

Datasheet

Lamnalco Tug master Training

Introduction

The Lamnalco Group of Companies provide marine support services to gas and oil terminals and ports worldwide. To be the leading provider of marine terminal services to the International energy market, Lamnalco invests in quality tugs and qualified crew. In the beginning of 2005 Lamnalco requested MSCN/MARIN to provide a basic ASD Tug master training for their new built fleet.

Training objectives

The objective of the basic ASD training was to train new ASD Tug masters in:

- General ASD tug handling principles (free sailing, sidestep, keeping position, etc.);
- General principles of pushing, towing and escorting in direct and indirect modes (including transverse arrest, indirect steering and breaking);
- Specific manoeuvres with marginal manoeuvring space during berthing and unberthing;

Training set-up

To achieve the training objects, the Immingham terminal on the river Humber was used for its typical terminal lay-out and environment such as wind, waves and current. Each environmental condition can be changed during the simulation.

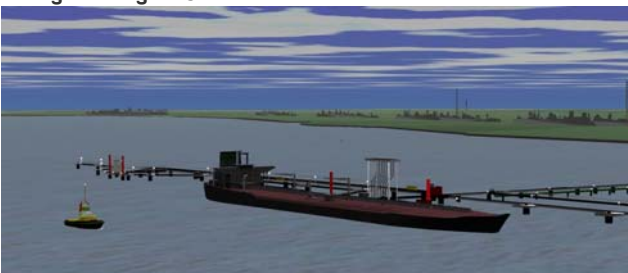


Figure 1 Immingham terminal, Humber river

As the ASD tug Damen 3211 is a typical ASD tug, the validated mathematical model of the Damen 3211 with a bollard pull of 60 tonnes was used. This 6 degrees-of-freedom model presents the motions due to waves realistically. Besides the mathematical tug-model, two tankers of different size and draft were used and were operated by a simulator instructor. When possible, pilot(s) joint the training to interact with the Tug masters resulting in the positive effect on pilot/Tug master co-operation by increasing the awareness of each other's tasks. At the end of the training the tug masters have been assessed based on there improvements and abilities by the simulator instructor and Lamnalco's Training Superintendent.

Full-Mission Bridge

The Lamnalco basic Tug master training has been executed on the Full-Mission Bridge II simulator (Figure 2) with a 210-degree visual projected image plus a wide screen rear monitor. Besides the projection of the visual lay-out, also the towline is projected. This provides essential information to the Tug master whether the towline is slack or under tension. The bridge is further equipped with:

- Aquamaster controls and read out;
- Hands free communication;
- Winch control;
- Towline length read out;
- Towline visible in the projected image ; (either slack or under tension)
- Bollard pull read out;
- Relative wind read out;
- Longitudinal and transverse speed read out ;
- Engine vibration;
- Engine noise;
- Bird's-eye view of the surroundings;
- Radar.

The Full-Mission Bridge II can also be equipped with a Voith Schneider or conventional mock-up.



Figure 2 Full Mission Bridge II

The training

After a short introduction of the training, the tug masters received a training manual for review which could be studied during the course of the training. The training consisted of different exercises, each dealing with specific aspects of ASD manoeuvring and each with multiple levels of difficulty: The training started with the first exercise of free sailing to get familiarised with the ASD manoeuvring characteristics, but also with the simulator, read outs and controls.

The following aspects have been trained in the basic ASD training:

1. ASD free sailing:

Depending on the level of experience of the Tug master, one or more basic free sailing manoeuvres are practised such as turning, stopping, sailing astern and berthing of the tug. During these basic manoeuvres and through the duration of the training the angle settings of the thrusters were carefully monitored.

2. Tight manoeuvring space

This exercise consisted of sailing into the Immingham lock near the terminal. The Tug masters had to enter the lock gently and once in the lock, the ASD tug had to be stopped and sailed astern to leave the lock, all without touching the lock walls. The bank suction and sailing the ASD as a tractor tug out of the lock makes this manoeuvre difficult.

Once familiar with this exercise, the abeam wind was increased. To remind the Tug masters of the delicacy of controlling an ASD tug, this exercise was rehearsed at the start of each following day.

3. Taking positions and backing up

In order to pick up a towline the Tug master must be able to take positions at any bollard, hold this position at a 90° keeping contact with the vessel with its bow and be able to back the tug up safely. This exercise had also different levels of difficulty such as taking position at a moored vessel without and with current and at a sailing vessel up to 5 knots holding position up to 90° on a line. The next step was to take position at the transom of a sailing vessel at 5 knots with the effects of wash.

4. Berthing and unberthing manoeuvres

To bring all facets into a more dynamic exercise, the Tug masters had to assist in berthing and unberthing manoeuvres in several environments with one or more of the following items:

- Communication pilot-Tug master
- Tight manoeuvring space
- Push/pull operation
- Reposition
- Movement of the tanker
- Picking up the pilot

At the end of the training the tug masters received a certificate of attending this training.