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MARINE CIRCULAR

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FOR: Ship Owners, Ship Managers, Ship Operators, Masters, and Watch Keeping Officers

SUBJECT: MAGNETIC COMPASS ADJUSTMENT & RECORDS OF DEVIATIONS

PURPOSE: Provide ship master/officers/owners/managers/operators with the requirements for adjusting and repairing magnetic compasses and incorporates the provisions of ISO Standard 25862:2019.

REFERENCES:

- (a) SOLAS Regulation V/19.2
- (b) STCW 2010 – STCW Convention and STCW Code: International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 2017 Edition
- (c) IMO Assembly Resolution A.382(X) – Magnetic Compasses Carriage and Performance Standards, adopted 14 November 1977
- (d) ISO Standard 25862:2019 – Ships and marine technology – Marine magnetic compasses, binnacles and azimuth reading devices, Second edition 2019-07

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1. Allowed Residual Deviation

All vessels must be fitted with a properly adjusted magnetic compass according to ISO 25862:2019. This means magnetic compasses must have a residual deviation within:

1.1. 3° for vessels of 500 or more GT; and

1.2. 4° for vessels below 500 GT.

Observed accuracies must be within 2° of the residual deviation table or curve for safe navigation. The residual deviation table or curve must be prominently displayed on the vessel's bridge at all times.

2. Adjustment of Compass

2.1. All magnetic compasses must be swung and adjusted:

2.1.1. at least every two years;

2.1.2. after dry docking; or

2.1.3. after significant structural work.

2.2. Magnetic compasses must be adjusted when:

- 2.2.1. they are first installed;
- 2.2.2. they become unreliable (meaning after an accident);
- 2.2.3. repairs or structural alterations have been made to the vessel that could affect its permanent or induced magnetism (see section 3.1 below);
- 2.2.4. electrical or magnetic equipment close to the compass is installed, removed, or altered;
- 2.2.5. after one year from when the compass was last adjusted, if the required record of compass deviations has not been maintained;
- 2.2.6. the recorded deviations are excessive, as per the limits defined in section 1 above, or the compass shows physical defects; or
- 2.2.7. at any other time deemed necessary by the Master for the safety of navigation.

3. Changes in Magnetism During the Life of the Vessel

3.1. A new vessel's magnetism can be particularly unstable. The same is true following major structural repairs or modifications. Therefore, the performance of magnetic compasses must be monitored carefully during the vessel's early life and after repairs or modifications are completed to determine if the compass requires adjustment.

3.2. Masters must check the performance of magnetic compasses particularly:

- 3.2.1. when carrying and after discharging cargoes that have magnetic properties;
- 3.2.2. after electromagnetic lifting appliances are used for cargo loading or discharging (see section 3.3);
- 3.2.3. following a casualty in which the vessel has been subject to severe contact or electrical charge, such as a lightning strike; or
- 3.2.4. after the vessel has been laid up or lying idle, since even a short period of idleness can affect the deviation.

3.3. The retentive magnetic field induced by electromagnetic lifting appliances can alter a vessel's magnetism, making compasses unreliable. However, a large amount of the magnetism induced by electromagnetic equipment may subsequently decay. Therefore, immediate readjustment is not advised until the residual deviation of the compass has been determined.

4. Requirements for Monitoring Compass Deviation

4.1. The following best practices shall be followed:

- 4.1.1. Watchkeepers must check the compass error after each major course alteration, or at least once per watch where no major alteration has taken place. The observed error must be recorded in a compass deviation book.
- 4.1.2. An entry must be made in the compass deviation book when a vessel enters and leaves dry dock.

- 4.2. Checking the compass deviation regularly may show the need for repair, testing, or adjustment. In addition, compasses must be inspected at regular intervals by a competent officer or qualified compass adjuster.

5. Compass Adjustments and Repairs

- 5.1. All compass adjustments, including those using remote services, must be carried out by a qualified compass adjuster. When this adjuster is not available, the ship's master may carry out this work in case of an emergency.
- 5.2. The date of any adjustment and other details must be noted in the compass deviation book. These details must include the position of all compass correctors as well as the vessel's position and sea conditions when the adjustments were made.
- 5.3. A compass deviation card must be prepared each time the compass is adjusted. Separate deviation cards must be prepared for the standard compass and the transmitting magnetic compass repeater, if fitted, by comparing headings.
- 5.4. Repairs must only be made by the compass manufacturer, other competent person, or a company using proper test facilities. When the work is finished the repairer must supply the Owner or Master with a certificate specifying the date the work was done and the applicable standards.

Yours sincerely,

Deputy Registrar
Tuvalu Ship Registry