



## FIN-STABILIZER OPERATIONS TRAINING COURSE

**Who Should Attend:** Captains, engineers, and yacht crew who are interested in learning more about operating the Quantum fin-type stabilizer systems. Experience onboard a ship with Quantum stabilizers is advantageous, but not required.

**Course Description:** This course provides an overview of typical Quantum fin stabilization systems. The objective of the course is to equip an operator with a well-rounded, practical knowledge of Quantum stabilizer systems, including:

- effect of operations on ship roll behavior,
- principles in fin forces,
- operation of Quantum's stabilizer controllers,
- hydraulic system operation and identification of components,
- electrical system operation and identification of components,
- integrated hydraulic systems and extendable (XT) fin systems,
- and onboard maintenance tasks.

Practice in system troubleshooting will be included as time permits.

**Location:** Quantum Training Facility, Fort Lauderdale, Florida

**Duration:** 4 days

**Daily Hours:** 8:30am – 4:30pm

**2016 Sessions:** February 29 – March 3

April 4-7

October 3-6

**Participation:** The course is limited to a maximum of 8 participants.

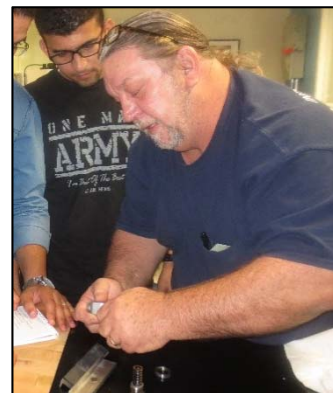
**Fee:** \$1800 per person, *inclusive of:*

- *Course Materials*
- *Refreshments*
- *Daily Lunches*

**Contact Point:** Gwen Benoit, Training Manager

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Email: [gbenoit@quantumhydraulic.com](mailto:gbenoit@quantumhydraulic.com)





## **Course Outline:**

### **Day 1**

STABILITY & ROLLING OF A SHIP: Exploring the basics of ship stability and the effect of operational and environmental conditions on a ship's roll behavior.

STABILIZER FUNCTION: Discussion on how stabilizer fins work and the changes required to alter the forces they generate.

STABILIZER CONTROLLER OPERATION: Introduction of Quantum's stabilizer controllers; principles and practice in their operation.

STABILIZER CONTROL SYSTEM – MAIN CIRCUIT: Identification of the stabilizer manifold main cylinder control circuit components.

### **Day 2**

STABILIZER CONTROL SYSTEM – SINGLE-ACTING CENTERING CIRCUIT: Identification of the components in the stabilizer manifold single-acting centering cylinder control circuit.

STABILIZER CONTROL SYSTEM – SINGLE ACTING CENTERING CIRCUIT: Identification of the components in the stabilizer manifold single-acting centering cylinder control circuit.

HYDRAULIC POWER UNITS: Identification of typical hydraulic components in a hydraulic power unit.

HYDRAULIC POWER UNIT CONTROL SYSTEM: Analysis of the electrical control system for a typical hydraulic power unit.

### **Day 3**

HYDRAULIC POWER UNIT CONTROL SYSTEM: Continued analysis from the previous day.

INTEGRATED SYSTEMS: Exploring components and control logic for integrated hydraulic systems.

XT SYSTEMS: Exploring control of XT fin foils, operation of the associated power unit and controls.

### **Day 4**

MAINTENANCE: Introduction of Quantum's maintenance schedule, typical system inspections, and practice in performing the following maintenance tasks:

- Inspections
- Hull unit greasing
- Oil contamination control
- Relieve system pressure
- Gas charging
- Tapered pin adjustment



## TRAINING ENROLLMENT FORM

**Course:** Fin-Stabilizer Operations

**Date:** \_\_\_\_\_

**Location:** Quantum Training Facility, Fort Lauderdale, Florida, USA

**Course Fee:** \$1800.00

**Participant Information:**

Name \_\_\_\_\_  
*First* *Last*

Email \_\_\_\_\_

Phone \_\_\_\_\_

Dietary Restrictions \_\_\_\_\_  
*Daily lunches and snacks are included in the course fee. Please specify any personal dietary restrictions.*

Physical Limitations \_\_\_\_\_  
*Training will require walking up stairs (without ramp or elevator access), use of vision, hearing, and lifting up to 25kg (55lbs). Please indicate any personal physical limitations that may preclude these activities.*

**Billing Information**

Name  Same as above, or \_\_\_\_\_  
*First* *Last*

Company \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Email  Same as above, or \_\_\_\_\_

For payment information and Quantum's cancellation/postponement policy, see the next page.



**Payment Information:**

Once this completed form is submitted to Quantum, Quantum will issue an invoice for the course. Enrollment is secured only after payment is received. Payment can be made by check, wire transfer, or credit card. For security reasons, Quantum only accepts credit card information via phone.

**Cancellation/Postponement Policy:**

We realize that plans change and it may be necessary to cancel your reservation. Because we are provisioning resources and making special arrangements for each training session, we appreciate advanced written notice whenever you have to make or change your reservation.

You can substitute another individual in your place at any time prior to the first day of a course at no penalty. Please just notify us in advance of the substitute individual's name, contact information, and physical or dietary restrictions.

If you opt to cancel your reservation, the course fee will be refunded, minus a penalty fee. The penalty amount is a percentage of the paid course fee, and is determined by timeliness to course start date:

30 days or more prior to course start date	0%
30-5 days prior to course start date	10%

We apologize, but we cannot provide refunds for cancellations made within 5 business days prior the start date. Enrolled participants who do not attend class and do not provide advice notice of cancellation or postponement will forfeit the entire course fee.

You may transfer your registration to the same course at a later date, provided we receive written notice at least two (2) weeks prior to start date of the currently enrolled course. You may reschedule to any available course date within twelve (12) months of the original course.

**What to Wear:**

Please dress comfortably, but wear close-toed shoes. The course involves handling equipment that may be oily or greasy. Quantum provides eye protection and disposable coveralls. Supplement with any additional safety protection you deem necessary.

**What to Bring:**

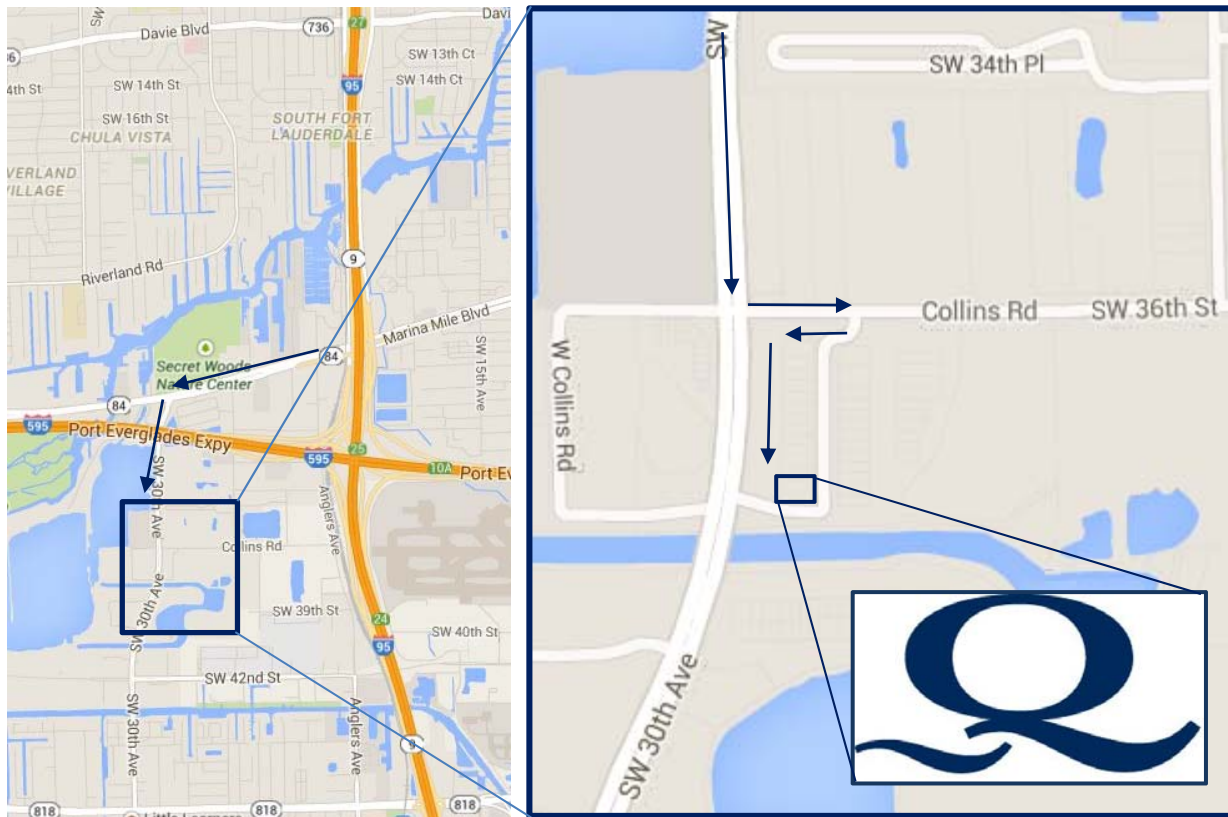
The training course includes course materials, pen, paper, and all equipment required for the training. However, for reference to the equipment on your ship, it may be handy to bring your ship's Quantum technical manual. Re-prints of these are not provided in the course fee.

**Arrival Time:**

Please arrive between 8:00-8:30am each morning.



**Driving Directions:**



**From I-95:**

Take I-95 to Marina Mile Road (SR-84) west.  
At the first traffic light (SW 29<sup>th</sup> Ave), turn left.  
*This road becomes SW 30<sup>th</sup> Ave.*

At the first cross-street (SW 36<sup>th</sup> Street), turn left.  
Immediately turn right, and proceed to the building closest to SW 30<sup>th</sup> Ave.  
Quantum is the in the unit at the far end of the building (number 3790).  
Park in any parking spot labeled “Quantum” or “Visitor”.

**Air Travel:**

If you are traveling from abroad and plan to travel to Fort Lauderdale via air, we recommend arrival via the Fort Lauderdale/Hollywood Airport (airport code FLL), which is located only minutes from Quantum’s facility and an assortment of hotels and area attractions.

**Accommodations:**

Quantum has arranged corporate rates at hotels in the area that offer access to dining and shopping within walking distance of the hotel. Please see separate hotel recommendations document for details.