



Risk Assessment Solutions

“Don’t Cure, Prevent”

Circular 02/06/2015

Subject: “Magnetic compass not properly adjusted” - Important Safety & PSC Issue!

Case: Recently, it has been reported that a cargo vessel faced difficulties in Canada when the Port State Control Officers boarded the vessel for a detailed PSC inspection. Amongst other findings, the PSC Officers noticed that the Magnetic Compass was inaccurately adjusted. As a result, the following deficiency (Code 15) was imposed:



“Magnetic compass not properly adjusted”

In connection to the above, and in order to assist our clients to avoid similar complications, we would like to remind the **SOLAS Chapter V - Regulation 19 § 2.1 & § 2.2** requirements pursuant to the above case:

“§2.1 All ships, irrespective of size, shall have:

- 1. A properly adjusted standard magnetic compass, or other means, independent of any power supply, to determine the ship’s heading and display the reading at main steering position;[...]*

§2.2 All ships of 150 gross tonnage and upwards and passenger ships irrespective of size shall, in addition to the requirements of paragraph 2.1, be fitted with:

- 1. A spare magnetic compass, interchangeable with the magnetic compass as referred to in paragraph 2.1.1, or other means to perform the function referred to in paragraph 2.1.1 by means of replacement or duplicate equipment.”*

Referring to the above mentioned regulation and in order to assist further, “Prevention at Sea” recommends that our Clients should also consider the following with regards to the proper operation and adjustment of the Magnetic Compass:

General Information

The Magnetic Compass completes the navigation system, providing an independent source of power when the main power fails to operate. This means that in case of other instruments’ failure to operate, the magnetic compass will “navigate” the vessel safely until the destination port. It provides a heading within precision of half degree (+/- 0, 5 °), considering that the compass has been adjusted properly. It is the responsibility of the Owner/ Manager and the Master to ensure that the magnetic compasses on their ships are maintained in good working condition.

Each vessel should be provided with a **deviation table** including: the name of the vessel, IMO Number, Call Sign, Flag, place where the adjustment of the compass was carried out, name of the Master or certified adjuster / stamp / sign, the maker of the compass, sea and weather conditions, method used, numerical and graphical results of deviation. ***This deviation table is valid for two years.***



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Monitoring, Adjustments & Repairs

- Observation of the equipment should be performed regularly so as to determine any potential compass errors.
- The performance of the magnetic compass should be also monitored by recording the deviations in the relevant compass deviation book.
- It is suggested that any adjustments made to the compass to be performed by a duly authorized compass adjuster. If a certified compass adjuster is not available and the Master deems that adjustment of the magnetic compass is essential, then adjustments may be carried out by a person holding a *Certificate of Competence*, issued in accordance with **Regulation II/2 of the STCW Convention 1978**, as amended. The magnetic compass must then be re-adjusted by a certified compass adjuster at the first available opportunity.
- The date of any adjustment made and relevant details should be also noted in the compass deviation book.
- After appropriate adjustments, the vessel shall be provided with a *Certificate of compass adjustment*, indicating that the work was carried out in accordance with the International Standards. This Certificate must be available onboard at all times for inspection purposes.
- The minimum distance between the magnetic compass and the electrical panels or any other electrical equipment (e.g. Radar's, Gyro compasses, Radios etc.) should be determined by the manufacturer of the equipment, according to the standards developed by the Organization and shall be verified by the Flag State surveyors, while surveying the vessel.
- It is a good practice that portable electrical equipment to be kept away from the location where the compass is positioned.
- Spare magnetic compasses should be carefully stowed away from the Bridge, so as not to be affected by any casualty that may disable Bridge's operation.

When or How often a Magnetic Compass should be adjusted?

(In accordance with the IMO Assembly Resolution A.382(X) – Magnetic Compasses Carriage and Performance Standards)

- When it is first installed or replaced
- After periods of vessel's lay up
- When the estimated deviation exceeds five (5) degrees taking into account the variation of the place and the method used
- After an incident/ accident, such as lightning strike, grounding, fire, etc.
- When the compass performance is unsatisfactory or unreliable
- When a record of compass deviation has not been maintained properly
- After dry docking, or after repairs or structural alterations have been made to the ship that could affect its permanent and / or induced magnetism
- After repairs involving welding, cutting, grinding, etc. which may affect the compass performance
- When any electrical or magnetic equipment is located close to the compass, removed or altered
- When the current compass deviation does not correspond with the recorded one on the deviation card
- When a maximum period of one (1) year has elapsed since the date of the last adjustment
- At any other time, when deemed necessary by the Master for the safety of vessel's navigation



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Operational Checks / Tests

(In accordance with SOLAS V/19.2.1 and ANNEX 13 - Guidance notes on Magnetic Compasses)

The performance of all magnetic compasses, including spares should be checked as follows:

- Ensure the freedom of the gimbal movement
- Check that the card is floating and rotating freely without any friction.
- The liquid should be free of bubbles and clear at all times.
- Compass card must be clear, sharp and readable with no distortion or discoloration.
- The optical system (if any) to be accordingly adjusted and clean.
- Azimuth reading devices and all means of illumination to be working properly.
- Check that there are no liquid leaks around seals or any filler plugs.

Finally, according to *ISO 25862: 2009 "Ships and Marine Technology"*: All SOLAS vessels should have their compass adjusted and at maximum every two years to issue a new deviation card. When a new vessel is commissioned, compass deviation on any heading should be no more than 3° degrees. Thereafter, deviation on any heading should be 5° degrees or less.



Also note, that for vessels transiting the [Panama Canal](#), it is required by the Canal Authorities to always carry onboard a valid compass deviation card, which has to be issued within the previous 12 months. Calibration cards issued and signed by the Master will be accepted as long as the deviation is less than 6 degrees.

Many Maritime Authorities and Organizations stipulate that the magnetic compass has to be adjusted annually. The vessel's Owner/ Manager should ensure that the compass is regularly checked and properly adjusted.

Our company is offering a wide range of 'deficiencies', case studies, clarification on the PSC deficiencies through our PSC Seminar which is delivered on regular intervals in our office or in-house at client's request.

To assist further, we offer our clients through our "PaSea Risk Assessment Program" the service of assessing onboard or remotely, through the "Distance Assessment", whether the vessel is in conformance with the PSC requirements by calculating the Ship's "PaSea" Factor.

We remain at your disposal for more details,

Prevention at Sea