



Voluntary Towage Endorsement Scheme

Notice to all UK Port and Harbour Authorities, Shipowners and Operators engaged in towage work, Contractors and others conducting risk assessments of towage operations.

This notice should be read in conjunction with MSN 1808 (M).

Summary

This notice describes the arrangement for the MCA recognised voluntary towage endorsement scheme. It has been developed at the request of the UK towage and workboat industry to help ensure that masters engaged in towage operations have the necessary skills for such specialist operations.

The notice identifies competence standards and the specific knowledge, understanding and proficiency needed to safely operate in this area of the maritime industry.

The voluntary towage endorsement scheme may assist port and harbour authorities conducting risk assessments of towage operations and developing safe systems of work as required by the Port Marine Safety Code.

Key points:

1. The towage endorsement scheme is voluntary and there is no statutory obligation to hold a towage endorsement to work in the towage industry.
2. Voluntary towage endorsements are intended to be used in conjunction with an appropriate Certificate of Competency (**CoC**) and are not in themselves a substitute for such a certificate.
3. There are three towage endorsements:
 - a. General Towage
 - b. Ship Assist Towage
 - c. Sea Towage
4. The general towage endorsement will be accepted as meeting the competence standard required for the issue of a 'towing and pushing' endorsement under the Boatmasters' Regulations [SI 2006 No. 3223 - The Merchant Shipping (Inland Waterway and Limited Coastal Operations) (Boatmasters' Qualifications and Hours of Work) Regulations 2006].



1. Introduction

- 1.1 The MCA recognises that certificates it issues under the International Convention on Standards of Training, Certification and Watchkeeping 1978, as amended, (**STCW**) and those issued by the Royal Yachting Association (**RYA**) and others are generic to the industry and there is no requirement for a separate statutory towage endorsement.
- 1.2 However, after consulting with industry the need for a voluntary towage endorsement scheme was identified. Voluntary towage endorsements will:
 - a. assist owners and operators engaged in towage work, or harbour masters, contractors and others when risk assessing towage operations; and
 - b. enable individuals to demonstrate that they are suitably experienced and competent to carry out such work.
- 1.3 Unless they wish to enhance their knowledge in a specific area of towage, this notice is not relevant for holders of tug specific Certificates of Competency¹.

2. Description of the endorsements

- 2.1 There are three voluntary towage endorsements:
 - a. **General Towage Endorsement** – towing and pushing in categorised waters² or in limited coastal areas³ (competence standard contained in Annex 1).
 - b. **Ship Assist Towage Endorsement** - assisting with the berthing and un-berthing of vessels (competence standard contained in Annex 2).
 - c. **Sea Towage Endorsement** - towage of vessels or floating objects at sea (competence standard contained in Annex 3).

3. Qualifying conditions

- 3.1 Persons applying for voluntary towage endorsement must complete the training record book and show proof of relevant experience of towage tasks.
 - a. **General Towage**
A person will require to have attained a minimum of 120 days service in vessels whilst engaged upon acts of general towage for the award of this endorsement.
 - b. **Ship Assist Towage**
After completion of the General Towage endorsement, a further 120 days service in vessels whilst engaged upon specific 'ship assist' operations.

¹ The Voluntary Towage Endorsement Scheme is not intended to replace the BTA sponsored training or tug training route currently being developed by the MCA and our tug industry partners leading to the issue of a tug specific Certificate of Competence under STCW.

² Refer to MSN 1827 (M) – Categorisation of Waters

³ Limited coastal area, as defined in the Boatmasters' Regulations, means an area of the sea where the vessel is neither more than 15 miles (exclusive of waters of category A, B, C or D) from its point of departure nor more than 3 miles from land.



c. **Sea Towage**

After completion of the General Towage endorsement, a further 180 days service in vessels engaged upon Sea Towage, undertaking a minimum of 12 separate sea towage operations.

4. Assessment and endorsement

- 4.1 Assessment and endorsement will be carried out by MCA Recognised Bodies. Assessment for each endorsement will consist of an oral exam covering the underpinning knowledge and a practical assessment. Successful candidates will be awarded the appropriate endorsement by the Recognised Body.
- 4.2 Voluntary towage endorsement assessors will be appointed by the MCA Recognised Body.
- 4.3 Assessors are expected to have a minimum of five years relevant experience in towing operations and relevant assessment experience.

5. Recognised Bodies

- 5.1 The National Workboat Association (**NWA**) is recognised by the MCA to carry out assessments and certification for the voluntary towage endorsement scheme.
- 5.2 The NWA is required to maintain a list of current assessors and records of candidates assessed and voluntary towage endorsements issued. They may make a charge for undertaking the assessment and issuing the endorsement to cover their assessor's costs and administrative overheads.
- 5.3 Contact details are:

National Workboat Association
21 Southcote Close
Bacchus Lane
South Cave, Brough
HU15 2BQ
01430 470013 (Secretary)
07834 866124
secretary@workboatassociation.org

- 5.4 Applications to become a Recognised Body by the MCA under the Voluntary Towage Endorsement Scheme should be made in writing to the MCA Chief Examiner and submitted to the address at the end of this notice.

6. Application for assessment for the issue of a Voluntary Towage Endorsement

- 6.1 Candidates wishing to obtain the voluntary towage endorsements described in this document should apply to a Recognised Body as detailed in paragraph 5 to be assessed for the issue of a voluntary towage endorsement.
- 6.2 Holders of Boatmasters' Licences (**BML**) who wish to engage in towage operations must obtain the BML Towing and Pushing Endorsement in accordance with the requirements of the BML regulations. If the holder of a BML obtains the voluntary General Towage



Endorsement then this will be accepted as meeting the requirements for the BML Towing and Pushing Endorsement.

7. Training Record Books

- 7.1 Candidates must complete the appropriate sections of the approved Training Record Book (**TRB**) for the Voluntary Towage Endorsement Scheme contained in Annex 4 prior to being examined for the a voluntary towage endorsement. When the relevant sections are completed, the TRB provides comprehensive documentary evidence of an approved training program.
- 7.2 The TRB can be downloaded from the MCA website:
http://www.dft.gov.uk/mca/ds-stc-vte-annex_4_-_training_record_book.pdf

More Information

Seafarer Training and Certification
Maritime and Coastguard Agency
Bay 1/21
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Tel : +44 (0) 23 8032 9231
Fax : +44 (0) 23 8032 9252
e-mail: exams.section@mcga.gov.uk

General Inquiries: infoline@mcga.gov.uk

MCA Website Address: www.dft.gov.uk/mca

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Annex 1

Competence Standards for General Towage Endorsement

A1.1 Summary

This standard is about:

The competence required to conduct general towage operations (towing and pushing) at a management level on board vessels operating in categorised waters or in limited coastal areas.

This standard is for:

Masters of vessels engaged in general towage operations (towing and pushing) in categorised waters or in limited coastal areas.

A1.2 Outcomes of effective performance

Candidates for the issue of the General Towage Endorsement will have demonstrated that they can do the following:

1. Ensure that there are clearly defined safe work procedures/standing orders for conducting safe general towage operations.
2. Inspect the vessel to be towed and establish correctly that it is safe to tow to the planned destination.
3. Inform the relevant authority promptly where you assess the vessel to be unfit for towing, stating the reasons clearly.
4. Where necessary, ensure that all statutory, regulatory and other requirements for the tow are identified and met, and comply with all navigational, reporting and warning requirements.
5. Where the vessel is subject to compulsory pilotage, ensure there is an adequate exchange between the Master of the towing vessel and Pilot and effective bridge team support for the Pilot.
6. Assess the circumstances affecting the requirement for a tow, and determine correctly any risks involved.
7. Plan the tow, identifying correctly the actions required, taking into account the characteristics of the tow, and any relevant navigational restrictions, determining the best method for towing.
8. Establish and maintain clear and appropriate communications between your vessel and that to be towed.
9. Brief all concerned clearly and correctly on the actions to be taken, ensuring that everyone understands their role and the emphasis upon safety.
10. Prepare correctly all necessary equipment for towing and rigging, checking for damage prior to taking a tow, making good and reporting any faults before use.

11. Develop and action appropriate contingency plans that ensure the safety of navigation, protection of the marine environment and safety of the vessel and persons on board.
12. React safely and appropriately to loss of critical systems e.g. loss of main power or steering unit whilst engaged in general towage operations.
13. Identify where the transfer of a crew member to the vessel to be towed would assist the towing operation, and where relevant, undertake such a transfer safely and correctly.
14. Rig, secure and deploy the towing equipment correctly, taking necessary actions to protect both vessels and to minimise the effect of chafe.
15. Ensure that the correct audible and visual signals indicate towing.
16. Handle the vessel safely under the prevailing conditions with due consideration to the engineering systems.
17. Operate remote controls of propulsion plant, engineering systems and services correctly and safely.
18. Monitor the tow, and make any necessary adjustments correctly and safely.
19. Establish communications with those receiving the tow and other relevant authorities, and ensure that preparations for receiving the tow on arrival are in place.
20. Disengage the tow correctly and safely.

A1.3 Knowledge and understanding

Underpinning Knowledge Syllabus for General Towage Endorsement

Candidates need to know and understand the following:

GT 1 INTERNAL COMMUNICATIONS

The use of internal communications systems and effective forms of communications including:

- 1.1 Pre-tow briefing/ toolbox talks
- 1.2 Use of hand signals
- 1.3 Use of hand held radios
- 1.4 Use of CCTV
- 1.5 On board alarms/announcements/signage

GT 2 EXTERNAL COMMUNICATIONS

External communications with other vessels, pilots and coastal authorities including:

- 2.1 Tow set up briefing
- 2.2 Use generic terminology after confirming common understanding with pilots and shore authorities
- 2.3 Use of the IMO Standard Marine Communication Phrases (SMCP) as appropriate
- 2.3 Use of radios and commands/instructions
- 2.3 Use of other means of communications including AIS
- 2.4 Reports to navigation authorities/Harbour Master/VTS/Port Control/HM Coastguard

GT 3 EMERGENCY PROCEDURES

The actions to be taken in the event of:

- 3.1 Failure of towing lines
- 3.2 Failure of Gog arrangements/shackles/towing hook/winch
- 3.3-5 Failure of critical systems including – engine/steering/propulsion/electrical
- 3.6 Loss of communication with towed vessel/pilot/port control
- 3.7 Mechanical problem on towed vessel including engines/steering/other (e.g. release or loss of anchors)
- 3.8 Rope in propulsion system
- 3.9 Failure of watertight integrity of tug when towing
- 3.10 Collision
- 3.11 Grounding of tug and/or tow
- 3.12 Man overboard
- 3.13 Fire
- 3.14 Pollution
- 3.15 Use of emergency controls
- 3.16 Deployment of emergency tow line/emergency anchor systems
- 3.17 Emergency release of tow
- 3.18 Deployment of crew in emergency situations
- 3.19 Constraints on ability to render assistance to others/SOLAS statutory obligations
- 3.20 Assessment of risk/limitations on ability of voluntary assistance for salvage

GT 4 FITNESS FOR PURPOSE

Ensuring that:

- 4.1-2 Vessel has appropriate certification for tug and tow
Vessel has appropriate lights and daylight shapes for towage available
- 4.3-4 Navigational equipment is in keeping with working areas
- 4.5 There is sufficient crew, suitably qualified and experienced for the intended work
- 4.6 Watertight integrity is maintained during towage operations
- 4.7 Vessel is of a size and type with power and bollard pull appropriate to carry out work intended and expected conditions.
- 4.7 All lifting and towing equipment is tested and/or certified and of a size and type consistent with type of work and operational area.
- 4.8 You are aware of meaning and purpose of the term 'Warranty Survey'

GT 5 LOCAL KNOWLEDGE AND PASSAGE PLANNING WHEN TOWING AND PUSHING

Construct a passage plan for a voyage and demonstrate to the master that you have taken account of the relevant local conditions, including:

- 5.1 Effect of local conditions on tows e.g., wind, tide, depth, localised tidal effects 'run off', interaction (squat, canal effect) effect of propeller wash, currents and berths
- 5.2 Local traffic conditions, pilotage and port movements
- 5.3 Passage planning - to note the effect of wheel over on tow position
- 5.4 track of tow in narrow channels
- 5.5 ports of refuge and safe havens
- 5.6 Use of additional tugs for critical points in the passage
- 5.7 Grounding between tides (ebbing up)

GT 6 SAFE TOWAGE OPERATION

How to plan a towage operation taking into account:

- 6.1 Identification of the principal risks and method of assessment
 - 6.2 Type and characteristics of towing gear to be used
 - 6.2 Determining the towing methods to be used
 - 6.2 Double headed tow/ tandem tow/ integrated tug systems for pusher tugs/ non integrated pushing/ Mississippi arrangements
 - 6.3-4 The inspection of the tow, assessment of suitable towage points and chafing areas
 - 6.5 Close quarters operations – effect of interaction, wash, restricted waters
 - 6.5 Characteristics of the tow
 - 6.6 Rigging, correct deployment and safe handling of the towing gear
 - 6.7&15 Connecting up and letting go, changing towage arrangements
 - 6.8 Safe areas on deck
 - 6.9 Sufficient lighting – deck lighting/directional searchlight to illuminate tow
 - 6.10 Stability for towing operations
 - 6.12 Relevant local byelaws
 - 6.13 Appropriate towage arrangements for different phases of the tow
 - 6.14 Berthing arrangements
- On passage**
- 6.16 Monitoring the tow, and taking safe and timely corrective action if required
 - 6.16 Knowledge of towing points. Risk and prevention of girting - e.g. use of towing pins, gog ropes etc
 - 6.17 Avoidance of large dynamic tensions ('snatching') in the towline

GT 7 TOWING EQUIPMENT

How to use loose equipment safely taking into account:

- 7.1 Safe Working Loads - knowledge of difference between lifting regulations and towing industry standards
- 7.2 Types of ropes, wires and chains commonly used in towage
- 7.3 Characteristics, monitoring, care, testing and certification of all loose equipment, proof tests and manufacturers certificates
- 7.4 Towing Bridles, stretchers and chafe chains, gogs, gobs, bridles and V ropes
 - Types of shackles, uses, and securing
 - Monkey plates (face plates)
 - Stoppers
 - Towing pins, Shark jaws and other line restraining devices
 - Anti chafe devices

How to use and maintain the following fixed equipment safely taking into account their limitations:

- 7.5-9 Bollards, bitts and samson posts
 - Winches and capstans, including controls, brakes and tension measuring devices
- 7.10-12 Towing hooktypes - release mechanisms, maintenance and testing procedures
- 7.13 Fairleads, rollers and towing brackets e.g. Smit bracket
- 7.14 Fendering – types and securing methods

GT 8 PROPULSION SYSTEMS AND TUG TYPES

Have knowledge of operational characteristics of the following range of propulsion and steering systems:

- 8.1 Azimuth propellers - 360° steerable propellers which can deliver thrust in any direction (Z pellers)

- 8.2 Controllable pitch propeller(s)(CPP)
- 8.3 Fixed pitch propeller(s)(FPP)
- 8.4 Voith Schneider (VS) propulsion – vertical propeller blades
- 8.5 Steerable nozzles
- 8.6 Shrouded nozzles e.g. Kort type

GT 9 DIFFERENTIATE THE FOLLOWING TUGS IN TERMS OF TOWING POINT WITH RESPECT TO PROPULSION SYSTEM

Have knowledge of the classification of tug types in terms of the position of their propulsion systems with respect to their towing point:

Propulsion forward of midships with a towing point aft:

- 9.1 Tractor Tugs with Voith (VS)
 - 9.2 Tractor tugs with Azimuth propellers
- Propulsion aft and towing point near midships:
- 9.3 Conventional type – single or twin FPP or CPP
- Intermediate tug types – dependent on method of operation:
- 9.4 Reverse tractor or pusher tugs
 - 9.5 Combi tugs – modified older tugs with a 360° steerable thrusters in the bow.
 - 9.6 Azimuth stern drive (ASD)- usually twin units

GT 10 DESCRIBE THE MAIN CHARACTERISTICS OF THE FOLLOWING VESSEL TYPES AND FUNCTIONS

Have a general knowledge of classification of tugs according to function:

- 10.1 Seagoing tugs
- 10.2 Escort tugs – passive or active
- 10.3 Harbour/ship assist tugs/Carousel tugs
- 10.4 Anchor handling tugs
- 10.5 Craft tugs, workboats and multcats
- 10.6 Pusher tugs including combination units
- 10.7 Line handling craft

Annex 2

Competence Standards for Ship Assist Towage Endorsement

A2.1 Summary

This standard is about:

The competence required to conduct ship assist towage operations (assisting with the berthing and un-berthing of vessels) at a management level on board vessels operating in categorised waters or in limited coastal areas.

The standards for the **Ship Assist Towage Endorsement** are in addition to the requirements of the **General Towage Endorsement**.

This standard is for:

Masters of vessels engaged in ship assist towage operations in categorised waters or in limited coastal areas.

A2.2 Outcomes of effective performance

Candidates for the issue of the Ship Assist Towage Endorsement will have demonstrated that they can do the following:

1. Ensure that there are clearly defined safe work procedures/standing orders for conducting safe ship assist towage operations.
2. Assess the vessel to be provided assistance and establish correctly that it is safe to provide assistance to the planned destination.
3. Inform the relevant authority promptly where you assess the vessel to be unfit for receiving assistance, stating the reasons clearly.
4. Where necessary, ensure that all statutory, regulatory and other requirements for ship assist towage operations are identified and met, and comply with all navigational, reporting and warning requirements.
5. Assess the circumstances affecting the requirement for providing assistance, and determine correctly any risks involved.
6. In conjunction with the pilot and/or vessel master, as appropriate, plan the ship assist operations, identifying correctly the actions required, taking into account the characteristics of the vessel to be assisted, and any relevant navigational restrictions, determining the best method for providing the assistance.
7. Establish and maintain clear and appropriate communications between your vessel and the vessel to which the assistance is being provided.
8. Brief all concerned clearly and correctly on the actions to be taken, ensuring that everyone understands their role and the emphasis upon safety.

9. Prepare correctly all necessary equipment for providing ship assist services, checking for damage prior to commencing operations, making good and reporting any faults before use
10. Develop and action appropriate contingency plans that ensure the safety of navigation, protection of the marine environment and safety of the vessel and persons on board during ship assist operations.
11. Ensure that the correct audible and visual signals indicate ship assist operations.
12. Handle the vessel safely under the prevailing conditions with due consideration to the engineering systems.
13. Operate remote controls of propulsion plant, engineering systems and services correctly and safely.
14. Monitor the tow, and make any necessary adjustments correctly and safely.
15. Establish communications with those receiving the tow including the pilot and/or vessel master and other relevant authorities, and ensure that preparations for receiving the tow on arrival are in place.
16. React safely and appropriately to loss of critical systems e.g. main power or steering unit whilst in close proximity/made fast to assisted vessel.
17. Disengage the tow correctly and safely.

A2.3 Knowledge and understanding

Underpinning Knowledge Syllabus for Ship Assist Towing Endorsement

Note: Whilst some of the knowledge areas below are similar to the General Towing Endorsement, they are intended to reflect a greater depth of knowledge in these specific areas.

Candidates need to know and practically demonstrate the following:

SAT 1 SHIP ASSIST, TUG HANDLING KNOWLEDGE

- 1.1 The limitations of point load on ships' hulls and how this might affect a ship assist operation.
- 1.2 The functions and limitations of different fendering arrangements.
- 1.3 The dangers and pressure areas arising from the construction of ships when operating in close proximity e.g. interaction forces, lines of sight.
- 1.4 The correlation between the windage of a vessel, the expected weather conditions and the bollard pull of the tug.
- 1.5 How to react to loss of critical systems whilst in close proximity/made fast to assisted vessel.
- 1.6 The safe operation of the vessel in port in restricted visibility whilst conducting ship assist operations.
- 1.7 A safe departure from berth and on completion, conduct a berthing alongside.
- 1.8 The ability to manoeuvre effectively under free sailing conditions.
- 1.9 Secure a barge alongside from a mooring and get underway.
- 1.10 How to manoeuvre and re-secure a lighter/barge.
- 1.11 Take station as the bow tug on large ship movement, including a running catch up from the shoulder.
- 1.12 Act as stern tug on large ship movement, including a running catch up.
- 1.13 To secure as the alongside tug, including changing sides within a winding/re-berth manoeuvre.
- 1.14 The role of the push/pull tug in a berthing or sailing movement.
- 1.15 How to act as lead bow tug into and/or out of tidal basin.
- 1.16 How to pick up bow to bow (ASD)
- 1.17 Typical abort manoeuvres and recovery position

- 1.18 Active winch control
- 1.19 The hazards of using towed vessel's ropes, gear and securing points.

SAT 2 EXTERNAL COMMUNICATIONS

- 2.1 The importance of the need for a clear berthing plan and agreement by all parties.
- 2.2 Communications between tug(s) and pilot:
 - Use standard communications protocols / instructions for power and direction.
 - Appreciate the importance of locally agreed terminology and means of communications.
 - Clearly identify and establish communications with multiple tugs.

SAT 3 EMERGENCY PROCEDURES

- 3.1 Reacting to loss of critical systems e.g. main power or steering unit whilst in close proximity/made fast to assisted vessel.
- 3.2 Reacting to malfunction of critical systems on assisted vessel.
- 3.3 Methods of slipping tows under load and the associated hazards.

SAT 4 FITNESS FOR PURPOSE

- 4.1 Understanding the factors that influence the correct choice of tug (bollard pull, propulsion type, manoeuvrability, size of vessel) for a given towage operation.
- 4.2 Appropriate use of available tugs.
- 4.3 Ensuring tug watertight integrity during towage operations.

SAT 5 DETAILED LOCAL KNOWLEDGE

Detailed knowledge of:

- 5.1 Harbour and terminal layout, to include:
 - Berths, navigational channels and buoyage
 - Local tidal flows and currents
 - Limiting depths in berthing areas
- 5.2 Port Regulations including local pilotage requirements, local byelaws, towing in restricted visibility and towage guidelines.
- 5.3 Relevant parts of the Port Marine Safety Code relating to towage.
- 5.4 Vessel traffic Services, traffic situational awareness and port movements.

SAT 6 SAFE TOWAGE OPERATION

- 6.1 Tug Handling
 - Thorough knowledge of tug handling in a range of Ship Assist manoeuvres including:
 - a. Direct and Indirect towing
 - b. Push and Pull techniques
 - c. Picking up and letting go over the bow or stern
 - d. Escort towing – steering and braking techniques
 - e. Securing alongside and manoeuvring dead ship vessels.

6.2 Interaction

A detailed understanding of interaction with particular reference to working in close proximity with large vessels, especially in bow to bow work with Azimuth Stern Drive (ASD) and Azimuth Tractor Drive (ATD) tugs.

Reference: CaptHenkHensen article on Use of ASD Tugs - ISBN 1 870077 73 3 published by the Nautical Institute – 2006

6.3 Fendering

- a. Understanding the effects and limitations of point load on ships' hulls.
- b. Understand the effects, functions and limitations of different fendering arrangements on tugs.

6.4 Stability and watertight integrity

- a. Appreciation of stability and the need for watertight integrity when towing under load conditions.
- b. Knowledge of towing points and the avoidance of girting in dynamic situations.

SAT 7 TOWING EQUIPMENT

Practical knowledge of the capabilities and limitations of different types of the following as used in Ship Assist operations to include:

7.1 Winches and Gear

- a. Towing winches and capstans - rendering and tensioning
- b. Towing hooks
- c. Tow ropes - wires, synthetic ropes – polyester, High Modulus PolyEthylene (HMPE) ropes etc.
- d. Use of pennants
- e. Use of grommets
- f. Use of joining shackles and connections

7.2 Use of assisted ship's ropes and gear.

- a. Safe working load and limitations of securing points
- b. Hazards and limitations in the use of ship's ropes

7.3 Testing and Inspection of towage equipment

- a. Quick release gear
- b. Records of certification of ropes wires and shackles
- c. Inspection and renewal procedures

SAT 8 PROPULSION SYSTEMS AND TUG TYPES

8.1 Detailed knowledge of capabilities and limitations (including power rating) of tug types to include:

- a. Voith Schneider
- b. Azimuth Stern Drive (ASD)
- c. Azimuth Tractor Drive (ATD)
- d. Conventional single screw
- e. Conventional twin screw

8.2 Outline knowledge of other tug types including:

- a. 'Z' Tech
- b. Rotor
- c. Carousel

Annex 3

Competence Standard for Sea Towage Assist Endorsement

A3.1 Summary

This standard about:

The competence required to conduct sea towage operations.

The standards for the **Sea Towage Endorsement** are in addition to the requirements of the **General Towage Endorsement**.

This standard is for:

Masters of vessels engaged in sea towage operations.

A3.2 Outcomes of effective performance

Candidates for the issue of the Sea Towage Endorsement will have demonstrated that they can do the following:

1. Ensure that there are clearly defined safe work procedures/standing orders for conducting safe sea towage operations.
2. Inspect the vessel to be towed and establish correctly that it is safe to be towed to the planned destination in the expected sea and weather conditions.
3. Inform the relevant authority promptly where you assess the vessel to be unfit for towing, stating the reasons clearly.
4. Where necessary, ensure that all statutory, regulatory and other requirements for the tow are identified and met, and comply with all navigational, reporting and warning requirements.
5. Assess the circumstances affecting the requirement for a tow, and determine correctly any risks involved.
6. Plan the tow, identifying correctly the actions required, taking into account the characteristics of the tow, the expected conditions and any relevant navigational or pilotage restrictions, determining the best method for towing.
7. Establish and maintain clear and appropriate communications between your vessel and the tow.
8. Brief all concerned clearly and correctly on the actions to be taken, ensuring that everyone understands their role and the emphasis upon safety.
9. Prepare all necessary equipment for towing and rigging, checking for damage prior to taking the tow, making good and reporting any faults before use.
10. Develop and action appropriate contingency plans that ensure the safety of navigation, protection of the marine environment and safety of the tug and tow, and persons on board both vessels.

11. React safely and appropriately to loss of critical systems e.g. loss of main power or steering unit whilst engaged in sea towage operations.
12. Identify where the transfer of a crew member to the vessel to be towed would assist the towing operation, and where relevant, undertake such a transfer safely and correctly.
13. Rig, secure and deploy the towing equipment correctly, taking necessary actions to protect both vessels and to minimise the effect of chafe
14. Ensure that the correct audible and visual signals indicate towing.
15. Handle the vessel safely under the prevailing sea conditions with due consideration to the engineering systems.
16. Operate remote controls of propulsion plant, engineering systems and services correctly and safely.
17. Monitor the tow, and make any necessary adjustments correctly and safely.
18. Establish communications with those receiving the tow and other relevant authorities, and ensure that preparations for receiving the tow on arrival are in place.
19. Disengage the tow correctly and safely.

A3.3 Knowledge and understanding

Underpinning Knowledge Syllabus for Sea Towage Endorsement

Candidates need to know and understand the following:

ST 1 PRE TOWAGE INSPECTION

- 1.1-3 How to carry out an effective assessment of vessel to be towed, to include dimensions, towing points, fixed equipment and cargo..
- 1.4 How to obtain contact details of agents.
- 1.5 Identify Pilotage requirements for departure and arrival ports.
- 1.6 If more than one tug towing, one to be designated as the main towing tug and to be responsible for navigation and ensuring the towing plan is executed.
- 1.7 Up to date weather report for next 24 hours and longer where necessary
- 1.8 Assess the need for additional tugs / guard vessels e.g. When towing long pipelines.
- 1.9 Dangers when operating in close proximity to other vessels, interaction and when using multiple tugs with differing propulsion and bollard pull.
- 1.10 Effects of high windage on a tow and the correlation of windage, expected weather and required bollard pull.
- 1.11 Required statutory certification for the tow
- 1.12 The importance of establishing protocol between lead and subsidiary tugs
- 1.13 Towing vessel is to have sufficient fuel for the voyage
- 1.14 Factors affecting scope of gear to be used during different phases of the tow.

ST 2 INSPECTION OF TOW

- 2.1 Watertight integrity - ensuring vents, watertight doors, hatches, port lights, deadlights, etc are closed
- 2.2 Draft and trim
- 2.3 Sufficient positive stability for the voyage - minimise slack tanks
- 2.4 Engine room inlet and outlet valves – ensuring all are closed
- 2.5 Sea fastenings
- 2.6 For a self-propelled vessel under tow, ensure rudders and shafts secured
- 2.7 Towage arrangements
- 2.8 Navigation lights, daylight shapes and sound signalling appliances
- 2.9 Emergency towing arrangements
- 2.10 Assess means of safe access to the tow at sea.

ST 3 CONDUCT OF THE TOW

- 3.1 Heaving in and paying out towlines and adjustment of engine power
- 3.2 Catenary of the tow wire – assessing the need to shorten up and reduce power in shallow waters.
- 3.3 Dangers of large and rapid alterations of course leading to the slack towline catching the seabed - need for sufficient turning circle
- 3.4 Need for slow and controlled alterations in power applied
- 3.5 Towing in bad weather, use of tow line length and engine power and heaving to
- 3.5 Contingency plans for seeking shelter or safe haven.
- 3.6 Use of appropriate gog arrangement. Safe anchoring arrangements for tug and tow
- 3.7 Behaviour of towed vessel
- 3.8 Giving way
- 3.8 Knowledge and application of Collision Regs:
 - Crossing traffic lanes
 - Use of restriction lights and shapes
- 3.9 Tidal effects
- 3.10 Monitoring of weather forecasts.
- 3.11 Checking for chafe and chafe avoidance on passage, Avoidance of use of towing pins to control tow wire
- 3.12 appropriate reactions in the event of loss of critical equipment (Propulsion, steering).

ST 4 TOWING EQUIPMENT

- 4.1 All towing equipment is to be tested and have test certificates held on board
- 4.2 Industry standard sizing of ropes, wires, shackles and etc for sea towage in relation to the bollard pull of the tug. This is normally at least 3 times the designed bollard pull of the tug with appropriate sized grommets or pennants designed to absorb shock loading of tow lines
- 4.3 Sea towage scope on ropes and on wires
- 4.4 Towing winch operation, streaming and recovering tow
- 4.5 Tow wire sizes and lengths, catenary of the towing wire
- 4.6 Minimisation of chafe at the tug and tow
- 4.7 Emergency towing gear arrangements

ST 5 FITNESS FOR PURPOSE OF TUG, TOW AND CREW COMPETENCE

- 5.1 Suitable means of access to the tow is to be considered.
- 5.2 Broad white band at bow of tow above waterline for checking from distance.
- 5.3 Rigging and streaming of emergency tow with breakaway fastenings.

- 5.4 for manned and unmanned tows.
- 5.5 Tow to have a Load Line Certificate, or a Load Line Exemption Certificate from the appropriate Flag State Administration and all conditions to be complied with.
- 5.6 Warranty survey factors:
 - certificates required for tug and tow, towing gear and tug crew
 - conditions to be complied with
 - legal status of warranty survey – for the insurers of the tow and does not take precedence over Flag or Class requirements

ST 6 EMERGENCY PROCEDURES

The tug is to have emergency procedures to enable the crew to effectively deal with the following situations:

- 6.1 Towline failure to include consideration on action to take for:
 - 6.1.1 Recovery of parted line to tug, including section remaining at tow
 - 6.1.2 Clearing tow winch and rigging new tow line
 - 6.1.3 Picking up of emergency tow, connecting to tug's gear
- 6.2 Water ingress into tow.
- 6.3 Failure of sea fastening or other movement of equipment on tow.
- 6.4 Tow taking charge in bad weather, and heaving to in extreme weather.

ST 7 IMPORTANCE OF PASSAGE PLANNING WHEN UNDERTAKING A SEA-TOW

- 7.1 The planning that is required by the tug master, taking into account the characteristics of the tow when considering ports of refuge and the need for necessary third party tug assistance, disconnection and tying up of the tow at the places of departure and arrival.

ST 8 IMPORTANCE OF CLEAR AND EFFECTIVE COMMUNICATION METHODS

Tug Master to ensure clear lines of communication and agree with crew necessary protocol during operations with particular reference to crew members and 3rd parties put on board the tow:

- a) During connection phase,
- b) During tow (if applicable)
- c) If connection lost during tow,
- d) During disconnection of the tow.

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Training Record Book

Voluntary Towage Endorsement Scheme



General Towage

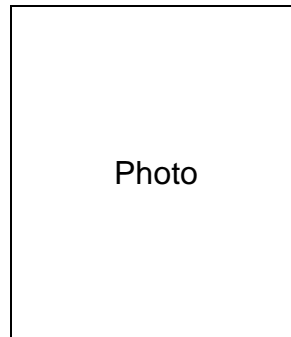
Ship Assist Towage

Sea Towage

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Contact details

Candidate



Name:		
Date of Birth:		
Discharge Book No:		
Passport No:		
National Insurance No:		
Address:		
Tel:		Mobile:
Email:		

Company

Company:		
Address:		
Tel:		Fax:
Email:		

Master / Company Training Officer (CTO)

Master:	
Signature:	
CTO Name:	
Signature:	

If this record book is found please return it to one of the above

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Section 1

1.1 Purpose of the Training Record Book

This Training Record Book (TRB) is published by National Workboat Association (NWA) and is approved by the Maritime Coastguard Agency (MCA) for use by candidates working towards recognised voluntary towage endorsement.

Properly used, the TRB will ensure that the candidate receives systematic practical training and experience in the tasks, duties and responsibilities required, and provide a comprehensive record. Appropriate periods should be set aside for on-board training within the normal operational requirements of the vessel.

Section 2 contains the tasks that give direction to the training and experience gained on board and required as evidence of performance. The TRB will also assist companies in monitoring experience and skills.

Candidates should complete all tasks that are relevant to the type of vessel they are deployed on.

It is the responsibility of the candidate to ensure that the TRB is properly maintained and completed.

It is the responsibility of the Master and other staff on board to manage and supervise the on-board training, sign tasks when they have been properly completed, and maintain reports on the candidate's progress.

Note: If the candidate is the Master, then the Company Training Officer, another vessel Master, the Marine Superintendent, Operations Manager or other person appropriately qualified and experienced to judge the Master's performance will be able to undertake this function.

1.2 Guidance for the Candidate

The TRB is an important document and you are responsible for its upkeep and safekeeping during your training. On receiving your TRB you should complete the contact information on the first page.

At the start of your training you should find out who is responsible for managing your training. This will normally be the Master or another experienced and certificated person as described above. You should discuss your training with them at the start of each trip. The practical training undertaken at sea must be planned and structured in a way that enables you to acquire and practise skills and to demonstrate your proficiency in the tasks listed. Each task should build on those already completed, both on previous vessels and during the current trip. You should be given information and guidance as to what is expected of you and how the training will be organised.

If you have difficulty completing any of the tasks in your TRB you should contact the Master, or the Company Training Officer (CTO) for advice and guidance at an early stage.

Section 2 should be used to record your qualifying sea service contains the training tasks you must complete and get signed.

1.3 Guidance for Masters, Officers and Company Training Officers (CTO)

Please read the candidate guidance on the previous page, so that you are aware of what the candidate has been told about their shipboard training and the use of the TRB.

As soon as possible after joining a vessel they should be informed as to who will be the person organising and supervising their training. They should insert their name at the start of section 3.1, along with the Company Training Officer (CTO), whose details also need to be recorded on the first page of the TRB.

It is the Master (or CTO's) responsibility to give candidates detailed information and guidance as to what is expected of them and how their training on board will be organised. They should check the candidate's progress to date and to help organise their duties in order to develop their experience and complete the training tasks within the vessel's operational requirements.

The Master (or CTO) should review the candidate's progress on a regular basis and it is wise to agree a regular time when the candidate prepares and hands the TRB in for inspection, in order to establish a routine and ensure an efficient process.

The Master (or CTO) should provide a monthly progress review and record comments in section 3.4, and complete and sign the sea service testimonial in sections 2.1.1, 2.2.1 and/or 2.3.1 as appropriate. This will be required by the candidate as evidence of sea time when applying to the Recognised Bodies for certification.

Any experienced and certificated sea staff with supervisory responsibility for the candidate when they are carrying out TRB tasks (or the CTO) are eligible to sign the tasks to say that the candidate is either making progress or is deemed to be proficient in the task. All such staff should first complete the specimen signature details on the "Contact Details" section in the front of the TRB, which is required by the Recognised Bodies to ensure that evidence of task completion can be verified.

1.4 Details for Recognised Body

National Workboat Association
21 Southcote Close
Bacchus Lane
South Cave, Brough
HU15 2BQ

Tel: 01430 470013 (Secretary)
Mob: 07834 866124
Email: secretary@workboatassociation.org

Section 2

Training Tasks and Record of Service for each endorsement

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2.1 General Towage

2.1.1 Record of Service

This table is for recording details of the total service completed whilst undertaking general towage operations

Vessel/Tug Name	IOM Number	Type	Gross Tonnage	KW Power	Type of Main Propulsion	Period (Dates)		TotalSea Service		Nav. Bridge WK Duties	Master/ CTO Signature
						From	To	M	D	Days	

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2.1.2 General Towing

		Proficient	
	Task / Duty	Master's Initials	Date
GT 1	Internal Communications		
1.1	Conduct a pre-tow briefing with crew		
1.2	Make appropriate use of hand signals and state the importance of non-verbal signals		
1.3	Make appropriate use of hand held radios and state the importance of correct radio procedures		
1.4	Make appropriate use of on-board CCTV		
1.5	Make appropriate use of on board alarms, signage and announcements		
GT 2	External Communications		
2.1	Conduct tow set up briefing with external stakeholders		
2.2	Agree terminology with pilot		
2.3	Communicate appropriately with other tugs and vessels		
2.4	Make appropriate traffic reports to VTS /Harbour Master/ Port Control / Coastguard		
GT 3	Emergency Procedures		
	Explain the actions to be taken in the event of:		
3.1	Failure of towing lines and equipment		
3.2	Failure of gog arrangements		
3.3	Failure of engines, steering, electrical systems		
3.4	Failure of steering gear		
3.5	Failure of electrical systems		
3.6	Loss of external communication to pilot /port control etc		
3.7	Mechanical problem on the towed vessel		
3.8	Rope in propulsion system		
3.9	Compromise of watertight integrity of tug when towing		
3.10	Collision		
3.11	Grounding of tug and/or tow		
3.12	Man overboard		
3.13	Fire		
3.14	Pollution		
3.15	Demonstrate the use of the emergency controls		

		Proficient	
	Task / Duty	Master's Initials	Date
3.16	Demonstrate the deployment of the emergency tow line		
3.17	Demonstrate the emergency release of the tow		
3.18	Demonstrate the management of an emergency exercise on board		
3.19	State the statutory requirement to render assistance to a vessel in distress		
3.20	Explain the difference between responding to a vessel in distress and rendering salvage assistance		
GT 4 Fitness for Purpose			
	For an intended passage:		
4.1	List the documentation required for the tug		
4.2	List the documentation required for the tow		
4.3	Estimate the tug requirements for the tow		
4.4	Assess fitness and suitability of navigation equipment for proposed passage		
4.5	Assess number, experience and qualifications of crew		
4.6	Assess the watertight integrity of the vessel		
4.7	Assess the suitability of the available towing equipment		
4.8	State the purpose of a warranty survey		
GT 5 Local knowledge and passage planning when towing			
	Construct a passage plan for a voyage and demonstrate to the Master that you have additionally taken the following points into account:		
5.1	Effect of local conditions on the tow e.g. wind, tide, depth, localised tidal effects 'run off', interaction (squat, canal effect) effect of propeller wash, currents, and berths		
5.2	Local traffic conditions, pilotage and port movements		
5.3	Effect of wheel over on tow position		
5.4	Track of tow in narrow channels		
5.5	Identification of suitable places of refuge and safe havens		
5.6	Use of additional tugs at critical points in the passage		
5.7	Consideration of grounding between tides (Ebbing up)		

		Proficient	
	Task / Duty	Master's Initials	Date
GT 6	Safe Towage Operation		
	When preparing to undertake a towage operation:		
6.1	Describe the principal risks and method of assessment		
6.2	Discuss the reasons for the towage method to be used		
6.3	Carry out an inspection of the tow		
6.4	Identify suitable towage points and the chafing areas		
6.5	Identify the characteristics of the tow		
6.6	Ensure that rigging and deployment of the towing gear is correct		
6.7	Demonstrate the safe handling of the towing gear		
6.8	Identify safe areas on deck		
6.9	Identify need for adequate lighting of working areas		
6.10	Identify the stability of the tug and tow		
6.11	Prepare a passage plan		
6.12	Identify local byelaws that may affect the operation		
6.13	Identify where different phases of the tow may require different towing requirements		
6.14	Identify berthing arrangements on arrival		
	On passage		
6.15	Assess that the connecting, letting go and changing of the towing gear is safe		
6.16	Demonstrate how to monitor the tow and take timely and effective corrective action when required		
6.17	State the importance of avoiding large dynamic forces on the tow line		
GT 7	Towing Equipment		
	Loose equipment		
7.1	Identify Safe Working Load for loose equipment		
7.2	Locate and identify test certificates for ropes, wires, chains, shackles and other towing gear		
7.3	Demonstrate care and maintenance of all loose gear		

		Proficient	
	Task / Duty	Master's Initials	Date
7.4	Identify and demonstrate the use of:		
	gogs, (gobs), bridles and V ropes		
	towing bridles, stretchers and chafe chains		
	shackles and their securing		
	face plates (monkey plates)		
	stoppers		
	towing pins, shark jaws and other line restraining devices		
	anti-chafe devices		
	Fixed equipment		
7.5	Identify and demonstrate the use of:		
	bits		
	bollards		
	tug samson posts		
7.6	Demonstrate routine maintenance of winches and capstans		
7.7	Know the types and limitations of winches and capstans		
7.8	Demonstrate use of the controls, brakes and emergency release of winches and capstans		
7.9	Identify and demonstrate use of tension measuring devices		
7.10	State the types and limitations of towing hooks		
7.11	Demonstrate the use of towing hooks including release mechanisms		
7.12	Demonstrate routine maintenance and testing procedures		
7.13	Identify and demonstrate use and routine maintenance of fairleads, rollers and towing brackets (e.g. SMIT bracket)		
7.14	Identify and explain the use and routine maintenance of different types of fendering and their securing methods		
GT 8	Propulsion Systems and Tug Types		
	Describe the operation of the following:		
8.1	Azimuth propellers - 360° steerable propellers (Z pellers)		
8.2	CPP – Controllable pitch propeller(s)		
8.3	FPP – Fixed pitch propeller(s)		
8.4	VS – Voith Schneider (vertical propeller blades)		

		Proficient	
	Task / Duty	Master's Initials	Date
8.5	Steerable nozzles		
8.6	Shrouded nozzles e.g. Kort type		
	<i>Then demonstrate the operation of the type fitted to assessing vessel</i>		
GT 9	Differentiate the following tugs in terms of towing point with respect to the propulsion system:		
	<i>Propulsion forward of midships with a towing point aft:</i>		
9.1	Tractor tugs with Voith Schneider		
9.2	Tractor tugs with Azimuth propellers		
	<i>Propulsion aft and towing point near midships:</i>		
9.3	Conventional type – single or twin FPP or CPP		
	<i>Intermediate tug types – dependent on method of operation</i>		
9.4	Reverse tractor or pusher tugs		
9.5	Combi tugs – modified older tugs with a 360° steerable thrusters in the bow		
9.6	ASD – azimuth stern drive		
GT 10	Describe the main characteristics of the following vessel types according to function		
10.1	Seagoing tugs		
10.2	Escort tugs – passive or active		
10.3	Harbour/ship assist tugs/Carousel tugs		
10.4	Anchor handlers		
10.5	Craft tugs, workboats and Multicats		
10.6	Pusher tugs including combination units		
10.7	Line handlers		

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2.2.2 Ship Assist Towage

		Proficient	
	Task / Duty	Master's Initials	Date
SAT 1	Ship Assist Towage Tasks / Duties		
1.1	Demonstrate an understanding of the limitations of point load on ships' hulls.		
1.2	Describe the functions and limitations of different fendering arrangements.		
1.3	Discuss the dangers and pressure areas arising from the construction of ships when operating in close proximity, e.g. interaction forces, lines of sight.		
1.4	Discuss the correlation between the windage of a vessel, the expected weather conditions and the bollard pull of the tug.		
1.5	Demonstrate ability to react to loss of critical systems whilst in close proximity/made fast to assisted vessel.		
1.6	Describe the safe operation of the vessel in port in restricted visibility whilst conducting ship assist operations.		
1.7	Conduct a departure from berth and on completion, conduct a berthing alongside.		
1.8	Demonstrate ability to manoeuvre under free sailing conditions.		
1.9	Secure a barge alongside from a mooring and get underway.		
1.10	Demonstrate ability to manoeuvre and re-secure a lighter/barge.		
1.11	Take station as the bow tug on large ship movement, including a running catch up from the shoulder.		
1.12	Act as stern tug on large ship movement, including a running catch up.		
1.13	Secure as the alongside tug, including changing sides within a winding/re-berth evolution.		
1.14	Act as the push/pull shoulder tug on a berthing or sailing movement.		
1.15	Conduct lead bow tug into and/or out of tidal basin.		
1.16	Pick Up Bow to Bow (ASD).		
1.17	Demonstrate abort manoeuvres and recovery position.		
1.18	Demonstrate active winch control		
1.19	Take account of the hazards when using towed vessel's ropes, gear and securing points.		

		Proficient	
	Task / Duty	Master's Initials	Date
SAT 2	External Communications		
2.1	Participate in drawing up a large vessel berthing plan		
2.2	Communicate with other tugs and vessels using:		
	Standard protocols for power and direction		
	Locally agreed terminology		
SAT 3	Emergency Procedures		
	Explain the hazards and actions to be taken in the event of:		
3.1	Loss of critical systems on own tug		
3.2	Malfunctions of critical systems on assisted vessel		
3.3	Having to slip tow under load		
SAT 4	Fitness for Purpose		
4.1	Describe the factors that influence the choice of tug(s) for a particular operation		
4.2	Explain why the available tugs were used in a specific configuration		
SAT 5	Detailed Local knowledge		
5.1	Demonstrate to the Master a detailed knowledge of the local harbour area, including:		
	Berths, channels and buoyage		
	Tidal flows, currents and limiting depths		
5.2	Local Port Regulations		
5.3	Knowledge of Port Marine Safety Code as it relates to Port towage		
5.4	Local VTS services, including awareness of vessel movements		

		Proficient	
	Task / Duty	Master's Initials	Date
SAT 6	Safe Towing Operation		
6.1	Thorough knowledge of tug handling in a range of ship assist manoeuvres, including:		
	Direct and Indirect towing		
	Push/pull techniques		
	Escort Towing		
6.2	Demonstrate a detailed knowledge of interaction, with particular reference to:		
	Working in close proximity to large vessels		
	Bow to bow work with ASD / ATD tugs		
6.3	Demonstrate an appreciation of the importance of vessel stability and the need to maintain watertight integrity when towing under load conditions		
6.4	Knowledge of towing points and avoidance of girting in dynamic situations		
SAT 7	Towing Equipment		
7.1	Demonstrate a practical knowledge of capabilities of the following:		
	Towing Winches and Capstans		
	Towing Hooks		
	Different tow rope types (wire, synthetic rope, HMPE		
	Use of Pendants		
	Use of Grommets		
	Joining shackles and other connections		
7.2	Hazards and Limitations when using Assisted Vessel's Equipment, including SWLs of ship's Bitts and other securing points and Ship's ropes		
7.3	Describe means of Testing / Inspection of Towing equipment		
SAT 8	Propulsion Systems and Tug Types		
8.1	Demonstrate detailed knowledge of capabilities and limitations of different tug types, including Voith Schneider, ASD, ATD, and conventional single and twin screw		
8.2	Show an outline knowledge of 'Z' Tech, Rotor and Carousel tug types		

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2.3 Sea Towage

2.3.1 Record of Service

This table is for recording details of the total service completed whilst undertaking sea towage operations

Vessel/Tug Name	IOM Number	Type	Gross Tonnage	KW Power	Type of Main Propulsion	Period (Dates)		TotalSea Service		Nav. Bridge WK Duties	Master/ CTO Signature
						From	To	M	D	Days	

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2.3.2 Sea Towage

		Proficient	
	Task / Duty	Master's Initials	Date
ST 1	Pre Tow Inspection		
	The candidate must:		
1.1	Carry out an assessment of the vessel / object to be towed.		
1.2	Ascertain the dimensions of vessel / object to be towed.		
1.3	Identify the type and care of cargo, if any, to be carried in tow		
1.4	Obtain the contact details of agents at departure and arrival ports.		
1.5	Identify Pilotage requirements, if any, on departure, on passage and arrival		
1.6	Assess any expected requirement for additional tug assistance		
1.7	Assess current weather report for duration of voyage		
1.8	Consider the need for guard vessels		
1.9	Discuss the dangers and pressure areas arising from the construction of ships when operating in close proximity e.g. interaction forces, lines of sight.		
1.10	Explain the correlation between the windage of a tow, the expected weather conditions and the bollard pull of the tug.		
1.11	Ensure that there is appropriate certification for tow and its gear		
1.12	Establish communication and protocol between lead and subsidiary tugs		
1.13	Establish fuel requirements for voyage		
1.14	Ensure there is sufficient scope of gear for sea towage		
ST 2	Inspection of Tow		
2.1	Ensure watertight integrity e.g.; vents, watertight doors, hatches, port lights, deadlights etc to be closed		
2.2	Check draft and trim		
2.3	Ensure sufficient positive stability for the voyage		
2.4	Close all engine room inlet and outlet valves		
2.5	Check all sea fastenings		
2.6	Secure rudders and shafts		
2.7	Check towage arrangements		
2.8	Check navigation lights, shapes and sound signalling appliances		

		Proficient	
	Task / Duty	Master's Initials	Date
2.9	Check emergency towing arrangements ready for use		
2.10	Check boarding arrangements at sea		
ST 3 Conduct of the Tow			
3.1	Demonstrate heaving in and paying out towlines and adjustment of engine power.		
3.2	Explain the need to adjust the catenary of the tow wire, by shortening up and reducing power in shallow waters.		
3.3	State the need for a sufficient turning circle and the dangers of large and rapid alterations of course leading to an unwanted increase in the catenary		
3.4	Explain the need for slow and controlled alterations in engine power.		
3.5	Explain precautions to be taken when towing in bad weather, use of tow line length and engine power and heaving to.		
3.6	Demonstrate use of appropriate gog arrangement.		
3.7	Observe the behaviour of towed vessel		
3.8	Apply the International Regulations for the Prevention of Collisions at Sea, 1972, as amended, considering the manoeuvrability of the tow in:		
	Crossing situations		
	Using and crossing traffic lanes		
	Considering the use of RAM signals		
	Operation in restricted visibility		
	Sound signals		
3.9	Explain the effects tide and current on tug and tow		
3.10	Monitor weather forecasts in support of safety of navigation		
3.11	Demonstrate chafe avoidance on passage		
3.12	React appropriately to loss of critical systems whilst in close proximity/made fast to assisted vessel. If necessary this could be a simulated situation.		
ST 4 Towing Equipment			
4.1	Ensure all towing equipment is tested and test certificates are held on board.		

		Proficient	
	Task / Duty	Master's Initials	Date
4.2	Explain the industry standard sizing of ropes, wires, shackles and etc for sea towage in relation to the bollard pull of the tug.		
4.3	Describe the typical scope for Sea towage on ropes and on wires.		
4.4	Demonstrate towing winch operation when streaming and recovering tow.		
4.5	Describe the effect of the catenary of the towing wire.		
4.6	Identify alternative methods to minimise chafe at the tug and tow.		
4.7	Outline the Emergency towing gear arrangements now required on large vessels.		
ST 5 Fitness for purpose of tug, tow and crew competence			
5.1	Describe how suitable means of access to the tow is assessed and achieved.		
5.2	Explain the purpose of a broad white band at bow of tow above waterline		
5.3	Describe the rigging and streaming of emergency tow with break-away fastenings.		
5.4	List the considerations when undertaking an unmanned tow.		
5.5	Explain why the Tow is required to have a <u>Load line Certificate</u> , or Load line Exemption Certificate from the appropriate Flag Authority.		
5.6	List the main items covered by a Warranty Survey Explain the legal status and requirement for a warranty survey		
ST 6 Emergency Procedures			
	Describe the emergency procedures to effectively deal with the following situations:		
6.1	Towline failure to include consideration on action to take for:		
6.1.1	i. Recovery of parted line to tug including section remaining at tow		
6.1.2	ii. Clearing tow winch and rigging new tow line		
6.1.3	iii. Picking up of emergency tow, connecting to tug's gear		
6.2	Water ingress into tow.		

		Proficient	
	Task / Duty	Master's Initials	Date
6.3	Failure of sea fastening or other movement of equipment on tow.		
6.4	Tow taking charge in bad weather, and heaving to in extreme weather.		
ST 7	Importance of passage planning when undertaking a sea-tow		
7.1	Describe the planning that is required by the tug master for necessary third party tug assistance, disconnection and tying up of the tow at the places of departure and arrival.		
ST 8	Explain the Importance of Clear Communications at Different Stages of the tow		