



PANAMA MARITIME AUTHORITY
Directorate General of Merchant Marine
International Representative Office, N.Y.

Merchant Marine Circular No. 138

**To: Ship owners, Ship repairers, Masters, Watch keeping Officers,
Compass manufactures and Compass Adjusters.**

Subject: Magnetic Compass

**Reference: Decree Law No. 7, SOLAS 74 as amended, IMO resolution A.382(X),
Resolution A.694(17), Resolution A.813(19), and Resolution MSC.86(70),
Decree N° 45.**

The purpose of this Merchant Marine Circular is to establish guidelines for maintaining and testing magnetic compasses.

1. Application.
 1. These guidelines apply to all ships irrespective of size, and navigation area.
2. Requirement.
 1. The magnetic Compass is required under Chapter V, regulation 19, of the 2000 amendments to 1974 the International Convention for the Safety of Life at Sea (SOLAS), 1974. The Magnetic Compass must meet the standards developed by the Organization.
3. Responsibility of Maintenance.
 1. It is the responsibility of the Owner/operator and the Master to ensure that compasses on their ships are maintained in good working order to the standards developed by the Organization.
4. When to Adjust Compasses.
 1. Magnetic Compasses shall be adjusted when:
 - a) They are first installed or replaced
 - b) they become unreliable,
 - c) the ship undergoes structural repairs or alterations that could affect its permanent and induced magnetism,
 - d) electrical magnetic equipment close to the compasses is added, removed or altered,
 - e) a maximum period of one (1) year has elapsed since the date of the last adjustment and record of compass deviations has not been properly maintained or the record of deviations are excessive or when the compass shows physical defects,
 - f) deviation exceeds five (5) degrees taking into account the variation of the place and the method used.

PANAMA MARITIME AUTHORITY
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5. Effect of changes in magnetism during the life of a ship.
 1. Because the magnetism of a new ship can be particularly unstable, the performance of magnetic compasses should be monitored carefully during the early life of a ship and adjustments made if necessary.
 2. Masters are advised that it is essential to check the performance of magnetic compasses particularly:
 - a) Carrying cargoes which have magnetic properties;
 - b) Using electromagnetic lifting appliances to load or discharge;
 - c) A casualty in which the has been subject to severe contact or electrical charges; or
 - d) The ship has laid up or has been lying idle – even a short period of idleness can lead to serious deviations, especially for small vessels.
 3. Further to 5.2(b), the retentive magnetic field can alter a ship's magnetism, making compasses unreliable. However, a large amount of the magnetism induced by an electromagnetic equipment may subsequently decay; therefore immediate readjustment is not advised. Every effort should be made to determine the compass deviation.
6. Monitoring Compass Performance
 1. Frequent observation should be made to determine compass error. Compass performance should be monitored by recording deviations in a compasses deviation book. This may show the need for repair, testing or adjustment or if the records are not correctly carried out.
7. Adjustment and repairs.
 1. Adjustment must be made by a duly authorized compass adjuster. If a qualified and certified compass adjuster is unavailable and the master considers it necessary, then adjustments may be made by the Master, who should also have expertise as compass adjuster.
 2. The Administration of Panama may also accept the compass adjusters recognized by one of the States members of SOLAS 74 Convention, who also must complete a Compass adjustment course in a certified center that meets the International standards developed by the Organization; Under no circumstances, the same person that surveyed a vessel shall carry out the compass adjustment. The date of any adjustment and other details should be noted in the compass deviation book.

PANAMA MARITIME AUTHORITY
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International Representative Office, N.Y.

3. The position of all compass correctors should be recorded in the compass deviation book and on deviation cards.
4. The minimum distance between the magnetic compass and electrical panels or any other electrical equipment such as: Radar's, Gyro compasses, Radios etc. will be determined by the manufacturer of those equipment's, according to standards developed by the Organization and shall be verified by the Flag State surveyors while surveying the ship.
5. Separate deviation cards shall be prepared for the standards compass and the transmitting magnetic compass repeater, if fitted, by comparing headings.
6. After the adjustment, the vessel must be provided with a certificate of compass adjustment that must include the deviation table and this document must include at least: the name of the vessel /IMO # / call letters / flag / place where the job is carried out, name of the adjuster / stamp / sign; maker of the compass, sea and weather conditions, method used, numerical and graphical results of deviation after correction.
7. Repairs should only be made by a compass manufacturer or other competent and authorized company using proper test facilities. When the work is finished, the repairer should supply the Owner or Master with a certificate specifying that the work was carried out in accordance with the international standards for magnetic compasses.
8. Portable Equipment that may interfere with compasses.
 1. Master and Officers are advised that portable electrical equipment (e.g. radios and tape recorders or items made of steel can affect the performance of a compass. Care should be taken to ensure that such items are kept away from the compass position.
9. Spare Bowl.
 1. If a spare magnetic compass bowl is required, then it should be carefully stowed together with its gimbals units away from the bridge structure so that they are unaffected by any casualty disabling the bridge.
10. Transmitting Magnetic Compasses (TMC).
 1. If a new or existing standards magnetic compass is modified to provide a transmission output then the device must be certified or re-certified with the transmitting element in place.
 2. Modifications should be made by an experienced compass technician, who shall ensure that the transmitting element is compatible with the binnacle. The performance of the equipment cannot be relied upon until the compass has been re-certified (as described above) and adjustment have been made by a compass adjuster.
 3. Auxiliary equipment included in the modifications (e.g. electronic units, displays and power supplies) should be type-tested to establish safe distances from the compass. In particular, care should be taken to avoid the effect on the compass of spurious radio frequency transmissions. For guidance, refer to IMO Resolution A.813 (19) and Resolution A.694 (17)

PANAMA MARITIME AUTHORITY
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If a transmitting magnetic compass provides heading information, i.e. it is read by the helmsman at the main steering position, then the spare bowl must be fitted with a transmitting element, and individual testing is required. Alternatively, if heading information is provided by the reflected image of a standard compass periscope or by a separate steering compass, and a transmitting compass is fitted voluntarily to provide a repeater facility to navigation equipment, then the spare bowl not require a separate transmitting element.

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