier to work on board and as it may cause the tow to sheer from side to side or hang to one side instead of following the tug.
4. Any vessel or other object to be towed will require a valid loadline or a loadline exemption certificate. This may either be a UK or an International loadline certificate, normally from the Flag State for a loadline, or from the Coastal State if a loadline exemption. The Tow Master should be aware that all conditions stated on the Loadline certificate must be followed at all stages of the voyage.
5. Insurance cover will be required for the voyage; this will normally be specific to the tow, require an insurance warranty survey to have been carried out, and for the warranty surveyor's requirements to have been complied with throughout. These requirements will normally include a maximum towing speed and appropriate weather criteria, as well as a reporting programme. The Tow Master must be aware of these conditions and follow them at all times. In the case of a tow under a BIMCO Towcon towage contract in particular, a suitable 'certificate of tow worthiness' must be issued to the Tow Master prior to departure.
7. The tow requires suitable strong points to tow from and fairleads to tow through, with a particular emphasis on avoiding chafe, which can seriously damage both the tow and the towing gear very quickly. Normal mooring fairleads and bitts may be inadequate for the



greater dynamic forces and much greater potential chafe involved in towing in a seaway. Where available, consult the towed vessel's plans to identify suitable towing bollards.

8. The emergency towing arrangements need equally strong point(s) and suitable fairlead(s) on the tow. The emergency towing arrangements also need careful thought so as to make it as practical as possible for the tug to be able to get hold of them no matter which direction the tow is drifting in at the time and without unnecessary risk to the tug crew, in the event of the tow breaking adrift. The arrangements for the recovery of the tow should be made in accordance with good seamanship and bearing in mind the seasonal weather conditions and area of operation.

9. The towing arrangements and procedures followed should be such as to reduce to a minimum any danger to personnel during the towing operation.

10. Rudders, if any, should be locked unless there is a riding crew on board and the power available to steer. The ability to steer the tow can be very beneficial especially in narrow channels or with a fresh following wind, where the tow will often have a strong tendency to sheer up into the wind on either side of the tug. If it is not possible to steer the tow it may be beneficial to lock the rudder at a small angle to keep the tow slightly sheered to one side rather than sheering from side to side.

11. Consideration needs to be given to locking propeller(s) if appropriate on a dead tow, since although allowing rotation reduces resistance and so improves towing speed significantly, unless the gearbox and bearings are adequately lubricated while turning they may suffer significant damage and could create a fire risk.

12. There should normally either be a method of anchoring the tow or an alternative arrangement such as having an assisting tug connected throughout the tow if that is more appropriate in restricted waters. Consideration needs to be given to the practicality of being able to drop the anchor with a small crew on the tug and with no power on the tow, as well as the later recovery or buoying off of the anchor. The anchoring arrangements should be suitable for severe weather.

13. There should be suitable markings, clearly visible from the tug, to enable the draft and trim to be monitored by the tug crew from the tug. Normally this would consist of thick horizontal white lines painted just above the waterline at the fore and aft ends on each side of the tow.

14. Emergency pumping arrangements should be available in case of the tow taking water.



15. Arrangements should be in place to ensure safe means of access to board the tow for the tug crew and for mooring personnel at each port as required, including suitable safety equipment such as lifejackets and lifebuoys.
16. Adequate lighting must be available for all operations including emergencies.
17. Tows must exhibit the navigation lights and shapes, and if manned, make the sound signals required by the International Regulations for Preventing Collisions at Sea, for the tow (and anchoring if applicable) in suitable positions on board. Due consideration should be given to the reliability of the lights and sound signals and their ability to function for the duration of the voyage.
18. If the tow is equipped with its own towing bridle and emergency towing arrangements, the tug owners must be given details of the equipment to ensure that it is adequate and compatible with the tugs gear. If the tow is not so equipped, the tug managers must be given clear information on what equipment is needed so it can be available ready for the tow.
19. There should be suitable mooring arrangements and mooring lines on board the tow for mooring up at the destination as well as at any ports diverted into for shelter or other needs.
20. In most circumstances the tow will be unmanned, but if a riding crew is to be on board during the tow, suitable arrangements need to be made for their accommodation, cooking and washing facilities, power, safety equipment, fire appliances, communication with the tug etc. Suitable arrangements must also be made for the safe evacuation of the riding crew in case of emergency, including liferafts or other survival craft. Statutory safety requirements will apply, and the Maritime and Coastguard Agency (MCA) should be notified in good time prior to commencing the tow.
21. To reduce the risk of pollution, the amount of Dangerous Goods or Marine Pollutants carried on the tow should be limited to the amount necessary for the safety of the tow and its normal operations. Any Dangerous Goods or Marine Pollutants carried on board as cargo and not as ship's equipment should comply with the requirements of the IMDG code.
22. Where particular circumstances or characteristics of the towed object may indicate an increased risk to the tow and where the risk cannot be evaluated on the basis of experience and seafaring knowledge alone, the Towing Master should ask for advice and a survey from an appropriate competent organisation or authority.



## The Tug

1. The suitability of the tug must be assessed and unless there is relevant reliable historical data available for the tow and similar tug the Bollard Pull requirement for the tow must be calculated to show that adequate power is available to maintain a speed appropriate to the particular object to be towed, taking account of the environmental conditions to be expected and any restrictions applicable to the towed object which may limit the safe maximum speed, in conjunction with the necessary Risk Assessments for the towage operation.
2. The load line and warranty survey certification for the tow must be made available to the Tow Master so that he/she is fully aware of any conditions set out, and of his/her responsibility for complying with them in full at all times.
3. The tug must be certified for the area of operation required by the voyage, which could be through holding a Loadline Certificate, or UK MCA Workboat Code, or an appropriate Loadline Exemption Certificate, and an appropriate class notation if applicable.
4. As always with all towing work closing appliances to any weathertight and watertight openings on the weather deck must be closed as far as is practicable during the operation, bearing in mind that the engines do need an air supply, so as to avoid the risk of downflooding when heeled due to the towage forces.
5. The tug should normally have a suitable towing winch but alternatives such as towing on a hook at sea may be used subject to third party approval after careful consideration and appropriate Risk Assessments. The towing gear needs to consist of an appropriate size and length of towing hawser, bridles, stretchers and shackles, all of which need to be certified and in good condition. A chafe protector may be needed on the wire as it passes over the stern of the tug depending on the layout. The tug should carry sufficient spare towing equipment to be able to remake the towing arrangements in the event of any element of it parting. All components of the towing gear must be made up with the same rope lay construction (i.e. either right or left handed lay) if applicable.
6. The winch, towing hook or equivalent fitting being used to tow from should be strong enough to withstand the loads imposed during towing operations. The towing winch should be able to withstand a force equal to the breaking load of the wire acting at its maximum height above the deck without over-stressing either the winch or the deck connections and support. The winch brake should be strong enough to withstand the maximum peak static bollard pull with the full length of wire on the drum and should not release under load in case of power failure except when required.



7. The winch or towing hook should have a positive means of immediate release which can be relied upon to function correctly under all operating conditions, as well as a documented procedure for the maintenance and routine testing of the towing equipment, including the emergency release system. The towing wire should be secured to the winch drum such that it will allow the tow to be fully released under load.

The means of release should be operable from the wheelhouse, as well as locally at the towing hook or winch. The release should be capable of operation by one person when under full load.

8. The stability of the tug must be adequate, and must meet the requirements laid down in the vessel's own stability book.

9. The design of the towing gear should minimise the overturning moment due to the lead of the towline. If this requires suitable gogging arrangements they must be in place, correctly sited and of sufficient strength to withstand the loads imposed which may be almost as much as those applied to the towing gear.

10. Towage industry good practice is to have a minimum breaking strength of the wires of 3 x the Bollard Pull of the tug, and 5 x the BP for stretchers, shackles, thimble rings, monkey's face plates, chains and similar components. Some authorities cited in the reference guide in Appendix II at the end of this document suggest variations on these limits which are worth considering when designing the towing arrangements and towing gear to be used.

11. The length of the towing wire should be adequate for the depth of water available during the tow and the wavelength of the seas to be encountered, longer wires being appropriate where deeper water and longer seas are likely to be encountered. The use of stretchers may be considered but the rope material should be suitable for the seawater immersion, cyclical loadings, exposure to sunlight, chafe resistance and etc. experienced in towage operations. If High Modulus Polyethylene (HMPE) or similar man-made fibre towlines should be used, the manufacturer's instructions must be carefully followed, particularly with respect to chafe.

12. Certificates are required for all towing gear, including sufficient spare gear and emergency towing arrangements. An appropriate maintenance and inspection regime must be in place for all towing gear. A bollard pull certificate for the tug will normally be required.

13. The tug should have sufficient fuel and stores on board for the voyage and for all delays that may be reasonably anticipated, as well as the appropriate crew accommodation.



14. Communication systems on board must be adequate for the effective communication with appropriate authorities, warranty surveyor and tug managers at all stages of the voyage, as well as for reliable reception of the necessary route specific weather forecasts.

15. In the event of the tow presenting a danger to navigation, offshore structures or coastlines through breaking adrift or some other cause, the Tow Master must be aware of his or her obligation under the Merchant Shipping (Navigational Warnings) Regulations 1996 (SI 1996 1815) to communicate the information by all available means to ships in the vicinity, and to the competent authorities.

16. The tug should have suitable safety equipment available for boarding the tow if necessary, including survival suits if appropriate for the prevailing environmental conditions.



## The Tug Crew

1. The tug manager should ensure that, in addition to the crew certification requirements for a vessel of the tug's size, class and area of operation, the Tow Master and his crew have sufficient experience for the work planned and are competent in the operation of the tug. Competence may be established by the master holding a suitable towage endorsement, as well as by documented experience in the particular type of tug.
2. The tug manager should ensure that the master is aware of and has copies on board or electronic access to the relevant Merchant Shipping Notices, Code of Safe Working Practices for Merchant Seafarers (CSWP) and other documents which give guidance on the safety of vessels engaged in towing. Useful references are listed at the end of this Guide.
3. There need to be sufficient crew on board taking into account the duration of the tow, environmental conditions to be encountered and the possibility of emergency requirements as well as normal watchkeeping arrangements. This should include the possibility that the tow may need to be boarded. For any tow of over 12 hours in duration the total crew requirement is therefore unlikely to be less than four persons.
4. If more than one tug is involved the operation should be carefully planned and the plans effectively communicated to all involved. There needs to be one designated Tow Master responsible for the tow, who will take overall command of the tow and tugs involved and would normally be on board the main head tug, or aboard the tow if appropriate. Planning of the operations, clear understanding of all parties involved in the procedures to be followed, and clear communications between the Tow Master/Pilot and the Tug Masters becomes particularly important with more than one tug involved.
5. It is the responsibility of the Tow Master to assure himself of the condition of the towed object, its' watertight integrity, towing equipment supplied by the tow, emergency towage arrangements, condition of towing points, fairleads, chains and bridles, shackle locking devices, no loose gear on board, navigation marks and shapes, anchoring arrangement, boarding arrangements and all other relevant matters. This can only be done effectively by boarding the tow and undertaking a thorough visual inspection.
6. Within the scope of the tug's Safety Management System (SMS) all aspects of the safety of the tug crew should be considered including, but not limited to
  - The wearing of lifejackets and other appropriate personal protective equipment (PPE) whenever on deck,
  - Keeping clear of snap-back zones when on the working deck, or on the tow,
  - Ensuring as far as reasonably practicable safe access and egress from the tug and on to the tow.



## **The Towage Plan (Passage Planning)**

1. The Tow Master is responsible for preparing a Towage Plan, which will include details of the tow, towing equipment, emergency plans, the routing of the tow with ports or sheltered places of refuge chosen. Masters must bear in mind the requirement for ports to have their own safety management plan in place which may not allow dead tows to enter during the hours of darkness or with any defect of equipment, as well as the practicality of being able to enter the identified ports when the weather is bad, perhaps because of the difficulty of being able to safely connect a stern tug, put a mooring crew on board or board a pilot, for example.

2. An assessment needs to be made as to what is a safe maximum speed for the tow, particularly with powerful tugs. This is normally stipulated by the warranty surveyor in discussion with the Tow Master and some tows such as jack-up barges, backhoe dredgers, spud leg barges or heavily loaded barges or similar will require a maximum speed limitation beyond which it would be unsafe to tow them without the risk of taking too much water on deck with the consequent potential of ingress of water.

3. The departure and arrival ports, as well as any ports to be visited or used as safe havens on route, will normally have their own requirements such as specific towage plans, tug assistance requirements, compulsory pilotage and the like which all need to be checked and addressed before departure and there may be specific Bye Laws applicable. This will need to be addressed in the comprehensive passage plan for the tow, which will be planned taking account of the environmental conditions such as weather, tidal streams and currents, the size, shape and displacement of the tow and navigational hazards on the route.

Contingency plans should be in place to cover the onset of adverse weather in respect of heaving to or taking shelter e.g. ports or sheltered places of refuge.

4. Appropriate specific weather forecasting information should be available to the Tow Master throughout the tow. The Tow Master should be sure that there is a suitable weather window for the expected duration of the tow, as far as that is possible.

5. Risk Assessments (RA's) should be carried out for all aspects of the work and the Tow Master should hold a Toolbox Talk with the crews of all tugs involved to cover each aspect of the work such as departure, arrival and emergency procedures before commencement. Such RA's should be revised as necessary as circumstances change



## **During the Tow**

1. The length of the towline must be monitored and must be suitable for the available depth of water bearing in mind the expected catenary of the wire for the power being used and the speed of the tow, as well as the sea conditions and the potential for towline snatch to be generated.
2. The towline should be adjusted regularly if necessary to prevent chafe on board the tug. If there is a riding crew on the tow they should likewise monitor for any chafe at the tow.
3. The tow should be carefully monitored at all times with respect to any change of draft, trim or list, navigation lights and the like, and suitable action must be taken if any change occurs.
4. The tug should avoid applying large dynamic forces on the tow, in particular by changing course abruptly and through large angles.
5. In the event of unexpected bad weather or of difficulty in entering port for shelter, it should be noted that heaving to with the wind ahead and the use of minimal engine power to maintain steerage way is the safest technique, provided that there is sufficient sea room to accept that the tow may develop a negative speed over the ground.

Running downwind with a tow can lead to the tow overtaking the tug and the tow wire catenary increasing so as to snag on the bottom, or increased dynamic loadings on the tow line from the tow sheering across the weather, and is not advisable in bad weather.

### **6. Please see Annex I on the Use of Gogs to Prevent Girting.**

Tug Masters and crews should be aware of the dangers of girting. Although towage at sea does not normally involve that risk when towing non propelled barges and the like, there are likely to be such risks during the sailing from the departure port, and sailing from and arriving at any intermediate ports port and the final arrival port. There are documented instances (some referred to in the reference section) where workboats and tugs have been girted while assisting with the towage of a non-propelled vessel. The risks will be particularly heightened if the power of the fore and aft tugs involved are significantly different, as can occur if a workboat is assisting a powerful sea tug with a tow into harbour, or a powerful harbour tug is assisting a workboat with a tow.

There can be a danger of over confidence of the Master in command of a modern and highly manoeuvrable but conventionally propelled tug or workboat, who can feel that using the vessel as a stern tug is safe without a gog as it should be able to manoeuvre well enough



with twin widely spaced propellers, but in practice even at speeds of less than 3 knots girting is very possible and will happen so quickly that no effective avoiding action can be taken. Strong tides, propeller wash and/or the sea state all affect the speed at which it can occur, and smaller workboats are particularly vulnerable even at very low speeds. Experience also shows that the tug often sinks quickly in such circumstances with the likelihood of loss of life due to the failure of tug crews to close all watertight doors, hatches, and vents (where appropriate) while towing, which allows rapid downflooding when the tug starts to heel.

It is always safest to connect over the bow when acting as stern tug if in doubt and the tug or workboat should still be able to generate 60% of her BP in the astern mode. Otherwise a gog should always be used, be kept shortened up close to the centre line and close to the stern until it is safe to ease off. The gogging equipment must be of sufficient strength to withstand the considerable forces that may be applied through it. Good communication between the Tug Master(s) and Pilot, or person in overall charge of the tow is essential to ensure the Master is aware of intended movement of the tow, before such movement commences.



## **Picking Up a Tow at Sea**

1. When picking up a tow at sea, such as a ship that has lost main engine power, the towage arrangement may be compromised from the ideal in that, for example, it may not be possible for the ship's crew to haul aboard anything heavy especially if weather conditions are poor, or the tug may not have sufficient length of chafe chain on board to cover the distance from the suitable bitts to the fairlead of the tow. In this case the use of a soft eye wire pennant may be necessary, but the ship's crew should be instructed on methods of reducing chafe at the fairlead such as timber or other packing, or even basic greasing of the lead for a tow of relatively short duration. Towing wires are extremely hard and can cut through normal ships fairleads quickly with the motion of the tow, leading to the creation of sharp edges and increased chafing of the tow line.

As a mitigating factor the ship's crew should have the anchors available for use and if possible steer the ship to follow the tug well and avoid sheering and consequential snatch loads.

2. All vessels over 500GT are required to have an Emergency Towage Plan in place, which will include identified towing bollards. The Tow Master should take account of this plan.



## **Annex I Use of Gogs to Prevent Girting in Tugs and Workboats.**

This brief guide is intended as an aide memoire for conventionally propelled tugs and workboats in the safe use of gogs and gogging arrangements (otherwise known as bridles or gobs) in the prevention of girting.

1. Girting can occur when the tug is attached over her stern with a towing line from a hook or winch and is dragged astern at a speed through the water which prevents being able to manoeuvre and so brings the tow line over the side of the tug and the consequent heeling moment either capsizes her or pulls her over until downflooding and sinking occurs. Trials and experience show that this can occur at speeds lower than 3 knots, depending on tug size, sea state, propeller wash and other factors and smaller workboats are particularly vulnerable.
2. Incidents have occurred in the workboat industry when a workboat has been at the opposite end of the tow to a larger and more powerful sea or harbour tug, where the imbalance in power and manoeuvrability (particularly if a modern tractor harbour tug is on the other end of the tow) means that the workboat can easily become overpowered by the other tug, and Masters should always be aware of the dangers of this potential imbalance when assisting tows or being assisted with their own tow.
3. Masters of modern manoeuvrable workboats can be overconfident of the ability of their vessel and themselves to withstand such forces until it is too late, there are sufficient well documented incidents to show that caution is always required.
4. Girted tugs have frequently been lost due to not following the basic, well promulgated and seamanlike precaution of ensuring that all appropriate hatches, doors and vents are closed before undertaking a towing manoeuvre, due to the possibility of very quick downflooding through such openings when the tug starts to heel to larger angles.
5. If the tug may be put in a position where girting is possible at any stage during the planned towing manoeuvre, all such precautions must be taken.
6. It should be noted that some workboats are built without the necessary deck fittings required to attach an effective gog, and should therefore never be used in a situation where there is any risk of girting until they are suitably modified.
7. The necessity for towing over the stern at all should be considered bearing in mind that many tug/workboats can provide useful manoeuvring assistance by being the stern tug with the towing line rigged from the tug's bow with up to 60% of the ahead BP being available



with the engines astern, or alternatively by being made fast alongside (hipped up) or indeed close coupled as a pushing/stern tug, all of these providing a safer and perhaps more appropriate alternative.

8. Trials have shown that the forces applied on a gog can exceed 70% of the BP of the tug, so the strength of the gog and fittings must be commensurate with the forces that may be applied, bearing in mind that parting of the gog or failure of a fitting will have an instantaneous and severe effect on the tug. All parts of the arrangement must therefore be maintained in good condition and regularly inspected. The point of attachment of the gog on the tug must be on the centreline and as close to the after end as possible. The gog may be attached to the towing line by shackle if there is a suitable connection in the towing line in the right location, but if it is attached by having a riding saddle over the tow line this should preferably be in the form of a saddle rather than a shackle bow to prevent bending the tow line round a small radius.

9. If the gog cannot be heaved in under load, it must be secured hard down at the start of operations and only released once the danger of girting has passed (e.g. when the tow is close to the berth and the speed of the tow is suitably slowed).

10. Trials and experience have shown that the dangers of girting are high when the speed of the tow approaches 3 knots and above, but that they can occur at lower speeds, particularly with smaller vessels and with the effect of environmental factors such as propeller wash, tidal effects and sea state.

11. Experience also shows that if a girting situation starts to develop it will do so extremely rapidly so tug masters and crews need to be practised in releasing the tow under load when the tension required to release the tow hook may be much higher than expected, or at least be well aware of the extra force that will be required if practice trials have only been done with minimal load on the hook.

12. Communication between the tug master(s), vessel/tow master and/or pilot must be clear and concise, leaving no room for misunderstandings to develop, bearing in mind that each party sees it from their own perspective and that may be very different from that of others. Before the operation commences all must be clear about the intended sequence of events and must raise any issues of perceived risk or potentially safer ways of operating. Any necessary changes to the plan during the operation must be clearly communicated to all parties and acknowledged as understood.



13. The most difficult decisions to be taken by the tug master concerning the use of a gog may be the requirement to have it slack so as not to interfere with the necessary manoeuvring ability of the tug, and therefore the ability to properly assist/control the towed vessel, but then to be sure of having it snugged down or of being safely released from towing duties when the towed vessel's speed increases towards 3 knots or more. This can occur, for example, when acting as stern tug in assisting a ship from a berth when the ship is clear of the berth and starts to come ahead and make way with the tug still attached.

In these circumstances the tug must be able to release from the tow before the ahead speed generated starts to build up, thus putting the tug in danger of girting, or must be able to be gogged hard down if the tug is required to remain attached, for example if the ship is shifting berths within the port.

Clearly if the tug lacks a gog winch it will be very difficult to safely harden it down, and if the tug is using her own towing gear it is not easy to manoeuvre effectively to enable the tow line to be released by the ships' crew.

14. Another dangerous circumstance arises if the tug is acting as a head tug and the towed vessel starts to overtake it, either because it is a ship and needs to make way for any reason and so applies power, or when the tow is non propelled. This can happen either because the tow has built up speed and then does not respond quickly enough to the slowing down or alteration of course of the head tug, or because of another tug is pushing or towing alongside and adding power.

This is especially dangerous when the head tug is on a very short towline: If it is too short to allow the tug to move to the side of the tow, perhaps in the case of a square bowed, wide barge, so that the stern of the tug contacts the tow and gets run over, or with any tow where the towline length is insufficient to allow the tug to make a required alteration of course and/or speed while allowing the space for it to take effect on the tow.

Since the head tug must be able to move from side to side to control the heading of the tow, a gog would increase the dangers to the tug unless slack enough to allow the necessary manoeuvring room.

As always the tug should avoid trying to make any sharp turn with the tow and keep the towing speed low to avoid dangerous circumstances arising.

There is not always a simple answer to these risks, so they must be clearly understood and allowed for in the planning of the tow between the tug master(s), pilot and master of the towed vessel.



15. If a tug is to make fast stern first to a tow under way, the normal safe operational sequence would be as follows:-

- (a). When the speed of the tow has been reduced and it is safe to do so, run alongside the stern quarter on the lee side of the tow and come alongside, holding station by maintaining the same speed as the tow and keeping the helm slightly towards the tow.
- (b). Pass up (or take down from the tow if they have a suitable towline) the towline to the stern of the tow, make fast, rig and secure the gog hard down.
- (c). When the towline is fast and the gog rigged, move ahead slowly, remaining alongside the tow, until the towline is under tension.
- (d). When the speed of the tow is sufficiently reduced through the water and the pilot/tow master is ready, start to move slowly away from the tow while maintaining tension on the towline by easing the helm slightly away from the tow.
- (e). The tow will move ahead and the tug will come around in an arc until astern of the tow.
- (f). Do not slack off the gog until the ahead motion of the tow is sufficiently slow to allow the tug to manoeuvre safely with a slackened gog without risk of girting.



## **Annex II Useful References**

**Masters are advised to check for other relevant MCA Marine Guidance Notes which may be issued from time to time and may provide further relevant guidance**

**There are several relevant MAIB reports on towage incidents, including ‘Endurance’, ‘Chiefton’, ‘Ijsselstroom’, ‘Battler’ and ‘Asterix’ which contain valuable information on how accidents occurred and should be read by all involved in towing**

IMO MSC Circular 884 Guidelines for Safe Ocean Towing

IMO Resolution A765 (18) Guidelines on the Safety of Towed Ships and Other Floating Objects

IMO MSC Circular 1175 Guidance on Shipboard Towing and Mooring Equipment

MGN 308 (M+F) Mooring, Towing or Hauling Equipment on all Vessels – Safe Installation and Safe Operation

MGN 468 M Voluntary Towage Endorsement Scheme

MGN 199 (M+F) Dangers of Interaction

MSN 1752 (M) The Merchant Shipping (Load Line) Regulations 1998, as amended by the Merchant Shipping (Load Line) (Amendment) Regulations 2000, Schedule 2, Part 1, paragraph 2, for stability criteria

MCA Instructions to Surveyors, Load Line Instruction (MSIS 1) Part 8, Section 8.11 Tugs and Section 8.12 Safety of Towed Ships and Other Floating Objects

MCA The Safety of Small Workboats and Pilot Boats – a Code of Practice (the ‘Workboat Code’) particularly part 11.7 Stability of Vessels Engaged in Towing and 25.2 Vessels Engaged in Towing.

MCA Code of Safe Working Practices for Merchant Seafarers (CSWP)

Noble Denton Guidelines for the Approvability of Towing Vessels

Shipowners P&I Club - Tugs and Tows, a Practical Safety and Operational Guide

Nautical Institute - Tug Use in Port, a Practical Guide, Captain Henk Hensen



West of England P&I Club, Loss Prevention Bulletin, the Risk of Tugs Capsizing due to Girting

Other information of interest to those involved in towage is available in the following publications:-

US Navy Towing Manual

Anchor Handling Tug Operations, IC Clark and M Hancox

Practical Introduction to Anchor Handling and Supply Vessel Operations, Gary Ritchie

And some towage useful guides, although primarily focussed on American techniques and practices:-

Primer of Towing, G H Reid

Shiphandling with Tugs, G H Reid

Shiphandling with Tugs, Jeff Slesinger