

# SC 297 Amendment to stability/loading information in conjunction with the alterations of lightweight

(Aug 2022)

Interpretation of SOLAS chapter II-1, regulations 5.4 and 5.5 (as amended by resolution MSC.421(98)) and of resolution MSC.429(98)/Rev.1 and Rev.2, Explanatory Notes.

**SOLAS II-1/Regulation 5.4 and 5.5 reads as follows:**

4 *Where any alterations are made to a ship so as to materially affect the stability information supplied to the master, amended stability information shall be provided. If necessary the ship shall be re-inclined. The ship shall be re-inclined if anticipated deviations exceed one of the values specified in paragraph 5.*

5 *At periodical intervals not exceeding five years, a lightweight survey shall be carried out on all passenger ships to verify any changes in lightship displacement and longitudinal centre of gravity. The ship shall be re-inclined whenever, in comparison with the approved stability information, a deviation from the lightship displacement exceeding 2% or a deviation of the longitudinal centre of gravity exceeding 1% of L is found or anticipated.*

**Explanatory Notes to SOLAS II-1 Regulation 5.4 (resolution MSC.429(98)/Rev.1 and Rev.2) read as follows:**

1 *When alterations are made to a ship in service that result in calculable differences in the lightship properties, a detailed weights and centres of gravity calculation to adjust the lightship properties should be carried out. If the adjusted lightship displacement or longitudinal centre of gravity, when compared to the approved values, exceeds one of the deviation limits specified in regulation 5.5, the ship should be re-inclined. In addition, if the adjusted lightship vertical centre of gravity, when compared to the approved value, exceeds 1%, the ship should be re-inclined. The lightship transverse centre of gravity is not subject to a deviation limit.*

2 *When a ship does not exceed the deviation limits specified in explanatory note 1 above, amended stability information should be provided to the master using the new calculated lightship properties if any of the following deviations from the approved values are exceeded:*

- .1 1% of the lightship displacement; or*
- .2 0.5% of L for the longitudinal centre of gravity; or*
- .3 0.5% of the vertical centre of gravity.*

*However, in cases when these deviation limits are not exceeded, it is not necessary to amend the stability information supplied to the master.*

---

Note:

1. This Unified Interpretation is to be uniformly implemented by IACS Societies on ships which have their lightship properties changed on or after 1 January 2023.

## Interpretation

### *Definition of lightweight calculation*

For the purposes of this interpretation, the term “lightweight calculation” means a detailed calculation of weights added to, removed from and relocated on a vessel, resulting from all alterations to the vessel since the date of the last approved inclining test, to determine the adjusted lightship properties. Lightship properties include weights and the centre of gravity. The documented weights and their centres of gravity shall be verified onboard/onsite by the attending Class Surveyor.

When weights are added, removed or relocated the final cumulative change is to be compared to the last approved inclining test.

### *Definition of stability information*

“Stability information” includes any document (whether on paper or electronic) or electronic means of calculation of stability which includes light ship properties. This could include, but is not limited to, the approved stability book, computer software for onboard calculation of stability, the approved strength book and the loading instrument.

## **Amendment of stability information in conjunction with alterations of lightship properties**

1. If the lightweight calculation, regardless of keel laying date, shows a deviation in lightweight mass, or the longitudinal or vertical position of the centre of gravity:-
  - a) beyond any of the tolerance limits specified in the explanatory note 1 to Regulation 5.4 of MSC.429(98)/Rev.1 and Rev.2, then the ship should be re-inclined and the stability information, as defined above, should be updated to reflect the lightship properties derived from the inclining test and approved;
  - b) within the tolerance limits specified in the explanatory note 1 and any of the deviations specified in the explanatory note 2 to Regulation 5.4 of MSC.429(98)/Rev.1 and Rev.2 is exceeded, then the stability information should be updated to reflect the lightship properties derived from the lightweight calculation and approved; or
  - c) within the tolerance limits specified in the explanatory note 2 to Regulation 5.4 of MSC.429(98)/Rev.1 and Rev.2, then a copy of the endorsed lightweight calculation report should be provided onboard for future reference with no further amendments required to the stability information.

However, even if addition, removal or relocation of any weight results in lightship properties being within tolerable limits, that deviation of lightship properties should be noted in the onboard stability information and applied for all future references and stability/loading calculations.

2. A summary of paragraph 1 is provided in the following table. Where stability information is to be updated, it shall be approved and provided to the Master with instruction that it should now be used for all stability calculations.

Scenario, as calculated by lightweight calculation	Requirement for Inclining Test	Update of Stability Information
Lightweight change > 2%	Yes	Yes, using new incline result
LCG change > 1% of L (either forward or aft)	Yes	Yes, using new incline result
VCG change > 1%	Yes	Yes, using new incline result
1% < Lightweight change ≤ 2%	No	Yes, using lightweight calculation
0.5% of L < LCG change ≤ 1% of L (either forward or aft)	No	Yes, using lightweight calculation
0.5% < VCG change ≤ 1%	No	Yes, using lightweight calculation
Lightweight change ≤ 1%	No	No
LCG change ≤ 0.5% of L (either forward or aft)	No	No
VCG change ≤ 0.5%	No	No

3. Lightship properties shall be consistent in all documents which use them, e.g. loading manual, stability manual, computer data.

4. A change in lightweight will result in a change in deadweight unless there is an associated change in freeboard. The consequences of the change could have an impact on compliance with regulations that are applied based on deadweight.

End of Document
-----------------