



DEPARTMENT OF ECONOMIC DEVELOPMENT

Magnetic Compass Adjustment and Records of Deviations

The aim of this notice is to give advice on the frequency and necessity of adjusting the Magnetic Compass.

Most regulations and notices are available on the Isle of Man Government web site: www.iomshipregistry or by contacting marine.survey@gov.im

1. Questions have been raised on a number of occasions with regard to the intervals required between successive adjustments of the magnetic compasses in Manx ships.
2. The Regulations require that a magnetic compass be carried and this is an item which falls within the scope of the Cargo Ship Safety Equipment survey, or the Passenger Ship survey and is subject to examination at Port State Control inspections. The compass is required to be correctly adjusted and a record of deviations in the form of a deviation curve or similar is required to be available. The Regulations do not make any reference to intervals between successive adjustments.
3. As a general principle applicable to Isle of Man ships the compass deviation should be checked very regularly and recorded, and the record should be available at any time to show the measured deviations over a range of magnetic headings. The STCW Convention requires, at Section A-VIII/2, (Standards Regarding Watchkeeping) regulation 34.2 that the bridge watchkeeper should ensure that:

“The standard compass error is determined at least once per watch and, when possible, after any major alteration of course; the standard and gyro compasses are frequently compared, and repeaters are synchronised with the master compass.”

Watchkeepers on Manx ships must comply with this STCW requirement. It is also recommended that the deviation is checked as far as is possible before leaving port as part of the preparation and testing of bridge equipment, but bearing in mind that deviations may be affected by nearby shore cranes and structures. Whenever deviation is measured, the result should be compared with the values shown on the ship's deviation curve.

As long as these measured deviations agree with those shown on the ship's deviation curve, then there is no requirement to re-adjust the compass until such time as the record of measured deviations show that the original curve is no longer valid.

4. It is not only the size of deviations that is important in comparing measured deviations with the ship's deviation curve. It is also important to examine the rate of change of deviations with heading.

A deviation of 5 degrees West on one heading might be quite acceptable but a deviation of 5 degrees East on an adjacent heading means a rate of change of 10 degrees over closely similar headings which could result in a compass which is not satisfactory in providing a steady heading reference on or near these headings.

The ship's deviation curve should show a smooth curve with no rapid changes and measured deviations should follow the same pattern. A change in either the shape of the curve or in the values is an indication that the compass requires to be re-adjusted. Ship's officers should make a practice of drawing up a deviation curve from their recorded measured deviations from time to time and comparing the shape of the curve as well as the values of deviations with the original curve. Any significant change in either is reason for making a re-adjustment.

5. Modern ships frequently carry substantial deck cargoes of containers stacked in varying configurations and these, as well as other cargoes carried on deck and in holds, particularly steel, some ores, and other ferrous cargoes can have a significant effect on the ship's magnetic field and on deviations. In some ships values of deviation as a consequence will vary from voyage to voyage and in these ships a greater tolerance between measured values at any time and the values shown on the deviation curve can be accepted. Whenever such ships carry similar deck loads or other cargoes regularly there may be value in the ship's staff drawing up separate deviation curves for defined conditions of loading.

6. Where the original deviation curve has been drawn up with the ship in the lightship condition, which is commonly the case with new vessels, and where subsequent observations show a consistent difference between the values on the deviation curve and those being experienced when loaded, there are clear grounds for undertaking a new swing and adjustment in the loaded condition at a suitable opportunity and substituting this "loaded" deviation curve for the original one.

7. The key requirement is that the ship's staff should have available a magnetic compass which can provide a steady heading reference and that the ship's staff should know the deviation on any heading. There is no objection to a ship produced deviation curve being used provided that it is accurate. The ship's master should have the skill and has the authority to produce such a curve and use it.

8. It has also been noticed that ship's deviation curves occasionally give the appearance of some antiquity, which leaves doubts in the minds of surveyors and Port State Control Officers as to their age and validity. There have been occasions

where the ship's crew have been unable to locate the curve. An accurate deviation curve which shows an effectively adjusted compass is an important navigational tool which is required by the Regulations. The curve of deviations, whether one for the ship generally or one prepared for a particular condition of loading should be kept in a readily accessible position available for use and should be clean and clear.

Isle of Man Ship Registry
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Please note - The Isle of Man Ship Registry cannot give Legal Advice. Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel. You should consider seeking independent legal advice if you are unsure of your own legal position.