

NAVSEA
STANDARD ITEM

FY-25

ITEM NO: 009-100
DATE: 01 OCT 2023
CATEGORY: I

1. SCOPE:

1.1 Title: Ship's Stability; maintain

2. REFERENCES:

2.1 T9070-AF-DPC-010/079-1, Design Practices and Criteria for U.S. Navy Surface Ship Stability and Reserve Buoyancy

2.2 541-6687001, Compensating Fuel Oil Tanks on CG-47 Class Ships, Guidance for Process Control Procedure While Waterborne

2.3 541-6686789, Compensating Fuel Oil Tanks on DDG-51 Class Ships, Guidance for Process Control Procedure Preparation While Waterborne

2.4 S9541-BF-OMI-010, LHD Oil Compensating System SCD 3263

2.5 S9LHA-AF-SIB-070, LHA 6 USS AMERICA, Ship Information Book, Volume 2, Part 2, Lubricating Oil, Ship Fuel, Aviation Fuel and Gasoline, Chapters 17 through 19.

3. REQUIREMENTS:

3.1 Perform Engineering Calculations to ensure ship's stability for all surface ships is maintained throughout the duration of an availability using the following criteria: Calculations to be provided to Government upon request.

3.1.1 Stability Criteria as defined in Para 6.1.1.2 and 8.1.9 of Ref 2.1.

3.1.1.1 Add and remove solid weight or water to maintain the ship's stability.

3.1.2 The ship's list must not exceed 2 degrees.

3.1.2.1 List exceeding 2 degrees, shall be corrected within 4 hours.

3.1.2.2 Corrective action to compensate for excessive list includes providing solid weights or water boxes at the locations and amounts determined by the Engineering Calculations.

3.1.2.3 Mitigations to control excessive list will not violate stability criteria noted in paragraph 3.1.

3.1.2.4 For CG-47 class vessels, refer to 009-118 of *NAVSEA Standard Items* for the placement of weights.

3.1.3 The ship's transverse metacentric height (GM), corrected for the liquid load free surface moment of transference, shall meet the following requirements for all conditions of loading throughout the availability:

3.1.3.1 For CG-47 class vessels only, transverse GM shall be greater than or equal to 1.5 feet.

3.1.3.2 For all other naval surface ships, the transverse GM derived from Engineering Calculations shall be greater than or equal to either 1.0 foot or the ship's Lightship Loading Condition transverse GM, whichever is greater.

3.2 For ships that have fuel/oil compensating systems dewatering of the compensated fuel oil will be in accordance with the following references:

3.2.1 For CG 47 class vessels Ref 2.2

3.2.2 For DDG 51 class vessels Ref 2.3

3.2.3 For LHD 1-8 Ref 2.4

3.2.4 For LHA 6 class Ref 2.5

3.3 For CG 47 and DDG 51 Class Ships only, submit the Process Control Procedure (PCP) in accordance with 009-09 of *NAVSEA Standard Items* to the SUPERVISOR:

- Within 10 business days prior to start of availability for CNO scheduled availabilities;
- Within 5 business days after award for non-CNO availabilities; and
- Within 5 business days of any contract change order authorizing work that will alter the ship's condition of stability and after that, updated at a minimum of once every 30 days,

3.3.1 The PCP must be updated to ensure stability criteria denoted in Requirements Paragraphs 3.1 and 3.2 are satisfied prior to the execution of work if conditions not evaluated in Engineering Calculations are presented during the availability, including but not limited to:

3.3.1.1 Work-sequencing results in onloads above or removals below the Full Load Condition KG equivalent to a draft change greater or equal to 1/4th inch. For ships that use the metric system this value will be 1 cm.

3.3.1.2 Adding/removing shrouding, or other increase/decreases in sail area.

3.3.1.3 If it is found that ship will not meet stability or list criteria, provide recommendations to mitigate.

3.3.2 The PCP must contain the following information:

3.3.2.1 Ship's name and hull number.

3.3.2.2 The number and revision of all drawings, hydro static curves of form and cross curves of stability, trim and stability books, and other source material used in the Engineering Calculations.

3.3.2.3 Copy(s) of the page(s) from the source document(s) that show the Lightship Condition used in the engineering calculations. The copies must show the number and revision of the source document(s).

3.3.2.4 Copy(s) of the fuel and water report and/or sounding report used for determining the ship's liquid load in the Engineering Calculations. The report must be signed, dated and must be annotated to indicate whether the liquid level was determined manually or via Tank Level Indicator (TLI).

3.3.2.5 Engineering Calculations Complete, detailed, including all assumptions, the results of the calculations, and the accept/reject criteria.

3.4 A new Engineering Calculation/PCP must be developed for each invocation of this Standard Item. The use of a calculation/PCP developed for another ship and/or the use of a PCP developed for the same ship from a previous availability is prohibited.

4. NOTES:

4.1 Compliance with Paragraph 3.0 requirements will require access to the ship's Damage Control Book, curves of form and cross curves of stability, docking drawing, tank sounding tables, and/or tank capacity curves may be required. Some or all of these documents may be classified, export controlled, and/or NOFORN depending upon the ship class. The performing activity will advise the Supervisor of their standing authorization to handle controlled information up to the level required to develop Engineering Calculations required herein.

4.2 Attachment A of 009-103, the Weight Control *NAVSEA Standard Items*, can be adapted to support gathering required information to accomplish requirements of 3.0. Not all fields will be required.