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**STATUTORY INSTRUMENTS**

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**1984 No. 1203****MERCHANT SHIPPING****SAFETY****The Merchant Shipping (Navigational Equipment) Regulations  
1984***Made - - - - - 2nd August 1984**Laid before Parliament 10th August 1984**Coming into Operation 1st September 1984***ARRANGEMENT OF REGULATIONS**

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The Secretary of State, after consulting with the persons referred to in section 22(2) of the Merchant Shipping Act 1979<sup>(a)</sup>, in exercise of the powers conferred on him by subsection (1)(a), subparagraphs (a), (d), (e), (f), (o) and (q) of subsection (3), and subsections (4)(a), (5)(a) and (6)(a), (b), (ba) and (bb) of section 21 and section 22(1)(a) and (c) of that Act and of all other powers enabling him in that behalf, hereby makes the following Regulations:—

*Citation*

1. These Regulations may be cited as the Merchant Shipping (Navigational Equipment) Regulations 1984 and shall come into operation on 1st September 1984.

## GENERAL

*Interpretation, revocation and application*

2.— (1) In these Regulations the following expressions have the following meanings respectively:

“constructed” in respect of a ship means a stage of construction where:

(a) the keel is laid; or

(b) construction identifiable with a specific ship begins; or

(c) assembly of that ship has commenced comprising at least 50 tonnes or 1 per cent of the estimated mass of all structural material, whichever is less.

“interference” has the same meaning as in section 19(4) of the Wireless Telegraphy Act 1949<sup>(b)</sup>;

“international voyage” means a voyage from a port in one country to a port in another country;

“maintenance” means any activity intended to keep an installation in

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<sup>(a)</sup> 1979 c.39; section 21(6)(b), (ba) and (bb) were inserted by the Criminal Justice Act 1982 (c.48).

<sup>(b)</sup> 1949 c.54.

satisfactory working condition and includes tests, measurements, replacements, adjustments and repair;

“Merchant Shipping Notice” means a Notice described as such, issued by the Department of Transport;

“the Organization” means the International Maritime Organization;

“Passenger Certificate Class IV” means a certificate issued under a pursuant to the Merchant Shipping Acts 1894–1984 for ships engaged on voyages (which are not international voyages) in partially smooth or in smooth and partially smooth waters;

“Passenger Certificate Class V” means a certificate so issued for ships engaged only on voyages (which are not international voyages) in smooth waters;

“Passenger Certificate Class VI” means a certificate so issued for ships engaged on voyages (which are not international voyages) with not more than 250 passengers on board, to sea, or in smooth or in partially smooth waters, in all cases in fine weather and during restricted periods, in the course of which the ships are at no time more than 15 miles, exclusive of any smooth waters, from their point of departure nor more than 3 miles from land;

“Passenger Certificate Class VI(A)” means a certificate so issued for ships carrying not more than 50 passengers for a distance of not more than 6 miles on voyages to or from isolated communities on the islands or coast of Scotland and which do not proceed for a distance of more than 3 miles from land;

“Partially smooth waters” means, as respects any period specified in Schedule 2 to the Merchant Shipping (Smooth and Partially Smooth Waters) Rules 1977(a) the waters of the areas specified in column 3 of that Schedule in relation to that period;

“passenger ship” means a ship carrying more than 12 passengers;

“pleasure craft” means a vessel primarily used for sport or recreation;

“radar watch” means observing displayed radar information, the frequency of observation depending upon the prevailing conditions;

“Restricted period” means a period falling wholly within the following limits:—

(a) from the 1st April to 31st October, both dates inclusive; and

(b) between one hour before sunrise and one hour after sunset in the case of ships fitted with navigation lights conforming to the collision regulations and between sunrise and sunset in the case of any other ships;

“safe distance”, in relation to a unit of equipment, means the minimum distance, approved by the Secretary of State and specified on that unit, at which the unit should be installed from a magnetic compass, in order to minimise deviation to the compass;

“Sea” does not include any partially smooth waters;

“Smooth waters” means any waters not being the sea or partially smooth waters, and, in particular, means waters of any of the areas specified in

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(a) S.I. 1977/252, as amended by S.I. 1978/801.

column 2 of Schedule 2 to the Merchant Shipping (Smooth and Partially Smooth Waters) Rules 1977;

“tanker” means a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of a flammable nature;

“Tons” means gross tonnage and shall be:

- (a) for a ship having alternative gross tonnages under paragraph 13 of Schedule 5 of the Merchant Shipping (Tonnage) Regulations 1982(a) the larger of these tonnages;
- (b) for a ship having its tonnage determined both under Part II and regulation 16 of those Regulations its gross tonnage as determined under regulation 16.

“United Kingdom ship” has the same meaning as in section 21(2) of the Merchant Shipping Act 1979;

“unlimited trading area” means the trading area defined in Schedule 2 to the Merchant Shipping (Certification of Deck Officers) Regulations 1980(b);

“Voyage” includes an excursion.

(2) References in these Regulations to—

- (a) any performance standard adopted by the Organization (referred to in regulations 10, 15, 18(1), 27, 29, 31, 37, 39 and 43 hereof) or
- (b) any Performance Specification issued by the Department of Transport or the Department of Trade and Industry (Referred to in regulations 15, 18(1), 27, 29, 31, 33(3), 37 and 39 hereof)

shall be constructed respectively as references to

- (a) the standards specified in Merchant Shipping Notice No. M1138 as so adopted; and
- (b) the performance specifications specified in Merchant Shipping Notice No. M1138.

and shall include a reference to any document amending any such standard or specification which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice.

(3) The Merchant Shipping (Navigational Equipment) Regulations 1980(c) are amended as specified in Schedule 1 hereto.

(4) These Regulations shall apply in relation to ships (except pleasure craft and fishing vessels) which are:

- (a) sea-going United Kingdom ships, other than passenger ships, of 150 tons or over; and
- (b) sea-going United Kingdom passenger ships other than those having Passenger Certificates of Class V.

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(a) S.I. 1982/841.

(b) S.I. 1980/2026.

(c) S.I. 1980/530, as amended by S.I. 1981/579.

(5) A rigidly connected composite unit of a pushing vessel and associated pushed vessel, when designed as a dedicated and integrated tug and barge combination, shall be regarded as a single ship for the purpose of these Regulations.

*Provision of navigational equipment installations*

3.— (1) Every ship shall be fitted with a magnetic compass installation and comply with Part I of these Regulations.

(2) Every ship of 500 tons or over but less than 1600 tons constructed on or after 1st September 1984 shall:

- (a) be fitted with a gyro compass installation and comply with Part II of these Regulations;
- (b) be fitted with a radar installation and comply with Part III of these Regulations;
- (c) be fitted with indicators showing the rudder angle, the rate of revolution and direction of thrust of each propeller and, if fitted with variable pitch propellers or lateral thrust propellers, the pitch and operational mode of such propellers. All these indicators shall be readable from the normal navigation control position.

(3) Every ship of 500 tons or over but less than 1600 tons when engaged on an international voyage shall:

- (a) if constructed on or after 25th May 1980 be fitted with an echo sounder installation and comply with Part IV of these Regulations;
- (b) if constructed on or after 1st September 1984 be fitted with a speed and distance measuring installation and comply with Part V of these Regulations.

(4) Every ship of 1600 tons or over, whenever constructed, shall:

- (a) be fitted with a gyro compass installation and comply with Part II of these Regulations. Provided that this requirement shall apply to ships constructed before 1st September 1984, only when engaged on international voyages;
- (b) be fitted with a radar installation (or, if the ship is of 10,000 tons or over, two radar installations), and comply with Part III of these Regulations;
- (c) be fitted with indicators showing the rudder angle, the rate of revolution and direction of thrust of each propeller and, if fitted with variable pitch propellers or lateral thrust propellers, the pitch and operational mode of such propellers. All these indicators shall be readable from the normal navigation control position.

(5) Every ship of 1600 tons or over when engaged on an international voyage shall:

- (a) whenever constructed, be fitted with an echo sounder installation and comply with Part IV of these Regulations;

- (b) if constructed on or after 1st September 1984 be fitted with a speed and distance measuring installation and comply with Part V of these Regulations;
  - (c) whenever constructed, be fitted with a direction finder installation and comply with Part VI of these Regulations;
  - (d) if constructed on or after 25th May 1980 be fitted with an installation for homing on the radiotelephone distress frequency (2182 kHz) and comply with Part VII of these Regulations.
- (6)(a) Every ship of 10,000 tons or over constructed on or after 1st September 1984 shall be fitted with an automatic radar plotting aid and comply with Part VIII of these Regulations.
- (b) Ships constructed before 1st September 1984 shall be fitted with an automatic radar plotting aid and comply with Part VIII of these Regulations as follows:
- (i) tankers of 40,000 tons or over by 1st January 1985;
  - (ii) tankers of 10,000 tons or over but less than 40,000 tons by 1st January 1986;
  - (iii) ships, other than tankers, of 40,000 tons or over by 1st September 1986;
  - (iv) ships, other than tankers, of 20,000 tons or over but less than 40,000 tons by 1st September 1987;
  - (v) ships, other than tankers, of 15,000 tons or over but less than 20,000 tons by 1st September 1988.
- (7) Every ship of 100,000 tons or over constructed on or after 1st September 1984 shall be fitted with a rate of turn indicator and comply with Part IX of these Regulations.

*Serviceability of installations*

4.— (1) Each navigational equipment installation required by these Regulations to be provided shall be in a satisfactory working condition whenever the ship goes to sea:

Provided that, except in respect of magnetic compass, direction-finding and homing installations, this requirement shall not apply when a ship is going to sea from a place at which prompt maintenance is not available or practicable without delaying the ship.

(2) Each navigational equipment installation required by these Regulations shall be in a satisfactory working condition at all times when the ship is at sea, unless there is a defect in an installation and maintenance is being carried out or is not practicable.

(3) Each navigational equipment installation required by these Regulations shall, where practicable, be mounted in such a manner as to prevent the performance and reliability of the installation being adversely affected by vibration.

(4) Units of each navigational equipment installation required by these Regulations shall, where practicable, be sited in positions which facilitate easy access for operation and maintenance.

*Interference with other installations*

5.— (1) At no time while the ship is at sea shall any interference or mechanical noise produced by any navigational equipment installation required by these Regulations be such as to prevent the effective reception of radio signals.

(2) At no time while the ship is at sea shall any interference or mechanical noise produced by any equipment in the ship be sufficient to prevent the efficient operation of any navigational equipment installation required by these Regulations.

(3) Units of navigational equipment installations, where practicable, shall not be installed closer to the ship's standard and steering compass than the appropriate safe distance marked on the unit. Where the safe distance is not marked on the unit, units shall not be installed closer to a magnetic compass than the distance specified in Merchant Shipping Notice No. M616 or any document amending the same which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice.

*Provision of electrical energy*

6.— (1) There shall be provided in every ship at all times while the ship is at sea and at all reasonable times when she is in port, a supply of electrical energy suitable and sufficient for the operation of the navigational equipment installations required by these Regulations, for testing purposes and for the charging of any rechargeable batteries which are a source of electrical energy for the navigational equipment installations.

(2) The supply of electrical energy shall not exceed the limits set out below:

AC supplies: variation from nominal voltage of  $\pm 10\%$   
variation from nominal frequency of  $\pm 6\%$

DC supplies: variation from nominal voltage:  
110/220V supplies,  $+10\%$ ,  $-20\%$   
24/32V supplies,  $+30\%$ ,  $-10\%$

(3) Readily accessible means shall be provided for isolating each navigational equipment installation from its source of electrical energy without causing any interruption to, or adversely affecting, the supply of electrical energy to any other equipment.

(4) Where a ship is required to be provided with two radar installations—

(a) they shall be so installed that failure of either radar installation shall not cause the supply of electrical energy to the other radar installation to be interrupted or adversely affected; and



- (b) on ships constructed on or after 25th May 1982, both radar installations shall be capable of being operated one at a time, from the ship's emergency source of electrical energy, if provided.

*Charging of batteries*

7.— (1) If rechargeable batteries are provided on a ship as a source of electrical energy for any part of the navigational equipment installations, adequate means shall be provided on board the ship for the charging of such batteries from the ship's main source of electrical energy.

(2) Any such battery when not in use shall be capable of being fully charged within a period of not more than 16 hours by the means of charging required by paragraph (1) of this regulation.

(3) When any such battery is float-charged whilst in use, the voltage used for charging the battery shall be within the limits set out in regulation 6(2) above.

(4) If any navigational installation derives electrical energy for internal circuits from non-rechargeable batteries, failure of such batteries, where practicable, shall not cause malfunction of the installation. Where this is not practicable, the installation shall be provided with means to test the condition of such batteries.

*Servicing and operating information*

8. Adequate information and instructions as to the use and maintenance of every navigational equipment installation required by these Regulations shall be provided by the owner and shall be available at all times for use when the particular installation is being operated, tested or serviced. Such information and instructions shall be in English.

*Spares and tools*

9. For each navigational equipment installation required by these Regulations there shall be supplied such special tools and equipment as are necessary for shipboard maintenance and such spares as are likely to be required for the duration of the intended voyage.

PART I—MAGNETIC COMPASS INSTALLATION

*Magnetic compass performance standards*

10. Every magnetic compass installation required to be provided shall comply with the performance standards adopted by the Organisation.

*The Magnetic Compass Installation*

**11.—** (1) Except in the case of ships having Passenger Certificates of Class IV, VI or VI(A), the magnetic compass installation shall comprise:

- (a) a standard magnetic compass, fitted on the centre line of the ship and mounted on a binnacle.
- (b) a steering magnetic compass, fitted on the centre line of the ship and mounted on a binnacle, unless heading information provided by the standard compass required under (a) is made available and is clearly readable by the helmsman at the main steering position;
- (c) adequate means of communication between the standard compass position and the normal navigation control position; and
- (d) means for taking bearings as nearly as practicable over an arc of the horizon of 360°.

(2) In the case of ships having Passenger Certificates of Class IV, VI or VI(A) the magnetic compass installation shall comprise one efficient magnetic compass at the steering position.

*Adjustment of Magnetic Compasses*

**12.—** Each of the magnetic compasses referred to in regulation 11(1) shall be properly adjusted and its table or curve of residual deviations shall be available at all times.

*Spare Magnetic Compass*

**13.—** A spare magnetic compass, interchangeable with the standard compass, shall be carried in every ship of 150 tons and over to which these Regulations apply, unless a steering compass mentioned in regulation 11(1)(b) is fitted.

*Emergency Steering Position*

**14.—** On ships of 150 tons and over which are provided with emergency steering positions, arrangements shall be made to supply heading information to such positions.

## PART II—GYRO COMPASS INSTALLATION

*Gyro compass performance standards*

**15.** Every gyro compass installation required to be provided shall comply with the performance standards adopted by the Organisation and shall, in addition, comply with the relevant performance specifications issued by the Department of Transport.

*Siting of gyro compass installation*

**16.—** (1) The master compass shall be installed with its fore-and-aft datum line parallel to the ship's fore-and-aft datum line to within  $\pm 0.5^\circ$ .

(2) The compass card of the master compass, or a repeater of the heading information, shall be sited so that it is clearly readable by the helmsman when steering the ship.

(3) Where provided, repeaters used for taking visual bearings shall be installed with their fore-and-aft datum lines parallel to the ship's fore-and-aft datum line to within  $\pm 0.5^\circ$ .

(4) The master compass shall be sited so as to avoid, where practicable, excessive errors being caused to the gyro compass installation due to the ship rolling, pitching or yawing.

(5) Where in a gyro compass installation fitted on or after 1st September 1984, failure of one repeater could cause an error in any other repeater a readily accessible means shall be provided for isolating each repeater output from the Master Compass.

*Provision of gyro repeaters*

**17.—** On ships of 1,600 tons or over a gyro repeater or gyro repeaters shall be provided and shall be suitably placed for taking bearings as nearly as practicable over an arc of the horizon of  $360^\circ$ .

## PART III—RADAR INSTALLATION

*Radar performance standards and interswitching facilities*

**18.—** (1) Every radar installation required to be provided shall comply with the performance standards adopted by the Organization and shall, in addition, comply with the relevant performance specifications issued by the Department of Transport.

## (2) Interswitching facilities

- (a) where such a radar installation includes additional radar units and facilities for interswitching, at least one arrangement of units when used together shall comply with all the requirements of this Part of these Regulations;
- (b) where two radar installations are required to be provided on a ship, they shall be so installed that each radar installation can be operated individually and both can be operated simultaneously without being dependent upon one another.

*Provision of plotting facilities*

**19.—** Facilities for plotting radar readings shall be provided on the navigating bridge of every ship required to be fitted with a radar installation. In ships of 1,600 tons gross tonnage and upwards constructed on or after 1st September 1984 the plotting facilities shall be at least as effective as a reflection plotter.

*Radar watch*

**20.**— (1) While a ship which is required to be fitted with a radar installation is at sea and a radar watch is being kept, the radar installation shall be under the control of a qualified radar observer, who may be assisted by unqualified personnel.

(2) In every such ship a record shall be kept in the deck log book of the times at which radar watch is commenced and discontinued.

*Serviceability and maintenance of radar installations*

**21.**— (1) The performance of the radar installation shall be checked before the ship proceeds to sea and at least once every four hours whilst the ship is at sea and radar watch is being maintained.

(2) Every ship of 1600 tons or over required to be fitted with a radar installation which is going between the United Kingdom and locations in the unlimited trading area or between locations in the unlimited trading area shall be provided with at least one officer or member of the crew adequately qualified to carry out radar maintenance.

Provided that:

- (a) if on an occasion on which a ship goes to sea, the officer or member of the crew adequately qualified to carry out radar maintenance is not carried because of illness, incapacity, or other unforeseen circumstance, but all reasonable steps were taken to secure the carriage on that occasion of a duly qualified officer or crew member, the provisions of this regulation which require such a ship on such a voyage to carry an officer or crew member adequately qualified to carry out radar maintenance shall not, subject to compliance with the conditions in sub-paragraph (b) below, apply to the ship during a period beginning with the day on which the ship goes to sea and ending either 28 days later or with the day on which the ship sails from its next port of call, whichever is the later;
- (b) the conditions are that one such period shall not be followed immediately by any further period at sea during which the ship does not carry an officer or crew member adequately qualified to carry out radar maintenance and that the master, when going to sea on such an occasion shall:
  - (i) notify a proper officer of his intention not to carry a suitably qualified officer or crew member; and
  - (ii) make an entry of that notification in the ship's official log.

*Qualifications of radar observers and radar maintenance personnel*

**22.**— (1) For the purposes of these Regulations, a person shall be deemed a "qualified radar observer" if he holds:

- (a) a valid Radar Observer's Certificate granted by the Secretary of State; or
- (b) a valid certificate of attendance granted at the conclusion of a radar

- simulator course which has been approved by the Secretary of State;  
or
- (c) a valid Electronic Navigation Systems Certificate granted by the Secretary of State, or
  - (d) a valid Navigation Control Certificate granted by the Secretary of State, or
  - (e) a certificate recognised by the Secretary of State as being equivalent to any of the certificates mentioned in (a), (b), (c) or (d).
- (2) For the purposes of these Regulations, an officer or crew member shall be deemed qualified to carry out radar maintenance if he holds:
- (a) a Radar Maintenance Certificate granted by the Secretary of State; or
  - (b) an Electronic Navigational Equipment Maintenance Certificate granted by the Secretary of State; or
  - (c) a certificate recognised by the Secretary of State as being equivalent to either of the certificates mentioned in (a) or (b); or
  - (d) a certificate of proficiency to carry out maintenance on specified types of radar installations granted at the conclusion of a radar manufacturer's course which has been approved by the Secretary of State; or
  - (e) a special certificate to carry out maintenance on specified types of radar installations issued by the Secretary of State upon satisfactory written evidence that the applicant's employment, over a period of not less than 10 years between 25th May 1960 and 24th May 1980, has included the maintenance of marine radar installations.

*Siting of radar installation*

23.— (1) The antenna unit of the radar installation shall be sited so that satisfactory overall performance is achieved in relation to:

- (a) the avoidance of shadow sectors;
- (b) the avoidance of false echoes caused by reflections from the ship's structure; and
- (c) the effect of antenna height on the amplitude and extent of sea-clutter.

(2) The radar display shall be sited on the bridge from which the ship is normally navigated. The siting of one of the displays shall be such that:

- (a) an observer, when viewing the display, faces forward and is readily able to maintain visual lookout;
- (b) there is sufficient space for two observers to view the display simultaneously.

(3) The radar installation shall, where practicable, be mounted so as to prevent the performance and reliability of the installation being adversely affected by vibration and so that the installation will not, whilst in service, normally be subject to greater vibration than that specified in the "General Requirements for Marine Navigational Equipment, 1982", issued by the Department of Transport.

*Alignment of heading marker*

24. The radar heading marker (and stern marker if fitted) shall be aligned to within 1° of the ship's fore-and-aft line as soon as practicable after the radar installation has been installed in the ship. Where inter-switching facilities are provided, the heading marker shall be aligned with all arrangements of units. The marker shall be re-aligned as soon as practicable whenever it is found to be substantially inaccurate.

*Measurement of shadow sectors*

25. The angular width and bearing of any shadow sectors displayed by the radar installation shall be determined and recorded. The record shall be shown on a diagram adjacent to the radar display and be kept up to date following any change likely to affect shadow sectors.

*Display sizes*

26.— A radar installation required to be provided which is installed on board a ship on or after 1st September 1984 shall provide a relative plan display having an effective diameter, without external magnification, of not less than:

- (a) 180\* millimetres on ships of 500 tons or over but less than 1600 tons;
- (b) 250\* millimetres on ships of 1600 tons or over but less than 10,000 tons;
- (c) 340\* millimetres in the case of one radar installation and 250 millimetres in the case of the other on ships of 10,000 tons or over.

## PART IV—ECHO SOUNDER INSTALLATION

*Echo sounder performance standards*

27.— Every echo sounder installation required to be provided shall comply with the performance standards adopted by the Organisation and shall, in addition, comply with the relevant performance specification issued by the Department of Transport.

*Siting of echo sounder installation*

28.— (1) The transducer unit or units of such echo sounder installation shall be sited so as to avoid, where practicable, the vicinity of all underwater openings in, or projections from, the hull, such as plugs, anodes or other transducers, so that satisfactory overall performance is achieved.

(2) The echo sounder graphical display shall, where practicable, be sited on the bridge in a position to facilitate easy access and viewing, and where the effect of any lighting necessary for the equipment does not interfere with the keeping of an effective look-out.

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\* Display diameters of 180, 250 and 340 millimetres correspond respectively to 9, 12 and 16 inch cathode ray tubes.

## PART V—SPEED AND DISTANCE MEASURING INSTALLATION

*Speed and distance measuring equipment performance standards*

29. Every speed and distance measuring installation required to be provided shall comply with the performance standards adopted by the Organisation and shall in addition, comply with the relevant performance specification issued by the Department of Transport.

*Siting of speed and distance measuring installation*

30.— (1) Where applicable, the transducer unit of the speed and distance measuring installation shall be sited so as to avoid, where practicable, the vicinity of all underwater openings in, or projections from, the hull, such as plugs, anodes or other transducers, so that satisfactory overall performance is achieved.

(2) Where a towed log is fitted, the position of the log register shall be selected so that the log line and its rotator when streamed are as clear as is practicable from disturbed water in the close vicinity of the ship and so that the rotation of the log line is not impeded by any part of the ship or its equipment.

(3) The display shall, where practicable be sited on the bridge in a position to facilitate easy access and viewing and where the effect of any lighting necessary for the equipment does not interfere with the keeping of an effective look-out.

## PART VI—DIRECTION-FINDER INSTALLATION

*Direction-finder performance standards*

31.— Every direction-finder installation required to be provided shall comply with the performance standards adopted by the Organisation and shall, in addition, comply with the relevant performance specifications issued by the Department of Trade and Industry.

*Interference with reception*

32.— (1) Radio antennas installed in any ship required to be fitted with a direction-finder installation which rise above the base of, and are within 17 metres horizontal distance of, the loop antennas of the direction-finder installation shall be isolated whenever bearings are being obtained by the direction-finder installation:

Provided that such radio antennas which do not cause significant errors in the accuracy of the bearings obtained by the direction-finder installation need not be isolated.

(2) Any ship fitted on or after 25th May 1980 with a direction-finder installation shall be provided with a communal antenna system for all broadcast receivers in respect of which it is impracticable to erect efficient and properly installed antennas which:

- (a) are outside a radius of 17 metres from the direction-finder antennas; or
- (b) do not rise above the base of the direction-finder antennas; or
- (c) can be lowered quickly and stowed easily when the direction-finder is in use.

*Siting of direction-finder installation*

33.— (1) The direction-finder shall be so sited that efficient determination of radio bearings by means of the direction-finder will not be affected by extraneous noises.

- (2)(a) The direction-finder antenna system shall be mounted in such a manner that the efficient determination of radio bearings by means of the direction-finder will be affected as little as possible by the proximity of antennas, derricks, wire halyards and other large metal objects.
- (b) Adequate precautions shall be taken to protect the cables connecting the direction-finder antenna system with the receiver forming part of the direction-finder installation from the ingress of water and from damage, including any which might be caused by excess heat.

(3) The direction-finder installation shall, where practicable, be mounted so as to prevent the performance and reliability of the installation being adversely affected by vibration and so that the installation will not, whilst in service, normally be subject to greater vibration than that specified in the relevant performance specification for the climatic and durability testing of maritime radio equipment, issued by the Department of Trade and Industry.

*Means of communication*

34.— (1) In every ship required to be fitted with a direction-finder installation an efficient two-way means of calling and voice communication shall be provided between the receiver forming part of the direction-finder and the position from which the ship is normally navigated.

(2) In every such ship an efficient means of signalling shall be provided for use when calibrating or taking check bearings of the direction-finder installation between the receiver forming part of the direction-finder installation and the place on the ship from which visual bearings are taken.

(3) If the direction-finder installation is not installed in the ship's radio-telegraph operating room, and radio antennas on the ship are required by regulation 32(1) of these Regulations to be isolated, means shall be provided at the direction-finder operating position to indicate when such antennas are isolated.

*Calibration*

35.— (1) The master of every ship required to be fitted with a direction-finder installation shall cause the direction-finder installation to be calibrated in accordance with this regulation as soon as practicable after it has been installed in the ship and whenever any change is made in the position of the direction-finder antenna system.



- (2)(a) The direction-finder installation shall be calibrated by two persons, one being experienced in the taking of radio bearings and the other experienced in the taking of visual bearings. The calibration shall be carried out by taking simultaneous radio and visual bearings of a transmitter, and such bearings shall be taken at intervals of not greater than 5 degrees throughout 360 degrees on a frequency between 283.5 kHz and 315 kHz.
- (b) Calibration tables and curves, which enable radio bearings obtained by the direction-finder installation to be adjusted to within two degrees of the correct bearing, shall be prepared on the basis of the bearings taken in accordance with paragraph (2)(a) of this regulation.
- (c) Following satisfactory calibration and the preparation of calibration tables and curves, a Certificate of Calibration of Direction-Finder shall be completed in the form specified in Schedule 2 to these Regulations.
- (d) On each occasion that an arrangement of cargo carried above deck level varies significantly from an arrangement in respect of which the direction-finder installation has been calibrated, check bearings shall be taken, if practicable, to determine whether any substantial inaccuracy in the direction-finder installation is being caused by the arrangement of cargo. Where substantial errors are found, further check bearings shall be taken to establish a correction curve.
- (3) The master of every such ship shall cause the calibration tables and curves prepared in accordance with the foregoing provisions of this regulation to be verified by means of not less than 4 check bearings in each quadrant:
- (a) at intervals not exceeding 12 months; and
- (b) whenever any change is made in any structure or fitting on deck or in any rigging or antenna above deck which is likely to affect the accuracy of the direction-finder.

If such verification shall show that the calibration tables or curves are substantially inaccurate, the master of the ship shall cause the direction-finder to be recalibrated as soon as practicable in the manner specified in paragraphs (2) and (3) of this regulation.

(4) In addition, bearings shall be taken in each quadrant, where practicable at intervals not exceeding 12 months, on a frequency at about 500 kHz. These bearings should not be substantially inaccurate after being corrected by use of the calibration curves.

*Records of calibration and verification*

**36.** The master of every ship required to be fitted with a direction-finder installation shall cause the following records to be kept in a place accessible to any person operating the direction-finder, and to be available for inspection at any reasonable time by a surveyor of ships:

- (a) a list or diagram indicating the position, on the most recent occasion on which the direction-finder was calibrated, of the antennas and all moveable structures on board the ship which might affect the accuracy of the direction-finder;

- (b) the calibration tables and curves which were prepared on the most recent occasion on which the direction-finder was calibrated;
- (c) a certificate of calibration signed by the persons making the calibration relating to the most recent occasion on which the direction-finder was calibrated; and
- (d) a record, in the form specified in Schedule 3 to these Regulations, of check-bearings taken for the verification of calibration, the bearings being numbered in the order in which they were taken.

PART VII—INSTALLATION FOR HOMING ON THE RADIOTELEPHONE DISTRESS FREQUENCY (2182 kHz)

*Homing equipment performance standards*

37.— Every homing installation required to be provided shall comply with the performance standards adopted by the Organisation and shall, in addition, comply with the relevant performance specifications issued by the Department of Trade and Industry.

*Siting of homing installation*

38.— (1) The homing equipment shall be so sited that efficient determination of radio bearings by means of the equipment will not be affected by extraneous noises.

(2) The antenna system shall be mounted in such a manner that the efficient determination of radio bearings by means of the homing equipment will be affected as little as possible by the proximity of antennas, derricks, wire halyards and other large metal objects.

(3) Adequate precautions shall be taken to protect the cables connecting the antenna system with the receiver forming part of the homing installation from the ingress of water and from damage, including any which might be caused by excess heat.

PART VIII—AUTOMATIC RADAR PLOTTING AID INSTALLATION

*Automatic Radar Plotting Aid Performance Standards*

39.— Every automatic radar plotting aid installation required to be provided shall comply with the performance standards adopted by the Organisation and shall, in addition, comply with the relevant performance specifications issued by the Department of Transport.

*Siting and other requirements of automatic radar plotting aid installations*

40.— (1) Where the automatic radar plotting aid installation is provided as an additional unit to a radar installation it shall be sited as close as is practicable to the display of the radar with which it is associated.

(2) Where the automatic radar plotting aid installation forms an integral

part of a complete radar system that radar system shall be regarded as one of the radar installations required by regulation 3(4)(b) and accordingly shall comply with the relevant requirements of Part III of these Regulations.

(3) The automatic radar plotting aid installation shall be interconnected with such other installations as is necessary to provide heading and speed information to the automatic radar plotting aid.

*Use of an Automatic Radar Plotting Aid to assist in the radar watch*

41. When at any time on or after 1st September 1985, a ship required to be fitted with an automatic radar plotting aid is at sea and a radar watch is being kept on the automatic radar plotting aid, the installation shall be under the control of a person qualified in the operational use of automatic radar plotting aids, who may be assisted by unqualified personnel.

*Qualifications of observers using an automatic radar plotting aid to assist in keeping a radar watch*

42.— For the purpose of regulation 41 of these Regulations, a person shall be deemed to be qualified in the operational use of automatic radar plotting aids if he holds:

- (a) a valid Electronic Navigation Systems Certificate granted by the Secretary of State, or
- (b) a valid Navigation Control Certificate granted by the Secretary of State, or
- (c) a valid Automatic Radar Plotting Aids Certificate granted by the Secretary of State, or
- (d) a certificate recognised by the Secretary of State as being equivalent to any of the certificates mentioned in (a), (b) or (c).

PART IX—INSTALLATION OF A RATE OF TURN INDICATOR

*Rate of turn indicator performance standards*

43.— Every rate of turn indicator installation required to be provided shall comply with the performance standards adopted by the Organisation.

*Siting of the rate of turn indicator installation*

44.— The display shall, where practicable, be sited on the bridge in a position to facilitate easy access and viewing, and where the effect of any lighting necessary for the equipment does not interfere with the keeping of an effective look-out.

PART X—EXEMPTIONS

*Exemptions*

45.— The Secretary of State may grant to individual ships or classes of ships

exemptions of a partial or conditional nature from any of the provisions of regulations 3–44 of these Regulations.

#### PART XI—PENALTIES

##### *Penalties*

**46.—**(1) If a ship proceeds or attempts to proceed to sea without carrying a navigational equipment installation with which it is required by these regulations to be provided, or if such installation does not comply in all respects with the requirements of these regulations relevant to such installation, the owner and master of the ship shall each be guilty of an offence and liable on summary conviction to a fine not exceeding £1,000 or, on conviction on indictment, to imprisonment for a term not exceeding 2 years and a fine.

(2) If a ship proceeds or attempts to proceed to sea without carrying:

- (a) a qualified radar observer which it is required to carry under regulation 20 of these regulations; or
- (b) a person qualified to carry out radar maintenance which it is required to carry under regulation 21(2) of these regulations

the owner and master of the ship shall each be guilty of an offence and liable on summary conviction to a fine not exceeding £1,000.

(3) If while a ship is at sea and a radar watch is being kept—

- (a) the radar installation is not under the control of a qualified radar observer, or
- (b) an automatic radar plotting aid is being used and such aid is not under the control of a person qualified in the use of such aids in accordance with regulation 42,

the owner and master of the ship shall each be guilty of an offence and liable on summary conviction to a fine not exceeding £1,000.

(4) If the master of any ship fails to ensure that in respect of that ship all the requirements of regulations 35 and 36 are complied with he shall be guilty of an offence and liable on summary conviction to a fine not exceeding £1,000.

(5) It shall be a defence in proceedings for an offence under this Regulation to prove that all reasonable steps had been taken to ensure that the ship complied with the Regulations.

##### *Powers to Detain*

**47.—** In any case where a ship is not provided with such navigational equipment installations as it is required to carry under regulation 3 of these Regulations, the ship shall be liable to be detained, and sections 460 and 692 of the Merchant Shipping Act 1894(a) (which relates to the detention of a ship)

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(a) 1894 c.60.

shall have effect in relation to the ship subject to the modification that for the words "this Act" whenever they appear there shall be substituted "this Part of this Act" and "Merchant Shipping (Navigational Equipment) Regulations 1984".

2nd August 1984.

*Nicholas Ridley,*  
Secretary of State  
for Transport.

SCHEDULE 1

Regulation 2(3)

Amendments to the Merchant Shipping (Navigational Equipment) Regulations 1980 (as amended by the Merchant Shipping (Navigation Equipment) (Amendment) Regulations 1981).

The Merchant Shipping (Navigational Equipment) Regulations 1980 are amended as follows:—

- (a) For regulation 2(4) there shall be substituted "Subject to regulation 3, these Regulations apply in relation to ships (except pleasure craft and fishing vessels) which are sea-going ships of 500 tons or over, other than United Kingdom ships, while they are in the United Kingdom or territorial waters thereof."
- (b) In regulation 8 the last sentence shall be omitted.
- (c) In regulation 10 the last sentence shall be omitted.
- (d) In regulation 12 the last sentence shall be omitted.
- (e) In regulation 20(1) the last sentence shall be omitted.
- (f) Regulation 22(1) shall be omitted.
- (g) Regulation 23(2) and (3) shall be omitted.
- (h) Regulation 24 shall be omitted.

Regulation 35(2)(c)

SCHEDULE 2

*Certificate of Calibration of Direction-Finder*

We, the undersigned, hereby certify that we have today—

(a) calibrated, in accordance with Part VI of the Merchant Shipping (Navigational Equipment) Regulations 1984, the direction-finder installed in the  
s.s. \_\_\_\_\_

m.v.

(b) handed to the master of that ship tables of calibration corrections;

(c) adjusted the said direction-finder so that the readings taken thereby, when corrected with such tables, differ from the correct bearings by no more than plus or minus two degrees.

We hereby further certify that the master of the said ship has been furnished with a list or diagram indicating the position, at the time of such calibration, of the antennas and of all moveable structures on board the ship which might affect the accuracy of the direction-finder.

.....Radio Observer

.....Visual Observer

.....Date

SCHEDULE 3

RECORD OF CHECK-BEARINGS TAKEN BY MEANS OF THE DIRECTION-FINDER

Regulation 36(d)

Ship's Approximate Position		(1) Serial Number of Bearings	(2) Date	(3) Times (GMT(UTC) and ship's)	(4) Latitude	(5) Longitude	(6) Distance from Transmitter	(7) Direction-Finder Bearing of (Name and frequency)	(8) Direction-Finder Relative Bearing Correct for QE	(9) Ship's Head by Compass 0/360°	(10) Total Compass Error	(11) ‡ Convergence Applied	(12) Ship's Head Corrected (True)	(13) True Bearing by Direction-Finder [Col. (8) and Col. (12)]	(14) True Bearing by Visual Check or Calculation (whether Visual or Calculation to be indicated; if by Calculation, the method to be stated)	(15) Correction required to make Col. (13) equal Col. (14) (indicating whether - or +)	(16) Signature of Observer or Observers

## EXPLANATORY NOTE

*(This Note is not part of the Regulations.)*

These Regulations amend the Merchant Shipping (Navigational Equipment) Regulations 1980 and the Merchant Shipping (Navigational Equipment)(Amendment) Regulations 1981 so that those Regulations apply only to ships other than United Kingdom ships (regulation 2(3) and Schedule 1). For United Kingdom ships these Regulations re-enact the provisions of the 1980 Regulations with amendments necessary to give effect to the amendments to regulation 12 of Chapter V of the International Convention for the Safety of Life at Sea 1974 which were adopted by the International Maritime Organisation on 20th November 1981 and come into force internationally on 1st September 1984.

The Regulations contain new requirements relating to magnetic compasses, speed and distance measuring, homing on the radio telephone distress frequency, automatic radar plotting aids and rate of turn indicators; the requirements relating to echo-sounding, gyro-compass and radar installations are revised; and installations required by the Regulations are required to conform to relevant performance standards adopted by the International Maritime Organisation relating to ship-borne navigational equipment and in addition to relevant performance specifications issued by the Department of Transport or the Department of Trade and Industry.

Publications of the International Maritime Organisation are obtainable from that Organisation, 4 Albert Embankment London, SE1. Merchant Shipping Notices and performance specifications issued by the Department of Transport and the Department of Trade and Industry are obtainable from the Department of Transport Marine Library, Sunley House, 90 High Holborn, London WC1V 6LP.

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