

MSC Guidelines for Review of Inclining Experiment Results

Procedure Number: H2-18

Revision Date: 05/05/00

References

- a. 46 CFR 170 Subpart F, "Determination of Lightweight Displacement and Centers of Gravity"
 - b. ASTM Standard Guide F-1321-90, "Standard for Conducting a Stability Test to Determine the Light Ship Displacement and Centers of Gravity of a Vessel"
-

Disclaimer

These guidelines were developed by the Marine Safety Center staff as an aid in the preparation and review of vessel plans and submissions. They were developed to supplement existing guidance. They are not intended to substitute or replace laws, regulations, or other official Coast Guard policy guidance. The responsibility to demonstrate compliance with all applicable laws and regulations still rests with the plan submitter. The Coast Guard and the U. S. Department of Transportation expressly disclaim liability resulting from the use of this document.

Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center by e-mail or phone. Please refer to the Procedure Number: H2-18

E-mail: customerservicemsc@uscg.mil

Phone: 202-366-6480.

General Review Guidance

Check that the following items are included in the submittal package:

- Lines plan or model on computer (GHS preferred)
 - Hydrostatics or Curves of Form
 - Freeboard Readings
 - Specific Gravity of Water at Time of Inclining
 - Pendulum Deflection Readings
 - Waterline Plot
 - Tangent-Moment Plot
 - List of Weights to Add (Light ship items not on board at time of inclining)
 - List of Weights to Deduct (Non-light ship items on board at time of inclining)
 - List of Weights to Relocate (Light ship items on board at time of inclining to be later relocated)
 - Calculation of light ship values from stability test data
-

MSC Guidelines for Review of Inclining Experiment Results

Procedure Number: H2-18

Revision Date: 05/05/00

- Coast Guard witness field notes (to verify items 3-11)

Calculate as-surveyed displacement and LCG from submitted drafts (freeboards) and specific gravity of water.

Calculate as-surveyed VCG and GM from tangent-moment plot.

Calculate light ship values from as-surveyed values.

Check plotting of data points. Deviations from a straight line are indications that other moments were acting on the vessel during the inclining.

Check incline angles obtained during the test. The minimum inclination is 1 degree and the maximum is 4 degrees. Angles exceeding 4 degrees could result in movement of the metacenter.

Check pendulum deflection. A minimum of 6 inches of deflection is required to ensure accuracy.

Check trim of vessel during test. Generally, this should be restricted to less than 1% of LBP to ensure accuracy and agreement between hydrostatic data.

Check liquid cargo present during test. Specifically check for slack tanks not allowed by 46 CFR 170.185.

Check that the aggregate weight to correct inclined displacement to light ship displacement is less than 2% of the vessel's anticipated lightship displacement. Exceeding the 2% limit is an indication that the vessel was not adequately prepared for the test.

Check for any free surface corrections used in the calculation of GM. Generally, free surface corrections will be ignored for slack tanks present during an inclining.

Check cargo, crew and stores present during test. Specifically, check that stores or trash that should have been removed was removed.

Hull Model

The MSC will generate a hull model from the lines, offsets or provided computer disk using GHS to verify the hydrostatics.