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Third Edition

## **TUG USE IN PORT**

**A Practical Guide** 

Including Ports, Port Approaches and Offshore Terminals



Capt Henk Hensen FNI, FITA

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*Tug Use in Port* by Capt Henk Hensen is the authoritative practical guide to port towage and escort operations. Since the publication of the second edition, developments in tug design and operation have continued to improve tug capabilities as well as effective and safe tug use. Sadly, accidents still happen, often with dramatic consequences.

Significant developments in port towage have taken place since 2002 – new tug types have come on to the market with new and specific manoeuvring capabilities; an increasing number of environmentally friendly tugs can be found, with traditional fuels being replaced by LNG, CNG and batteries; escorting and escort tugs have been developed further also with regard to the conditions these tugs have to cope with; an increasing number of LNG carriers and bulk carriers are being escorted, in addition to tankers; remote controlled and autonomous ships are no longer simply the stuff of science fiction, and will have an effect on tug operations.

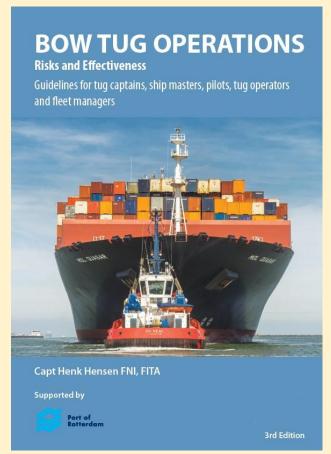
Training possibilities have further developed, with improved training tools and ever more realistic and sophisticated simulators.

At the centre of all these developments and changes are the people – tug masters and crews, pilots and ships' captains – who need to be able to handle the newly designed tugs and their equipment in a safe and efficient way. This book is designed to help them achieve that.

September 2018 - 'IMO's Facilitation, Maritime Safety and Marine Environment Protection committees recognise the importance of providing adequate tug assistance in ports for ensuring maritime and port safety, the protection of the marine environment and the facilitation of maritime traffic. IMO has circulated a reference to *Tug Use in Port* to assist port authorities and port operators in assessing the adequacy of tug services in their ports.'

Captain Sebastiano Chrisam of Costa Crociere S.p.A.:

"Sir, your book is amazing; it really changed my approach to ship handling with the use of tugboats. Your book is one of my favourites in ship handling."



The first edition of the monograph *Bow Tug Operations with Azimuth Stern Drive Tugs* was published in 2006 - in response to a number of accidents involving bow-to-bow operations with ASD-tugs and discussions in some ports about how such tugs should be employed as bow tugs. What were the causes of these accidents? No proper training, unsuitable design of the ASD-tug for bow-to-bow operations, high ship's speeds, or were some other factors playing a role? At the same time, the question arose about whether every ASD-tug is suitable for bow-to-bow operations, which seemed not to be the case.

Bow tug operations at a ship having headway are very risky, particularly in the case of ships with a very high speed on dead slow ahead - a situation increasingly seen with large container vessels. The problem starts with the approach towards the bow and then with the procedure of passing the towline. Because of the risks involved, tug masters that have to carry out bow tug operations, and particularly tug masters of ASD-tugs that have to operate bow-to-bow, should be well trained and aware of all the possible risks.

These issues are all dealt with in this book in an easy understandable way, resulting in a set of guidelines for safe operations at the bow. In 2016 the issue is still relevant. This third edition has been updated for several crucial aspects that play an important role in bow-to-bow operations, such as skeg and stern design. As the skeg is such an important appendage for carrying out bow-to-bow operations at a ship having speed, more attention has been paid to skeg design and the effect of differences in skeg design on bow-to-bow operations. A good stern design is also important for bow-to-bow operations, so stern design has been further dealt with here.

Further subjects have been extended or renewed: proper radar use, bow approach manoeuvres, and new tug performance diagrams have been included. As bow-to-bow operations present high risks, additional attention has been paid to this particular issue.

Suggestions for some test trials using your own tugs have been added in order to be able to learn about its specific suitability for bow-to-bow operations, with images explaining the trials discussed - all again focusing on the safety of tugs, tug crews and attended ships.

Finally, since speed, which means speed through the water, is so critical for safe bow tug operations, renewed attention has been paid to this important aspect.

As tug master studying for master unlimited, Captain Hensen's book "Bow Tug Operations" has been incredibly helpful in terms of information's accessibility and straight-forward nature. As an ASD tug master, his level

of detail is precise and scientific, ultimately giving me a better understanding about the effects of certain manoeuvres in different situations. This book has the most effective illustrations that I have come across in a book related to this subject. Captain Vincent Segard, Nantes, France.

# **TUG STABILITY**

A Practical Guide to Safe Operations



Henk Hensen and Markus van der Laan

Tug masters experience the effects of a tug's stability every day when manoeuvring their vessel, either free sailing or when assisting ships. During tug operations, a number of forces and combinations are working on a tug – such as towline, hydrodynamic, steering and propulsion forces – often at or near their maximum with respect to the tug's stability. It is, therefore, not just desirable but necessary for tug masters to have at least a basic idea of the elements of stability.

They need to know where the limits are, and what the consequences could be, if the tug or tug handling practices don't conform to the rules of stability—not only in normal circumstances but also when extreme conditions, such as dense fog and storms, occur. The consequences can be very dramatic. Numerous harbour tugs have capsized, often with tragic results. In the tug capsizes known to have occurred between 2010 and 2015, more than 45 people have drowned. This educational guide to stability, specifically for tugs, aims to provide this important information to tug masters. It is written in a manner readily understood by all tug masters, regardless of their education, formal qualifications, nationality, or operational backgrounds. The text is accompanied by numerous illustrations and photographs.

In writing this handbook, the authors have focused on the practical aspects of stability, tug design and equipment and also on the consequences of unsafe procedures.

Their emphasis is on harbour tugs, although several of the topics covered apply equally to sea-going tugs.

The authors have produced an original and valuable training guide which will increase the knowledge of tug stability within the industry, and so enhance the safety of tugs, tug crew and ships they support. It is hoped that this increased knowledge will indeed enhance safety and help to protect the marine environment.

Ashok Mahapatra. Director, IMO Martine Safety Division.

The tug stability book will greatly contribute towards safe towage operations by enhancing the working knowledge of tug masters. It is an important publication for all tug masters and towage managers, no matter what facet of the towage industry they are engaged in. Arie Nijgh. Tug master-instructor. Managing Director Seaways Consultants.

### STC PUBLISHING

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