

# ELECTRONIC CODE OF FEDERAL REGULATIONS

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Title 33: Navigation and Navigable Waters

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## PART 164—NAVIGATION SAFETY REGULATIONS

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AUTHORITY: 33 U.S.C. 1222(5), 1223, 1231; 46 U.S.C. 2103, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1. Sec. 164.13 also issued under 46 U.S.C. 8502. Sec. 164.46 also issued under 46 U.S.C. 70114 and Sec. 102 of Pub. L. 107-295. Sec. 164.61 also issued under 46 U.S.C. 6101.

[Link to an amendment published at 83 FR 55281, Nov. 5, 2018.](#)

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### **§164.01 Applicability.**

(a) This part (except as specifically limited by this section) applies to each self-propelled vessel of 1600 or more gross tons (except as provided in paragraphs (c) and (d) of this section, or for foreign vessels described in §164.02) when it is operating in the navigable waters of the United States except the St. Lawrence Seaway.

(b) Sections 164.70 through 164.82 of this part apply to each towing vessel of 12 meters (39.4 feet) or more in length operating in the navigable waters of the United States other than the St. Lawrence Seaway; except that a towing vessel is exempt from the requirements of §164.72 if it is—

(1) Used solely within a limited geographic area, such as a fleeting-area for barges or a commercial facility, and used solely for restricted service, such as making up or breaking up larger tows;

(2) Used solely for assistance towing as defined by 46 CFR 10.103;

(3) Used solely for pollution response; or

(4) Any other vessel exempted by the Captain of the Port (COTP). The COTP, upon written request, may, in writing, exempt a vessel from §164.72 for a specified route if he or she decides that exempting it would not allow its unsafe navigation under anticipated conditions.

(c) Provisions of §§164.11(a)(2) and (c), 164.30, 164.33, and 164.46 do not apply to warships or other vessels owned, leased, or operated by the United States Government and used only in government noncommercial service when these vessels are equipped with electronic navigation systems that have met the applicable agency regulations regarding navigation safety.

(d) Provisions of §164.46 apply to some self-propelled vessels of less than 1600 gross tonnage.

[CGD 83-004, 49 FR 43466, Oct. 29, 1984, as amended by CGD 94-020, 61 FR 35072, July 3, 1996; USCG-2000-8300, 66 FR 21864, May 2, 2001; USCG-2003-14757, 68 FR 39367, July 1, 2003]

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#### **§164.02 Applicability exception for foreign vessels.**

(a) Except for §164.46(c), none of the requirements of this part apply to foreign vessels that:

(1) Are not destined for, or departing from, a port or place subject to the jurisdiction of the United States; and

(2) Are in:

(i) Innocent passage through the territorial sea of the United States; or

(ii) Transit through navigable waters of the United States which form a part of an international strait.

[CGD 77-063, 44 FR 66530, Nov. 19, 1979, as amended by CGD 79-148, 45 FR 54039, Aug. 14, 1980; USCG-2003-14757, 68 FR 39367, July 1, 2003; 68 FR 60569, Oct. 22, 2003; USCG-2005-21869, 80 FR 5334, Jan. 30, 2015]

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#### **§164.03 Incorporation by reference.**

[Link to an amendment published at 83 FR 55281, Nov. 5, 2018.](#)

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of the change in the FEDERAL REGISTER and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For more information on the availability of this material at NARA, call 202-741-6030, or go to: [www.archives.gov/federal-register/cfr/ibr-locations.html](http://www.archives.gov/federal-register/cfr/ibr-locations.html). Also, it is available for inspection at the Commandant (CG-NAV), U.S. Coast Guard Stop 7418, Attn: Office of Navigation Systems, 2703 Martin Luther King Jr. Ave. SE., Washington, DC 20593-7418, and is available from the sources listed below.

(b) American Petroleum Institute (API), 1220 L Street NW., Washington, DC 20005-4070, 202-682-8000, [www.api.org](http://www.api.org):

(1) API Specification 9A, Specification for Wire Rope, Section 3, Properties and Tests for Wire and Wire Rope, May 28, 1984, IBR approved for §164.74.

(2) [Reserved]

(c) ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, 610-832-9585, [www.astm.org](http://www.astm.org):

(1) ASTM D4268-93, Standard Test Method for Testing Fiber Rope, IBR approved for §164.74.

(2) [Reserved]

(d) Cordage Institute, 350 Lincoln Street, Hingham, MA 02043.

(1) CIA-3, Standard Test Methods for Fiber Rope Including Standard Terminations, Revised, June 1980, IBR approved for §164.74.

(2) [Reserved]

(e) International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, United Kingdom, [www.imo.org](http://www.imo.org):

(1) IMO Resolution A342(IX), Recommendation on Performance Standards for Automatic Pilots, November 12, 1975, IBR approved for §164.13.

(2) IMO Resolution A.917(22), Guidelines for the Onboard Operational Use of Shipborne Automatic Identification System (AIS), January 25, 2002, IBR approved for §164.46.

(3) SN/Circ.227, Guidelines for the Installation of a Shipborne Automatic Identification System (AIS), January 6, 2003, IBR approved for §164.46.

(4) SN/Circ.244, Guidance on the Use of the UN/LOCODE in the Destination Field in AIS Messages, December 15, 2004, IBR approved for §164.46.

(5) SN/Circ.245, Amendments to the Guidelines for the Installation of a Shipborne Automatic Identification System (AIS) (SN/Circ.227), December 15, 2004, IBR approved for §164.46.

(6) SOLAS, International Convention for the Safety of Life at Sea, 1974, and 1988 Protocol relating thereto, 2000 Amendments, effective January and July 2002, (SOLAS 2000 Amendments), IBR approved for §164.46.

(7) Conference resolution 1, Adoption of amendments to the Annex to the International Convention for the Safety of Life at Sea, 1974, and amendments to Chapter V of SOLAS 1974, adopted on December 12, 2002, IBR approved for §164.46.

(8) SN.1/Circ.289, Guidance on the Use of AIS Application-Specific Messages, June 2, 2010, IBR approved for §164.46.

(f) National Marine Electronics Association (NMEA), 7 Riggs Avenue, Severna Park, MD 21146, 800-808-6632, [www.nmea.org](http://www.nmea.org):

(1) NMEA 0400, Installation Standard for Marine Electronic Equipment used on Moderate-Sized Vessels, Version 3.10, February 2012, IBR approved for §164.46.

(2) [Reserved]

(g) Radio Technical Commission for Maritime Services (RTCM), 1611 N. Kent St., Suite 605, Arlington, VA 22209, 703-527-2000, [www.rtcn.org](http://www.rtcn.org):

(1) RTCM Paper 12-78/DO-100, Minimum Performance Standards, Loran C Receiving Equipment, 1977, IBR approved for §164.41.

(2) RTCM Paper 71-95/SC112-STD, RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, Version 1.1, October 10, 1995, IBR approved for §164.72.

(3) RTCM Paper 191-93/SC112-X, RTCM Recommended Standards for Maritime Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, Version 1.2, December 20, 1993, IBR approved for §164.72.

[USCG-2005-21869, 80 FR 5334, Jan. 30, 2015, as amended by USCG-2015-0433, 80 FR 44282, July 27, 2015]

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### §164.11 Navigation under way: General.

The owner, master, or person in charge of each vessel underway shall ensure that:

(a) The wheelhouse is constantly manned by persons who:

(1) Direct and control the movement of the vessel; and

(2) Fix the vessel's position;

(b) Each person performing a duty described in paragraph (a) of this section is competent to perform that duty;

(c) The position of the vessel at each fix is plotted on a chart of the area and the person directing the movement of the vessel is informed of the vessel's position;

(d) Electronic and other navigational equipment, external fixed aids to navigation, geographic reference points, and hydrographic contours are used when fixing the vessel's position;

(e) Buoys alone are not used to fix the vessel's position;

NOTE: Buoys are aids to navigation placed in approximate positions to alert the mariner to hazards to navigation or to indicate the orientation of a channel. Buoys may not maintain an exact position because strong or varying currents, heavy seas, ice, and collisions with vessels can move or sink them or set them adrift. Although buoys may corroborate a position fixed by other means, buoys cannot be used to fix a position: however, if no other aids are available, buoys alone may be used to establish an estimated position.

(f) The danger of each closing visual or each closing radar contact is evaluated and the person directing the movement of the vessel knows the evaluation;

(g) Rudder orders are executed as given;

(h) Engine speed and direction orders are executed as given;

(i) Magnetic variation and deviation and gyrocompass errors are known and correctly applied by the person directing the movement of the vessel;

(j) A person whom he has determined is competent to steer the vessel is in the wheelhouse at all times;<sup>1</sup>

<sup>1</sup>See also 46 U.S.C. 8702(d), which requires an able seaman at the wheel on U.S. vessels of 100 gross tons or more in narrow or crowded waters during low visibility.

(k) If a pilot other than a member of the vessel's crew is employed, the pilot is informed of the draft, maneuvering characteristics, and peculiarities of the vessel and of any abnormal circumstances on the vessel that may affect its safe navigation.

(l) Current velocity and direction for the area to be transited are known by the person directing the movement of the vessel;

(m) Predicted set and drift are known by the person directing movement of the vessel;

(n) Tidal state for the area to be transited is known by the person directing movement of the vessel;

(o) The vessel's anchors are ready for letting go;

(p) The person directing the movement of the vessel sets the vessel's speed with consideration for:

(1) The prevailing visibility and weather conditions;

(2) The proximity of the vessel to fixed shore and marine structures;

(3) The tendency of the vessel underway to squat and suffer impairment of maneuverability when there is small underkeel clearance;

(4) The comparative proportions of the vessel and the channel;

(5) The density of marine traffic;

(6) The damage that might be caused by the vessel's wake;

(7) The strength and direction of the current; and

(8) Any local vessel speed limit;

(q) The tests required by §164.25 are made and recorded in the vessel's log; and

(r) The equipment required by this part is maintained in operable condition.

(s) Upon entering U.S. waters, the steering wheel or lever on the navigating bridge is operated to determine if the steering equipment is operating properly under manual control, unless the vessel has been steered under manual control from the navigating bridge within the preceding 2 hours, except when operating on the Great Lakes and their connecting and tributary waters.

(t) At least two of the steering-gear power units on the vessel are in operation when such units are capable of simultaneous operation, except when the vessel is sailing on the Great Lakes and their connecting and tributary waters, and except as required by paragraph (u) of this section.

(u) On each passenger vessel meeting the requirements of the International Convention for the Safety of Life at Sea, 1960 (SOLAS 60) and on each cargo vessel meeting the requirements of SOLAS 74 as amended in 1981, the number of steering-gear power units necessary to move the rudder from 35° on either side to 30° on the other in not more than 28 seconds must be in simultaneous operation.

[CGD 74-77, 42 FR 5956, Jan. 31, 1977, as amended by CGD 83-004, 49 FR 43466, Oct. 29, 1984; CGD 91-203, 58 FR 27633, May 10, 1993; CGD 83-043, 60 FR 24771, May 10, 1995]

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### **§164.13 Navigation underway: tankers.**

[Link to an amendment published at 83 FR 55281, Nov. 5, 2018.](#)

(a) As used in this section, "tanker" means a self-propelled tank vessel, including integrated tug barge combinations, constructed or adapted primarily to carry oil or hazardous material in bulk in the cargo spaces and inspected and certificated as a tanker.

(b) Each tanker must have an engineering watch capable of monitoring the propulsion system, communicating with the bridge, and implementing manual control measures immediately when necessary. The watch must be physically present in the

machinery spaces or in the main control space and must consist of at least an engineer with an appropriately endorsed license or merchant mariner credential.

(c) Each tanker must navigate with at least two deck officers with an appropriately endorsed license or merchant mariner credential on watch on the bridge, one of whom may be a pilot. In waters where a pilot is required, the second officer, must be an individual holding an appropriately endorsed license or merchant mariner credential and assigned to the vessel as master, mate, or officer in charge of a navigational watch, who is separate and distinct from the pilot.

(d) Except as specified in paragraph (e) of this section, a tanker may operate with an auto pilot engaged only if all of the following conditions exist:

(1) The operation and performance of the automatic pilot conforms with the standards recommended by the International Maritime Organization in IMO Resolution A.342(IX).

(2) A qualified helmsman is present at the helm and prepared at all times to assume manual control.

(3) The tanker is not operating in any of the following areas:

(i) The areas of the traffic separation schemes specified in subchapter P of this chapter.

(ii) The portions of a shipping safety fairway specified in part 166 of this chapter.

(iii) An anchorage ground specified in part 110 of this chapter.

(iv) An area within one-half nautical mile of any U.S. shore.

(e) A tanker equipped with an integrated navigation system, and complying with paragraph (d)(2) of this section, may use the system with the auto pilot engaged while in the areas described in paragraphs (d)(3) (i) and (ii) of this section. The master shall provide, upon request, documentation showing that the integrated navigation system—

(1) Can maintain a predetermined trackline with a cross track error of less than 10 meters 95 percent of the time;

(2) Provides continuous position data accurate to within 20 meters 95 percent of the time; and

(3) Has an immediate override control.

[CGD 91-203, 58 FR 27633, May 10, 1993, as amended by CGD 91-203, 58 FR 36141, July 6, 1993; USCG-2006-24371, 74 FR 11213, Mar. 16, 2009]

EFFECTIVE DATE NOTE: At 58 FR 36141, July 6, 1993, §164.13 was amended by suspending paragraph (e), effective July 9, 1993.

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### **§164.15 Navigation bridge visibility.**

(a) The arrangement of cargo, cargo gear, and trim of all vessels entering or departing from U.S. ports must be such that the field of vision from the navigation bridge conforms as closely as possible to the following requirements:

(1) From the conning position, the view of the sea surface must not be obscured by more than the lesser of two ship lengths or 500 meters (1640 feet) from dead ahead to 10 degrees on either side of the vessel. Within this arc of visibility any blind sector caused by cargo, cargo gear, or other permanent obstruction must not exceed 5 degrees.

(2) From the conning position, the horizontal field of vision must extend over an arc from at least 22.5 degrees abaft the beam on one side of the vessel, through dead ahead, to at least 22.5 degrees abaft the beam on the other side of the vessel. Blind sectors forward of the beam caused by cargo, cargo gear, or other permanent obstruction must not exceed 10 degrees each, nor total more than 20 degrees, including any blind sector within the arc of visibility described in paragraph (a)(1) of this section.

(3) From each bridge wing, the field of vision must extend over an arc from at least 45 degrees on the opposite bow, through dead ahead, to at least dead astern.

(4) From the main steering position, the field of vision must extend over an arc from dead ahead to at least 60 degrees on either side of the vessel.

(b) A clear view must be provided through at least two front windows at all times regardless of weather conditions.

[CGD 85-099, 55 FR 32247, Aug. 8, 1990, as amended by USCG-2006-25150, 71 FR 39211, July 12, 2006]

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### §164.19 Requirements for vessels at anchor.

The master or person in charge of each vessel that is anchored shall ensure that:

- (a) A proper anchor watch is maintained;
- (b) Procedures are followed to detect a dragging anchor; and

(c) Whenever weather, tide, or current conditions are likely to cause the vessel's anchor to drag, action is taken to ensure the safety of the vessel, structures, and other vessels, such as being ready to veer chain, let go a second anchor, or get underway using the vessel's own propulsion or tug assistance.

[CGD 74-77, 42 FR 5956, Jan. 31, 1977]

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### §164.25 Tests before entering or getting underway.

(a) Except as provided in paragraphs (b) and (c) of this section no person may cause a vessel to enter into or get underway on the navigable waters of the United States unless no more than 12 hours before entering or getting underway, the following equipment has been tested:

(1) Primary and secondary steering gear. The test procedure includes a visual inspection of the steering gear and its connecting linkage, and, where applicable, the operation of the following:

- (i) Each remote steering gear control system.
- (ii) Each steering position located on the navigating bridge.
- (iii) The main steering gear from the alternative power supply, if installed.
- (iv) Each rudder angle indicator in relation to the actual position of the rudder.
- (v) Each remote steering gear control system power failure alarm.
- (vi) Each remote steering gear power unit failure alarm.
- (vii) The full movement of the rudder to the required capabilities of the steering gear.

(2) All internal vessel control communications and vessel control alarms.

(3) Standby or emergency generator, for as long as necessary to show proper functioning, including steady state temperature and pressure readings.

(4) Storage batteries for emergency lighting and power systems in vessel control and propulsion machinery spaces.

(5) Main propulsion machinery, ahead and astern.

(b) Vessels navigating on the Great Lakes and their connecting and tributary waters, having once completed the test requirements of this subpart, are considered to remain in compliance until arriving at the next port of call on the Great Lakes.

(c) Vessels entering the Great Lakes from the St. Lawrence Seaway are considered to be in compliance with this sub-part if the required tests are conducted preparatory to or during the passage of the St. Lawrence Seaway or within one hour of passing Wolfe Island.

(d) No vessel may enter, or be operated on the navigable waters of the United States unless the emergency steering drill described below has been conducted within 48 hours prior to entry and logged in the vessel logbook, unless the drill is conducted and logged on a regular basis at least once every three months. This drill must include at a minimum the following:

- (1) Operation of the main steering gear from within the steering gear compartment.
- (2) Operation of the means of communications between the navigating bridge and the steering compartment.
- (3) Operation of the alternative power supply for the steering gear if the vessel is so equipped.

(92 Stat. 1471 (33 U.S.C. 1221 *et seq.*); 49 CFR 1.46(n)(4))

[CGD 77-183, 45 FR 18925, Mar. 24, 1980, as amended by CGD 83-004, 49 FR 43466, Oct. 29, 1984]

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### **§164.30 Charts, publications, and equipment: General.**

No person may operate or cause the operation of a vessel unless the vessel has the marine charts, publications, and equipment as required by §§164.33 through 164.41 of this part.

[CGD 82-055, 48 FR 44535, Sept. 29, 1983]

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### **§164.33 Charts and publications.**

(a) Each vessel must have the following:

(1) Marine charts of the area to be transited, published by the National Ocean Service, U.S. Army Corps of Engineers, or a river authority that—

- (i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and
- (ii) Are currently corrected.

(2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:

- (i) U.S. Coast Pilot.
- (ii) Coast Guard Light List.

(3) For the area to be transited, the current edition of, or applicable current extract from:

- (i) Tide tables published by private entities using data provided by the National Ocean Service.
- (ii) Tidal current tables published by private entities using data provided by the National Ocean Service or river current publication issued by a river authority.

(b) As an alternative to the requirements for paragraph (a) of this section, a marine chart or publication, or applicable extract, published by a foreign government may be substituted for a U.S. chart and publication required by this section. The chart must be of large enough scale and have enough detail to make safe navigation of the area possible, and must be currently corrected. The publication, or applicable extract, must singly or in combination contain similar information to the U.S. Government publication to make safe navigation of the area possible. The publication, or applicable extract must be currently corrected, with the exceptions of tide and tidal current tables, which must be the current editions.

(c) As used in this section, “currently corrected” means corrected with changes contained in all Notices to Mariners published by the National Geospatial-Intelligence Agency, or an equivalent foreign government publication, reasonably available to the vessel, and that is applicable to the vessel's transit.

[CGD 82-055, 48 FR 44535, Sept. 29, 1983, as amended by USCG-2001-9286, 66 FR 33641, June 25, 2001; USCG-2015-0433, 80 FR 44282, July 27, 2015; USCG-2016-0498, 82 FR 35088, July 28, 2017]

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### **§164.35 Equipment: All vessels.**

Each vessel must have the following:

- (a) A marine radar system for surface navigation.
- (b) An illuminated magnetic steering compass, mounted in a binnacle, that can be read at the vessel's main steering stand.
- (c) A current magnetic compass deviation table or graph or compass comparison record for the steering compass, in the wheelhouse.
- (d) A gyrocompass.
- (e) An illuminated repeater for the gyrocompass required by paragraph (d) of this section that is at the main steering stand, unless that gyrocompass is illuminated and is at the main steering stand.
- (f) An illuminated rudder angle indicator in the wheelhouse.
- (g) The following maneuvering information prominently displayed on a fact sheet in the wheelhouse:

(1) A turning circle diagram to port and starboard that shows the time and distance and advance and transfer required to alter course 90 degrees with maximum rudder angle and constant power settings, for either full and half speeds, or for full and

slow speeds. For vessels whose turning circles are essentially the same for both directions, a diagram showing a turning circle in one direction, with a note on the diagram stating that turns to port and starboard are essentially the same, may be substituted.

(2) The time and distance to stop the vessel from either full and half speeds, or from full and slow speeds, while maintaining approximately the initial heading with minimum application of the rudder.

(3) For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

(4) For each vessel with a controllable pitch propeller, a table of control settings for a representative range of speeds.

(5) For each vessel that is fitted with an auxiliary device to assist in maneuvering, such as a bow thruster, a table of vessel speeds at which the auxiliary device is effective in maneuvering the vessel.

(6) The maneuvering information for the normal load and normal ballast condition for:

(i) Calm weather—wind 10 knots or less, calm sea;

(ii) No current;

(iii) Deep water conditions—water depth twice the vessel's draft or greater; and

(iv) Clean hull.

(7) At the bottom of the fact sheet, the following statement:

#### WARNING

The response of the (name of the vessel) may be different from that listed above if any of the following conditions, upon which the maneuvering information is based, are varied:

(1) Calm weather—wind 10 knots or less, calm sea;

(2) No current;

(3) Water depth twice the vessel's draft or greater;

(4) Clean hull; and

(5) Intermediate drafts or unusual trim.

(h) An echo depth sounding device.

(i) A device that can continuously record the depth readings of the vessel's echo depth sounding device, except when operating on the Great Lakes and their connecting and tributary waters.

(j) Equipment on the bridge for plotting relative motion.

(k) Simple operating instructions with a block diagram, showing the change-over procedures for remote steering gear control systems and steering gear power units, permanently displayed on the navigating bridge and in the steering gear compartment.

(l) An indicator readable from the centerline conning position showing the rate of revolution of each propeller, except when operating on the Great Lakes and their connecting and tributary waters.

(m) If fitted with controllable pitch propellers, an indicator readable from the centerline conning position showing the pitch and operational mode of such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(n) If fitted with lateral thrust propellers, an indicator readable from the centerline conning position showing the direction and amount of thrust of such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(o) A telephone or other means of communication for relaying headings to the emergency steering station. Also, each vessel of 500 gross tons and over and constructed on or after June 9, 1995 must be provided with arrangements for supplying visual compass-readings to the emergency steering station.

(92 Stat. 1471 (33 U.S.C. 1221 *et seq.*); 49 CFR 1.46(n)(4))

[CGD 74-77, 42 FR 5956, Jan. 31, 1977, as amended by CGD 77-183, 45 FR 18925, Mar. 24, 1980; CGD 83-004, 49 FR 43466, Oct. 29, 1984; CGD 83-043, 60 FR 24771, May 10, 1995; 60 FR 28834, June 2, 1995]

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### §164.37 Equipment: Vessels of 10,000 gross tons or more.

(a) Each vessel of 10,000 gross tons or more must have, in addition to the radar system under §164.35(a), a second marine radar system that operates independently of the first.

NOTE: Independent operation means two completely separate systems, from separate branch power supply circuits or distribution panels to antennas, so that failure of any component of one system will not render the other system inoperative.

(b) On each tanker of 10,000 gross tons or more that is subject to 46 U.S.C. 3708, the dual radar system required by this part must have a short range capability and a long range capability; and each radar must have true north features consisting of a display that is stabilized in azimuth.

(Titles I and II, 86 Stat. 426, 427 (33 U.S.C. 1224; 46 U.S.C. 391(a); 49 CFR 1.46(n)(4))

[CGD 77-016, 43 FR 32112, July 24, 1978, as amended by CGD 79-033, 44 FR 26741, May 7, 1979; CGD 79-033, 47 FR 34389, Aug. 9, 1982; USCG-1998-3799, 63 FR 35532, June 30, 1998]

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### §164.38 Automatic radar plotting aids (ARPA).

(a) The following definitions are used in this section—

*Bulk* means material in any quantity that is shipped, stored, or handled without benefit of package, label, mark or count and carried in integral or fixed independent tanks.

*Constructed* means a stage of construction where—

(1) The keel is laid;

(2) Construction identifiable with a specific ship begins; or

(3) Assembly of that ship has commenced comprising at least 50 tons or 1 percent of the estimated mass of all structural material, whichever is less.

*Hazardous material* means—

(1) A flammable liquid as defined in 46 CFR 30.10-22 or a combustible liquid as defined in 46 CFR 30.10-15;

(2) A material listed in table 151.05 of 46 CFR 151.05, table 1 of 46 CFR 153, or table 4 of 46 CFR Part 154; or

(3) A liquid, liquefied gas, or compressed gas listed in 49 CFR 172.101.

*Self-propelled vessel* includes those combinations of pushing vessel and vessel being pushed ahead which are rigidly connected in a composite unit and are required by Rule 24(b) of the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) (App. A to 33 CFR Part 81) to exhibit the lights prescribed in Rule 23 for a "Power Driven Vessel Underway".

*Tank vessel* means a vessel that is constructed or adapted to carry; or carries, oil or hazardous materials in bulk as cargo or cargo residue.

(b) An Automatic Radar Plotting Aid (ARPA) that complies with the standard for such devices adopted by the International Maritime Organization in its "Operational Standards for Automatic Radar Plotting Aids" (Appendix A), and that has both audible and visual alarms, must be installed as follows:

(1) Each self-propelled vessel, except a public vessel, of 10,000 gross tons or more carrying oil or hazardous materials in bulk as cargo or in residue on the navigable waters of the United States, or which transfers oil or hazardous materials in any port or place subject to the jurisdiction of the United States, must be equipped with an ARPA.

(2) Each tank vessel of 10,000 gross tons or more operating on the navigable waters of the United States must be equipped with an ARPA.

(3) Each self-propelled vessel of 15,000 gross tons or more that is not a tank vessel, and is not carrying oil or hazardous material in bulk as cargo or in residue operating on the navigable waters of the United States, and was constructed before September 1, 1984, must be equipped with an ARPA, except when it is operating on the Great Lakes and their connecting and tributary waters.

(4) Each vessel of 10,000 gross tons or more, except when operating on the Great Lakes and their connecting and tributary waters, constructed on or after September 1, 1984 must be equipped with an ARPA.

(c) [Reserved]

(d)(1) Each device required under paragraph (b) of this section must have a permanently affixed label containing:

(i) The name and address of the manufacturer; and

(ii) The following statement:

“This device was designed and manufactured to comply with the International Maritime Organization (IMO) ‘Performance Standards for Automatic Radar Plotting Aids (ARPA).’”

(2) [Reserved]

## APPENDIX A TO §164.38—PERFORMANCE STANDARDS FOR AUTOMATIC RADAR PLOTTING AIDS (ARPA)

### 1 Introduction

1.1 The Automatic Radar Plotting Aids (ARPA) should, in order to improve the standard of collision avoidance at sea:

.1 Reduce the work-load of observers by enabling them to automatically obtain information so that they can perform as well with multiple targets as they can by manually plotting a single target; and

.2 Provide continuous, accurate and rapid situation evaluation.

1.2 In addition to the General Requirements for Electronic Navigational Aids ([IMO] Res. A.281(VII)), the ARPA should comply with the following minimum performance standards.

### 2 Definitions

2.1 Definitions of terms in these performance standards are given in Annex 1.

### 3 Performance Standards

#### 3.1 Detection

3.1.1 Where a separate facility is provided for detection of targets, other than by the radar observer, it should have a performance not inferior to that which could be obtained by the use of the radar display.

#### 3.2 Acquisition

3.2.1 Target acquisition may be manual or automatic. However, there should always be a facility to provide for manual acquisition and cancellation. ARPA with automatic acquisition should have a facility to suppress acquisition in certain areas. On any range scale where acquisition is suppressed over a certain area, the area of acquisition should be indicated on the display.

3.2.2 Automatic or manual acquisition should have a performance not inferior to that which could be obtained by the user of the radar display.

#### 3.3 Tracking

3.3.1 The ARPA should be able to automatically track, process, simultaneously display and continuously update the information on at least:

.1 20 targets, if automatic acquisition is provided, whether automatically or manually acquired; or

.2 10 targets, if only manual acquisition is provided.

3.3.2 If automatic acquisition is provided, description of the criteria of selection of targets for tracking should be provided to the user. If the ARPA does not track all targets visible on the display, targets which are being tracked should be clearly indicated on the display. The reliability of tracking should not be less than that obtainable using manual recording of successive target positions obtained from the radar display.

3.3.3 Provided the target is not subject to target swap, the ARPA should continue to track an acquired target which is clearly distinguishable on the display for 5 out of 10 consecutive scans.

3.3.4 The possibility of tracking errors, including target swap, should be minimized by ARPA design. A qualitative description of the effects of error sources on the automatic tracking and corresponding errors should be provided to the user, including the effects of low signal to noise and low signal to clutter ratios caused by sea returns, rain, snow, low clouds and non-synchronous emission.

3.3.5 The ARPA should be able to display on request at least four equally time-spaced past positions of any targets being tracked over a period of at least eight minutes.

#### 3.4 Display

3.4.1 The Display may be a separate or integral part of the ship's radar. However, the ARPA display should include all the data required to be provided by a radar display in accordance with the performance standards for navigational radar equipment adopted by the Organization.

3.4.2 The design should be such that any malfunction of ARPA parts producing information additional to information to be produced by the radar as required by the performance standards for navigational equipment adopted by IMO should not affect the integrity of the basic radar presentation.

3.4.3 The display on which ARPA information is presented should have an effective diameter of at least 340 mm.

3.4.4 The ARPA facilities should be available on at least the following range scales:

.1 12 or 16 miles;

.2 3 or 4 miles.

3.4.5 There should be a positive indication of the range scale in use.

3.4.6 The ARPA should be capable of operating with a relative motion display with "north-up" and either "head-up" or "course-up" azimuth stabilization. In addition, the ARPA may also provide for a true motion display. If true motion is provided, the operator should be able to select for his display either true or relative motion. There should be a positive indication of the display mode and orientation in use.

3.4.7 The course and speed information generated by the ARPA for acquired targets should be displayed in a vector or graphic form which clearly indicates the target's predicted motion. In this regard:

- .1 ARPA presenting predicted information in vector form only should have the option of both true and relative vectors;
- .2 An ARPA which is capable of presenting target course and speed information in graphic form, should also, on request, provide the target's true and/or relative vector;
- .3 Vectors displayed should be either time adjustable or have a fixed time-scale;
- .4 A positive indication of the time-scale of the vector in use should be given.

3.4.8 The ARPA information should not obscure radar information in such a manner as to degrade the process of detecting targets. The display of ARPA data should be under the control of the radar observer. It should be possible to cancel the display of unwanted ARPA data.

3.4.9 Means should be provided to adjust independently the brilliance of the ARPA data and radar data, including complete elimination of the ARPA data.

3.4.10 The method of presentation should ensure that the ARPA data is clearly visible in general to more than one observer in the conditions of light normally experienced on the bridge of a ship by day and by night. Screening may be provided to shade the display from sunlight but not to the extent that it will impair the observer's ability to maintain a proper lookout. Facilities to adjust the brightness should be provided.

3.4.11 Provisions should be made to obtain quickly the range and bearing of any object which appears on the ARPA display.

3.4.12 When a target appears on the radar display and, in the case of automatic acquisition, enters within the acquisition area chosen by the observer or, in the case of manual acquisition, has been acquired by the observer, the ARPA should present in a period of not more than one minute an indication of the target's motion trend and display within three minutes the target's predicted motion in accordance with paragraphs 3.4.7, 3.6, 3.8.2 and 3.8.3.

3.4.13 After changing range scales on which the ARPA facilities are available or resetting the display, full plotting information should be displayed within a period of time not exceeding four scans.

### 3.5 Operational Warnings

3.5.1 The ARPA should have the capability to warn the observer with a visual and/or audible signal of any distinguishable target which closes to a range or transits a zone chosen by the observer. The target causing the warning should be clearly indicated on the display.

3.5.2 The ARPA should have the capability to warn the observer with a visual and/or audible signal of any tracked target which is predicted to close to within a minimum range and time chosen by the observer. The target causing the warning should be clearly indicated on the display.

3.5.3 The ARPA should clearly indicate if a tracked target is lost, other than out of range, and the target's last tracked position should be clearly indicated on the display.

3.5.4 It should be possible to activate or de-activate the operational warnings.

### 3.6 Data Requirements

3.6.1 At the request of the observer the following information should be immediately available from the ARPA in alphanumeric form in regard to any tracked target:

1. Present range to the target;
2. Present bearing of the target;
- .3 Predicted target range at the closest point of approach (CPA);
- .4 Predicted time to CPA (TCPA);
- .5 Calculated true course of target;
- .6 Calculated true speed of target.

### 3.7 Trial Manoeuvre

3.7.1 The ARPA should be capable of simulating the effect on all tracked targets of an own ship manoeuvre without interrupting the updating of target information. The simulation should be initiated by the depression either of a spring-loaded switch, or of a function key, with a positive identification on the display.

### 3.8 Accuracy

3.8.1 The ARPA should provide accuracies not less than those given in paragraphs 3.8.2 and 3.8.3 for the four scenarios defined in Annex 2. With the sensor errors specified in Annex 3, the values given relate to the best possible manual plotting performance under environmental conditions of plus and minus ten degrees of roll.

3.8.2 An ARPA should present within one minute of steady state tracking the relative motion trend of a target with the following accuracy values (95 percent probability values):

Scenario/data	Relative course (degrees)	Relative speed (Knots)	CPA (n.m.)
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1		11	2.8	1.6
2		7	0.6	
3		14	2.2	1.8
4		15	1.5	2.0

3.8.3 An ARPA should present within three minutes of steady state tracking the motion of a target with the following accuracy values (95 percent probability values):

Scenario/data	Relative course (degrees)	Relative speed (knots)	C.P.A. (n.m.)	TCPA (mins)	True course (degrees)	True speed (knots)
1	3.0	0.8	0.5	1.0	7.5	1.2
2	2.3	.3			2.9	.8
3	4.4	.9	.7	1.0	3.3	1.0
4	4.6	.8	.7	1.0	2.6	1.2

3.8.4 When a tracked target, or own ship, has completed a manoeuvre, the system should present in a period of not more than one minute an indication of the target's motion trend, and display within three minutes the target's predicted motion in accordance with paragraphs 3.4.7, 3.6, 3.8.2 and 3.8.3

3.8.5 The ARPA should be designed in such a manner that under the most favorable conditions of own ship motion the error contribution from the ARPA should remain insignificant compared to the errors associated with the input sensors, for scenarios of Annex 2.

3.9 *Connections with other equipment*

3.9.1 The ARPA should not degrade the performance of any equipment providing sensor inputs. The connection of the ARPA to any other equipment should not degrade the performance of that equipment.

3.10 *Performance test and warnings*

3.10.1 The ARPA should provide suitable warnings of ARPA malfunction to enable the observer to monitor the proper operation of the system. Additionally test programmes should be available so that the overall performance of ARPA can be assessed periodically against a known solution.

3.11 *Equipment used with ARPA*

3.11.1 Log and speed indicators providing inputs to ARPA equipment should be capable of providing the ship's speed through the water.

ANNEX 1 TO APPENDIX A TO §164.38—DEFINITIONS OF TERMS TO BE USED ONLY IN CONNECTION WITH ARPA PERFORMANCE STANDARDS

Relative course—The direction of motion of a target related to own ship as deduced from a number of measurements of its range and bearing on the radar. Expressed as an angular distance from North.

Relative speed—The speed of a target related to own ship, as deduced from a number of measurements of its range and bearing on the radar.

True course—The apparent heading of a target obtained by the vectorial combination of the target's relative motion and ship's own motion<sup>1</sup>. Expressed as an angular distance from North.

<sup>1</sup>For the purpose of these definitions there is no need to distinguish between sea or ground stabilization.

True speed—The speed of a target obtained by the vectorial combination of its relative motion and own ship's motion<sup>1</sup>.

Bearing—The direction of one terrestrial point from another. Expressed as an angular distance from North.

Relative motion display—The position of own ship on such a display remains fixed.

True motion display—The position of own ship on such display moves in accordance with its own motion.

Azimuth stabilization—Own ship's compass information is fed to the display so that echoes of targets on the display will not be caused to smear by changes of own ship's heading.

/North-up—The line connecting the center with the top of this display is North.

/Head-up—The line connecting the center with the top of the display is own ship heading.

/Course-up—An intended course can be set to the line connecting the center with the top of the display.

Heading—The direction in which the bow of a vessel is pointing. Expressed as an angular distance from North.

Target's predicted motion—The indication on the display of a liner extrapolation into the future of a target's motion, based on measurements of the target's range and bearing on the radar in the recent past.

Target's motion trend—An early indication of the target's predicted motion.

Radar Plotting—The whole process of target detection, tracking, calculation of parameters and display of information.

Detection—The recognition of the presence of a target.

Acquisition—The selection of those targets requiring a tracking procedure and the initiation of their tracking.

Tracking—The process of observing the sequential changes in the position of a target, to establish its motion.

Display—The plan position presentation of ARPA data with radar data.

Manual—An activity which a radar observer performs, possibly with assistance from a machine.

Automatic—An activity which is performed wholly by a machine.

#### ANNEX 2 TO APPENDIX A TO §164.38—OPERATIONAL SCENARIOS

For each of the following scenarios predictions are made at the target position defined after previously tracking for the appropriate time of one or three minutes:

##### *Scenario 1*

Own ship course—000°

Own ship speed—10 kt

Target range—8 n.m.

Bearing of target—000°

Relative course of target—180°

Relative speed of target—20 kt

##### *Scenario 2*

Own ship course—000°

Own ship speed—10 kt

Target range—1 n.m.

Bearing of target—000°

Relative course of target—090°

Relative speed of target—10 kt

##### *Scenario 3*

Own ship course—000°

Own ship speed—5 kt

Target range—8 n.m.

Bearing of target—045°

Relative course of target—225°

Relative speed of target—20 kt

##### *Scenario 4*

Own ship course—000°

Own ship speed—25 kt

Target range—8 n.m.

Bearing of target—045°

Relative course of target—225°

Relative speed of target—20 kt

#### ANNEX 3 TO APPENDIX A TO §164.38—SENSOR ERRORS

The accuracy figures quoted in paragraph 3.8 are based upon the following sensor errors and are appropriate to equipment complying with the Organization's performance standards for shipborne navigational equipment.<sup>2</sup>

<sup>2</sup>In calculations leading to the accuracy figures quoted in paragraph 3.8, these sensor error sources and magnitudes were used. They were arrived at during discussions with national government agencies and equipment manufacturers and are appropriate to equipments complying with the Organization's draft performance standards for radar equipment (preliminary) (NAV XXII/WP.14), gyro compasses (NAV XXI/9, Annex X) and logs (preliminary) (NAV XXII/WP.15).

Independent studies carried out by national government agencies and equipment manufacturers have resulted in similar accuracies, where comparisons were made.

Note: o means "standard deviation"

##### *Radar*

*Target Glint* (Scintillation) (for 200 m length target)

Along length of target  $\sigma = 30$  m. (normal distribution)

Across beam of target  $\sigma = 1$  m. (normal distribution)

*Roll-Pitch Bearing.* The bearing error will peak in each of the four quadrants around own ship for targets on relative bearings of 045°, 135°, 225° and 315° and will be zero at relative bearings of 0°, 90°, 180° and 270°. This error has a sinusoidal variation at twice the roll frequency. For a 10° roll the mean error is 0.22° with a 0.22° peak sine wave superimposed.

*Beam shape*—assumed normal distribution giving bearing error with  $\sigma = 0.05$ .

*Pulse shape*— assumed normal distribution giving range error with  $\sigma = 20$  meters.

*Antenna backlash*—assumed rectangular distribution giving bearing error  $\pm 0.5$  maximum.

#### Quantization

Bearing—rectangular distribution  $\pm 0.01^\circ$  maximum.

Range—rectangular distribution  $\pm 0.01$  n.m. maximum.

Bearing encoder assumed to be running from a remote synchro giving bearing errors with a normal distribution  $\sigma = 0.03^\circ$

#### Gyro compass

Calibration error 0.5°.

Normal distribution about this with  $\sigma = 0.12^\circ$ .

#### Log

Calibration error 0.5 kt.

Normal distribution about this,  $3\sigma = 0.2$  kt.

### APPENDIX B TO §164.38—U.S. MARITIME ADMINISTRATION COLLISION AVOIDANCE SYSTEM SPECIFICATION

A collision system designed as a supplement to both surface search navigational radars via interswitching shall be installed. The system shall provide unattended monitoring of all radar echoes and automatic audio and visual alarm signals that will alert the watch officer of a possible threat. The display shall be contained within a console capable of being installed adjacent to the radar displays in the wheelhouse and may form a part of the bridge console.

Provision for signal input from the ship's radars, gyro compass, and speed log, without modification to these equipments shall be made. The collision avoidance system, whether operating normally or having failed, must not introduce any spurious signals or otherwise degrade the performance of the radars, the gyro compass or the speed log.

Computer generated display data for each acquired target shall be in the form of a line or vector indicating true or relative target course, speed and both present and extrapolated future positions. Data shall be automatically displayed on a cathode ray tube or other suitable display contrivance sufficiently bright and unobstructed to permit viewing by more than one person at a time.

In addition to displaying the collision potential of the most threatening fixed and moving targets, the system shall be capable of simultaneously showing land masses.

The system display shall include a heading indication and bearing ring. The system shall also have the capability of allowing the operator to select "head-up" and to cancel the vector or line presentation of any of the targets. The presentation shall be non-smearing when changing modes or display scales in order to permit rapid evaluation of the displayed data.

Target acquisition, for display data purposes, may be manual, automatic or both, as specified by Owner.

For any manual acquisition system the alarms shall be initiated by a preset minimum range; and likewise for any automatic acquisition system the alarms shall be initiated by a preset minimum acceptable passing distance (CPA—Closest Point of Approach) and a preset advance warning time (TCPA—Time to Closest Point of Approach). Means shall be provided to silence the audio alarm for a given threat but the alarm shall resound upon a subsequent threat. The visual alarm shall continue to operate until all threats have been eliminated. If the collision avoidance system fails to perform as indicated above, after the system is set for unattended monitoring, the system shall produce both audio and visual warning alarms.

The system shall be capable of simulating a trial maneuver.

In addition to the target display, an alpha-numeric readout shall be provided which can present range, bearing, course, speed, CPA and TCPA for any selected target, either on the target display or by other display means.

The collision avoidance system shall be energized from the interior communications panel board in the wheelhouse.

The collision avoidance function may be incorporated in an integrated conning system, provided that failure of any other integrated system component will not degrade the collision avoidance function.

[CGD 79-148, 45 FR 54039, Aug. 14, 1980; 45 FR 71800, Oct. 30, 1980, as amended by CGD 83-004, 49 FR 43467, Oct. 29, 1984; USCG-1998-3799, 63 FR 35532, June 30, 1998; USCG-2011-0257, 76 FR 31838, June 2, 2011]

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### §164.39 Steering gear: Foreign tankers.

(a) This section applies to each foreign tanker of 10,000 gross tons or more, except a public vessel, that—

- (1) Transfers oil at a port or place subject to the jurisdiction of the United States; or
- (2) Otherwise enters or operates in the navigable waters of the United States, except a vessel described by §164.02 of this part.

(b) *Definitions.* The terms used in this section are as follows:

*Constructed* means the same as in Chapter II-1, Regulations 1.1.2 and 1.1.3.1, of SOLAS 74.

*Existing tanker* means a tanker—

- (1) For which the building contract is placed on or after June 1, 1979;
- (2) In the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after January 1, 1980;
- (3) The delivery of which occurs on or after June 1, 1982; or
- (4) That has undergone a major conversion contracted for on or after June 1, 1979; or construction of which was begun on or after January 1, 1980, or completed on or after June 1, 1982.

*Public vessel, oil, hazardous materials, and foreign vessel* mean the same as in 46 U.S.C. 2101.

*SOLAS 74* means the International Convention for the Safety of Life at Sea, 1974, as amended.

*Tanker* means a self-propelled vessel defined as a tanker by 46 U.S.C. 2101(38) or as a tank vessel by 46 U.S.C. 2101(39).

(c) Each tanker constructed on or after September 1, 1984, must meet the applicable requirements of Chapter II-1, Regulations 29 and 30, of SOLAS 74.

(d) Each tanker constructed before September 1, 1984, must meet the requirements of Chapter II-1, Regulation 29.19, of SOLAS 74.

(e) Each tanker of 40,000 gross tons or more, constructed before September 1, 1984, that does not meet the single-failure criterion of Chapter II-1, Regulation 29.16, of SOLAS 74, must meet the requirements of Chapter II-1, Regulation 29.20, of SOLAS 74.

(f) Each tanker constructed before September 1, 1984, must meet the applicable requirements of Chapter II-1, Regulations 29.14 and 29.15, of SOLAS 74.

[CGD 83-043, 60 FR 24771, May 10, 1995]

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#### **§164.40 Devices to indicate speed and distance.**

(a) Each vessel required to be fitted with an Automatic Radar Plotting Aid (ARPA) under §164.38 of this part must be fitted with a device to indicate speed and distance of the vessel either through the water or over the ground.

(b) The device must meet the following specifications:

- (1) The display must be easily readable on the bridge by day or night.
- (2) Errors in the indicated speed, when the vessel is operating free from shallow water effect, and from the effects of wind, current, and tide, should not exceed 5 percent of the speed of the vessel, or 0.5 knot, whichever is greater.
- (3) Errors in the indicated distance run, when the vessel is operating free from shallow water effect, and from the effects of wind, current, and tide, should not exceed 5 percent of the distance run of the vessel in one hour or 0.5 nautical mile in each hour, whichever is greater.

[CGD 83-004, 49 FR 43467, Oct. 29, 1984, as amended by USCG-1998-3799, 63 FR 35532, June 30, 1998]

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#### **§164.41 Electronic position fixing devices.**

(a) Each vessel calling at a port in the continental United States, including Alaska south of Cape Prince of Wales, except each vessel owned or bareboat chartered and operated by the United States, or by a state or its political subdivision, or by a foreign nation, and not engaged in commerce, must have a satellite navigation receiver with—

- (1) Automatic acquisition of satellite signals after initial operator settings have been entered; and

(2) Position updates derived from satellite information during each usable satellite pass.

(b) A system that is found by the Commandant to meet the intent of the statements of availability, coverage, and accuracy for the U.S. Coastal Confluence Zone (CCZ) contained in the U.S. "Federal Radionavigation Plan" (Report No. DOD-NO 4650.4-P, I or No. DOT-TSC-RSPA-80-16, I). A person desiring a finding by the Commandant under this subparagraph must submit a written application describing the device to the Commandant (CG-DCO-D), Attn: Deputy for Operations Policy and Capabilities, U.S. Coast Guard Stop 7318, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593-7318. After reviewing the application, the Commandant may request additional information to establish whether or not the device meets the intent of the Federal Radionavigation Plan. Note: The Federal Radionavigation Plan is available from the National Technical Information Service, Springfield, Va. 22161, with the following Government Accession Numbers:

Vol 1, ADA 116468

Vol 2, ADA 116469

Vol 3, ADA 116470

Vol 4, ADA 116471

[USCG-2011-0257, 76 FR 31838, June 2, 2011, as amended by USCG-2014-0410, 79 FR 38442, July 7, 2014]

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#### **§164.42 Rate of turn indicator.**

Each vessel of 100,000 gross tons or more constructed on or after September 1, 1984 shall be fitted with a rate of turn indicator.

[CGD 83-004, 49 FR 43468, Oct. 29, 1984]

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#### **§164.46 Automatic Identification System.**

(a) *Definitions.* As used in this section—

*Automatic Identification Systems* or *AIS* means a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU), adopted by the International Maritime Organization (IMO), that—

(1) Provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft;

(2) Receives automatically such information from similarly fitted ships, monitors and tracks ships; and

(3) Exchanges data with shore-based facilities.

*Gross tonnage* means tonnage as defined under the International Convention on Tonnage Measurement of Ships, 1969.

*International voyage* means a voyage from a country to which the present International Convention for the Safety of Life at Sea applies to a port outside such country, or conversely.

*Properly installed, operational* means an Automatic Identification System (AIS) that is installed and operated using the guidelines set forth by the International Maritime Organization (IMO) Resolution A.917(22) and Safety of Navigation Circulars (SN/Circ.) 227, 244, 245, and SN.1/Circ.289; or National Marine Electronics Association (NMEA) Installation Standard 0400-3.10 in lieu of SN/Circ.227 and 245 (incorporated by reference, see §164.03).

(b) *AIS carriage*—(1) *AIS Class A device.* The following vessels must have on board a properly installed, operational Coast Guard type-approved AIS Class A device:

(i) A self-propelled vessel of 65 feet or more in length, engaged in commercial service.

(ii) A towing vessel of 26 feet or more in length and more than 600 horsepower, engaged in commercial service.

(iii) A self-propelled vessel that is certificated to carry more than 150 passengers.

(iv) A self-propelled vessel engaged in dredging operations in or near a commercial channel or shipping fairway in a manner likely to restrict or affect navigation of other vessels.

(v) A self-propelled vessel engaged in the movement of—

(A) Certain dangerous cargo as defined in subpart C of part 160 of this chapter, or

(B) Flammable or combustible liquid cargo in bulk that is listed in 46 CFR 30.25-1, Table 30.25-1.



(2) *AIS Class B device.* Use of a Coast Guard type-approved AIS Class B device in lieu of an AIS Class A device is permissible on the following vessels if they are not subject to pilotage by other than the vessel Master or crew:

(i) Fishing industry vessels;

(ii) Vessels identified in paragraph (b)(1)(i) of this section that are certificated to carry less than 150 passengers and that—

(A) Do not operate in a Vessel Traffic Service (VTS) or Vessel Movement Reporting System (VMRS) area defined in Table 161.12(c) of §161.12 of this chapter, and

(B) Do not operate at speeds in excess of 14 knots; and

(iii) Vessels identified in paragraph (b)(1)(iv) of this section engaged in dredging operations.

NOTE TO PARAGRAPH (b): Under 33 U.S.C. 1223(b)(3) and 33 CFR 160.111, a Coast Guard Captain of the Port (COTP) may restrict the operation of a vessel if he or she determines that by reason of weather, visibility, sea conditions, port congestion, other hazardous circumstances, or the condition of such vessel, the restriction is justified in the interest of safety. In certain circumstances, if a COTP is concerned that the operation of a vessel not subject to §164.46 would be unsafe, the COTP may determine that voluntary installation of AIS by the operator would mitigate that concern. Fishing industry vessels include fishing vessels, fish processing vessels, and fish tender vessels as defined in 46 U.S.C. 2101.

(c) *SOLAS provisions.* The following self-propelled vessels must comply with International Convention for Safety of Life at Sea (SOLAS), as amended, Chapter V, regulation 19.2.1.6 (Positioning System), 19.2.4 (AIS Class A), and 19.2.3.5 (Transmitting Heading Device) or 19.2.5.1 (Gyro Compass) as applicable (Incorporated by reference, see §164.03):

(1) A vessel of 300 gross tonnage or more, on an international voyage.

(2) A vessel of 150 gross tonnage or more, when carrying more than 12 passengers on an international voyage.

(d) *Operations.* The requirements in this paragraph are applicable to any vessel equipped with AIS.

(1) Use of AIS does not relieve the vessel of the requirements to sound whistle signals or display lights or shapes in accordance with the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS), 28 U.S.T. 3459, T.I.A.S. 8587, or Inland Navigation Rules, 33 CFR part 83; nor of the radio requirements of the Vessel Bridge-to-Bridge Radiotelephone Act, 33 U.S.C. 1201-1208, part 26 of this chapter, and 47 CFR part 80.

(2) AIS must be maintained in effective operating condition, which includes—

(i) The ability to reinitialize the AIS, which requires access to and knowledge of the AIS power source and password;

(ii) The ability to access AIS information from the primary conning position of the vessel;

(iii) The accurate broadcast of a properly assigned Maritime Mobile Service Identity (MMSI) number;

(iv) The accurate input and upkeep of all AIS data fields and system updates; and

(v) For those vessels denoted in paragraph (b) of this section, the continual operation of AIS and its associated devices (e.g., positioning system, gyro, converters, displays) at all times while the vessel is underway or at anchor, and, if moored, at least 15 minutes prior to getting underway; except when its operation would compromise the safety or security of the vessel or a security incident is imminent. The AIS should be returned to continuous operation as soon as the compromise has been mitigated or the security incident has passed. The time and reason for the silent period should be recorded in the ship's official log and reported to the nearest Captain of the Port or Vessel Traffic Center (VTC).

(3) AIS safety-related text messaging must be conducted in English and solely to exchange or communicate pertinent navigation safety information (analogous to a SECURITE broadcast). Although not prohibited, AIS text messaging should not be relied upon as the primary means for broadcasting distress (MAYDAY) or urgent (PAN PAN) communications. (47 CFR 80.1109, Distress, urgency, and safety communications).

(4) AIS application-specific messaging (ASM) is permissible, but is limited to applications adopted by the International Maritime Organization (such as IMO SN.1/Circ.289) or those denoted in the International Association of Marine Aids to Navigation and Lighthouse Authorities' (IALA) ASM Collection for use in the United States or Canada, and to no more than one ASM per minute.

NOTE TO PARAGRAPH (d): The Coast Guard has developed the "U.S. AIS Encoding Guide" to help ensure consistent and accurate data encoding (input) by AIS users. This Guide is available at our "AIS Frequently Asked Questions" (FAQ #2) World Wide Web page at [www.navcen.uscg.gov](http://www.navcen.uscg.gov). Although of great benefit, the interfacing or installation of other external devices or displays (e.g., transmitting heading device, gyro, rate of turn indicator, electronic charting systems, and radar), is not currently required except as denoted in §164.46 (c). Most application-specific messages require interfacing to an external system that is capable of their portrayal, such as equipment certified to meet Radio Technical Commission for Maritime Services (RTCM) electronic chart system (ECS) standard 10900 series.

(e) *Watchkeeping*. AIS is primarily intended for use by the Master or person in charge of the vessel, or by the person designated by the Master or person in charge to pilot or direct the movement of the vessel, who must maintain a periodic watch for AIS information.

(f) *Portable AIS*. The use of a portable AIS is permissible only to the extent that electromagnetic interference does not affect the proper function of existing navigation and communication equipment on board and such that only one AIS device may be transmitting on board a vessel at any one time.

(g) *AIS Pilot Plug*. The AIS Pilot Plug on any vessel subject to pilotage by other than the vessel Master or crew must be readily available and easily accessible from the primary conning position of the vessel and permanently affixed (not an extension cord) and adjacent (within 3 feet) to a 120-volt 50/60 Hz AC power receptacle (NEMA 5-15).

(h) *Exceptions*. The following vessels may seek up to a 5-year deviation from the AIS requirements of this section by requesting a deviation under §164.55.

(1) Vessels that operate solely within a very confined area (e.g., less than a 1 nautical-mile radius, shipyard, or barge fleeting facility);

(2) Vessels that conduct only short voyages (less than 1 nautical mile) on a fixed schedule (e.g., a bank-to-bank river ferry service or a tender vessel);

(3) Vessels that are not likely to encounter other AIS-equipped vessels;

(4) Vessels whose design or construction makes it impracticable to operate an AIS device (e.g., those that lack electrical power, have an exposed or open cabin, or are submersible); or

(5) Vessels denoted in paragraph (b)(2) that seek a deviation from requirements in paragraphs (d)(2)(ii) and (e) of this section because their AIS Class B device lacks a display.

(i) *Prohibition*. Except for maritime support stations (see 47 CFR 80.5) licensed by the Federal Communications Commission (FCC), broadcasts from AIS Class A or B devices on aircraft, non-self propelled vessels or from land are prohibited.

(j) *Implementation date*. Those vessels identified in paragraphs (b) and (c) of this section that were not previously subject to AIS carriage must install AIS no later than March 1, 2016.

[USCG-2005-21869, 80 FR 5335, Jan. 30, 2015, as amended at 80 FR 17327, Apr. 1, 2015; USCG-2016-0498, 82 FR 35088, July 28, 2017]

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#### **§164.51 Deviations from rules: Emergency.**

Except for the requirements of §164.53(b), in an emergency, any person may deviate from any rule in this part to the extent necessary to avoid endangering persons, property, or the environment.

[CGD 74-77, 42 FR 5956, Jan. 31, 1977]

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#### **§164.53 Deviations from rules and reporting: Non-operating equipment.**

(a) If during a voyage any equipment required by this part stops operating properly, the person directing the movement of the vessel may continue to the next port of call, subject to the directions of the District Commander or the Captain of the Port, as provided by part 160 of this chapter.

(b) If the vessel's automatic identification system (AIS) radar, radio navigation receivers, gyrocompass, echo depth sounding device, or primary steering gear stops operating properly, the person directing the movement of the vessel must report or cause to be reported that it is not operating properly to the nearest Captain of the Port, District Commander, or, if participating in a Vessel Traffic Service, to the Vessel Traffic Center, as soon as possible.

(Sec. 2, Pub. L. 95-474, 92 Stat. 1471 (33 U.S.C. 1221); 49 CFR 1.46(n)(4))

[CGD 74-77, 42 FR 5956, Jan. 31, 1977]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §164.53, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at [www.fdsys.gov](http://www.fdsys.gov).

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#### **§164.55 Deviations from rules: Continuing operation or period of time.**

The Captain of the Port, upon written application, may authorize a deviation from any rule in this part if he determines that the deviation does not impair the safe navigation of the vessel under anticipated conditions and will not result in a violation of the rules for preventing collisions at sea. The authorization may be issued for vessels operating in the waters under the jurisdiction of the Captain of the Port for any continuing operation or period of time the Captain of the Port specifies.

[CGD 74-77, 42 FR 5956, Jan. 31, 1977]

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#### **§164.61 Marine casualty reporting and record retention.**

When a vessel is involved in a marine casualty as defined in 46 CFR 4.03-1, the master or person in charge of the vessel shall:

(a) Ensure compliance with 46 CFR Subpart 4.05, "Notice of Marine Casualty and Voyage Records;" and

(b) Ensure that the voyage records required by 46 CFR 4.05-15 are retained for:

(1) 30 days after the casualty if the vessel remains in the navigable waters of the United States; or

(2) 30 days after the return of the vessel to a United States port if the vessel departs the navigable waters of the United States within 30 days after the marine casualty.

[CGD 74-77, 42 FR 5956, Jan. 31, 1977]

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#### **§164.70 Definitions.**

For purposes of §§164.72 through 164.82, the term—

*Current edition* means the most recent published version of a publication, chart, or map required by §164.72.

*Currently corrected edition* means a current or previous edition of a publication required by §164.72, corrected with changes that come from Notices to Mariners (NTMs) or Notices to Navigation reasonably available and that apply to the vessel's transit. Hand-annotated river maps from the U.S. Army Corps of Engineers (ACOE) are currently corrected editions if issued within the previous 5 years.

*Great Lakes* means the Great Lakes and their connecting and tributary waters including the Calumet River as far as the Thomas J. O'Brien Lock and Controlling Works (between miles 326 and 327), the Chicago River as far as the east side of the Ashland Avenue Bridge (between miles 321 and 322), and the Saint Lawrence River as far east as the lower exit of Saint Lambert Lock.

*Merchant mariner credential or MMC* means the credential issued by the Coast Guard under 46 CFR part 10. It combines the individual merchant mariner's document, license, and certificate of registry enumerated in 46 U.S.C. subtitle II part E as well as the STCW endorsement into a single credential that serves as the mariner's qualification document, certificate of identification, and certificate of service.

*Swing-meter* means an electronic or electric device that indicates the rate of turn of the vessel on board which it is installed.

*Towing vessel* means a commercial vessel engaged in or intending to engage in pulling, pushing or hauling alongside, or any combination of pulling, pushing, or hauling alongside.

*Western Rivers* means the Mississippi River, its tributaries, South Pass, and Southwest Pass, to the navigational-demarcation lines dividing the high seas from harbors, rivers, and other inland waters of the United States, and the Port Allen-Morgan City Alternative Route, and that part of the Atchafalaya River above its junction with the Port Allen-Morgan City Alternative Route including the Old River and the Red River and those waters specified by §§89.25 and 89.27 of this chapter, and such other, similar waters as are designated by the COTP.

[CGD 94-020, 61 FR 35072, July 3, 1996, as amended by USCG-2006-24371, 74 FR 11213, Mar. 16, 2009]

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#### **§164.72 Navigational-safety equipment, charts or maps, and publications required on towing vessels.**

(a) Except as provided by §164.01(b), each towing vessel must be equipped with the following navigational-safety equipment:

(1) *Marine radar.* By August 2, 1997, a marine radar that meets the following applicable requirements:

(i) For a vessel of less than 300 tons gross tonnage that engages in towing on navigable waters of the U.S., including Western Rivers, the radar must meet—

(A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(B) RTCM Standard for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, RTCM Paper 71-95/SC112-STD, Version 1.1, display Category II and stabilization Category Bravo.

(ii) For a vessel of less than 300 tons gross tonnage that engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes, the radar must meet—

(A) The requirements of the FCC specified by 47 CFR part 80; and

(B) RTCM Standard for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, RTCM Paper 71-95/SC112-STD, Version 1.1, display Category I and stabilization Category Alpha.

(iii) For a vessel of 300 tons gross tonnage or more that engages in towing on navigable waters of the U.S., including Western rivers, the radar must meet—

(A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(B) RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, RTCM Paper 191-93/SC112-X, Version 1.2 except the requirements for azimuth stabilization in paragraph 3.10.

(iv) For a vessel of 300 tons gross tonnage or more that engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes, the radar must meet—

(A) The requirements of the FCC specified by 47 CFR Part 80; and

(B) RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, RTCM Paper 191-93/SC112-X, Version 1.2.

(v) A towing vessel with an existing radar must meet the applicable requirements of paragraphs (a)(1) (i) through (iv) of this section by August 2, 1998; except that a towing vessel with an existing radar must meet the display and stabilization requirements of paragraph (a)(1)(ii)(B) of this section by August 2, 2001.

(2) *Searchlight.* A searchlight, directable from the vessel's main steering station and capable of illuminating objects at a distance of at least two times the length of the tow.

(3) *VHF-FM radio.* An installation or multiple installations of VHF-FM radios as prescribed by part 26 of this chapter and 47 CFR part 80, to maintain a continuous listening watch on the designated calling channel, VHF-FM Channel 13 (except on portions of the Lower Mississippi River, where VHF-FM Channel 67 is the designated calling channel), and to separately monitor the International Distress and Calling Channel, VHF-FM Channel 16, except when transmitting or receiving traffic on other VHF-FM channels or when participating in a Vessel Traffic Service (VTS) or monitoring a channel of a VTS. (Each U.S. towing vessel of 26 feet (about 8 meters) or more in length, except a public vessel, must hold a ship-radio-station license for radio transmitters (including radar and EPIRBs), and each operator must hold a restricted operator's license or higher. To get an application for either license, call (800) 418-FORM or (202) 418-FORM, or write to the FCC; Wireless Bureau, Licensing Division; 1270 Fairfield Road; Gettysburg, PA 17325-7245.)

(4) *Magnetic compass.* Either—

(i) An illuminated swing-meter or an illuminated card-type magnetic steering compass readable from the vessel's main steering station, if the vessel engages in towing exclusively on Western Rivers; or

(ii) An illuminated card-type magnetic steering compass readable from the vessel's main steering station.

(5) *Echo depth-sounding device.* By August 2, 2001, an echo depth-sounding device readable from the vessel's main steering station, unless the vessel engages in towing exclusively on Western Rivers.

(6) *Electronic position-fixing device.* An electronic position-fixing device, a satellite navigational system such as the Global Positioning System (GPS) as required by §164.41, if the vessel engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes.

(b) Each towing vessel must carry on board and maintain the following:

(1) *Charts or maps.* Marine charts or maps of the areas to be transited, published by the National Ocean Service (NOS), the ACOE, or a river authority that satisfy the following requirements:

(i) The charts or maps must be of a large enough scale and have enough detail to make safe navigation of the areas possible.

(ii) The charts or maps must be either—

(A) Current editions or currently corrected editions, if the vessel engages in towing exclusively on navigable waters of the U.S., including Western Rivers; or

(B) Currently corrected editions, if the vessel engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes.

(iii) The charts or maps may be, instead of charts or maps required by paragraphs (b)(1) (i) and (ii) of this section, currently corrected marine charts or maps, or applicable extracts, published by a foreign government. These charts or maps, or applicable extracts, must contain information similar to that on the charts or maps required by paragraphs (b)(1) (i) and (ii) of this section, be of large enough scale, and have enough detail to make safe navigation of the areas possible, and must be currently corrected.

(2) *General publications.* A currently corrected edition of, or an applicable currently corrected extract from, each of the following publications for the area to be transited:

(i) If the vessel is engaged in towing exclusively on Western Rivers—

(A) U.S. Coast Guard Light List;

(B) Applicable Notices to Navigation published by the ACOE, or Local Notices to Mariners (LNMs) published by the Coast Guard, for the area to be transited, when available; and

(C) River-current tables published by a river authority, if available.

(ii) If the vessel is engaged other than in towing exclusively on Western Rivers—

(A) Coast Guard Light List;

(B) Notices to Mariners published by the National Geospatial-Intelligence Agency, or LNMs published by the Coast Guard;

(C) Tidal-current tables published by private entities using data provided by the NOS, or river-current tables published by the ACOE or a river authority;

(D) Tide tables published by private entities using data provided by the NOS; and

(E) U.S. Coast Pilot.

(c) Table 164.72, following, summarizes the navigational-safety equipment, charts or maps, and publications required for towing vessels of 12 meters or more in length engaged in towing:

**TABLE 164.72—EQUIPMENT, CHARTS OR MAPS, AND PUBLICATIONS FOR TOWING VESSELS OF 12 METERS OR MORE IN LENGTH**

	Western rivers	U.S. navigable waters other than western rivers	Waters seaward of navigable waters and 3 NM or more from shore on the Great Lakes
Marine Radar:			
Towing Vessels of Less Than 300 GT	RTCM Paper 71-95/SC112-STD Version 1.1, Display Category II <sup>1</sup> Stabilization Category BRAVO	RTCM Paper 71-95/SC112-STD Version 1.1, Display Category II <sup>1</sup> Stabilization Category BRAVO	RTCM Paper 71-95/SC112-STD Version 1.1, Display Category I <sup>2</sup> Stabilization Category ALPHA.
Towing Vessels of 300 GT or More	RTCM Paper 191-93/SC112-X Version 1.2 (except the Azimuth stabilization requirement in paragraph 3.10). <sup>1</sup>	RTCM Paper 191-93/SC112-X Version 1.2 (except the Azimuth stabilization requirement in paragraph 3.10). <sup>1</sup>	RTCM Paper 191-93/SC112-X Version 1.2. <sup>1</sup>
Searchlight	X	X	X
VHF-FM Radio	X	X	X
Magnetic Compass	X <sup>3</sup>	X	X
Swing-Meter	X <sup>3</sup>		
Echo Depth-Sounding Device		X	X
Electronic Position-Fixing Device			X
Charts or Maps	(1) Large enough scale	(1) Large enough scale	(1) Large enough scale.
	(2) Current edition or currently corrected edition	(2) Current edition or currently corrected edition	(2) Currently corrected edition.
General Publications	(1) U.S. Coast Guard Light List	(1) U.S. Coast Guard Light List	(1) U.S. Coast Guard Light List.
	(2) Notices to Navigation or Local Notices to Mariners	(2) Local Notices to Mariners	(2) Local Notices to Mariners.

	(3) River-current Tables	(3) Tidal-current Tables	(3) Tidal-current Tables.
		(4) Tide Tables	(4) Tide Tables.
		(5) U.S. Coast Pilot	(5) U.S. Coast Pilot.

NOTES:

<sup>1</sup>Towing vessels with existing radar must meet this requirement by August 2, 1998.

<sup>2</sup>Towing vessels with existing radar must meet this requirement by August 2, 1998 but do not need to meet the display and stabilization requirements until August 2, 2001.

<sup>3</sup>A towing vessel may carry either a swing-meter or a magnetic compass.

[CGD 94-020, 61 FR 35073, July 3, 1996, as amended by CGD 97-034, 62 FR 40272, July 28, 1997; USCG-1999-5832, 64 FR 34715, June 29, 1999; USCG-2001-9286, 66 FR 33641, June 25, 2001; USCG-2010-0351, 75 FR 36287, June 25, 2010; USCG-2011-0257, 76 FR 31838, June 2, 2011; USCG-2015-0433, 80 FR 44282, July 27, 2015; USCG-2016-0498, 82 FR 35088, July 28, 2017]

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**§164.74 Towline and terminal gear for towing astern.**

(a) *Towline.* The owner, master, or operator of each vessel towing astern shall ensure that the strength of each towline is adequate for its intended service, considering at least the following factors:

(1) The size and material of each towline must be—

- (i) Appropriate for the horsepower or bollard pull of the vessel;
- (ii) Appropriate for the static loads and dynamic loads expected during the intended service;
- (iii) Appropriate for the sea conditions expected during the intended service;
- (iv) Appropriate for exposure to the marine environment and to any chemicals used or carried on board the vessel;
- (v) Appropriate for the temperatures of normal stowage and service on board the vessel;
- (vi) Compatible with associated navigational-safety equipment; and
- (vii) Appropriate for the likelihood of mechanical damage.

(2) Each towline as rigged must be—

- (i) Free of knots;
- (ii) Spliced with a thimble, or have a poured socket at its end; and
- (iii) Free of wire clips except for temporary repair, for which the towline must have a thimble and either five wire clips or as many wire clips as the manufacturer specifies for the nominal diameter and construction of the towline, whichever is more.

(3) The condition of each towline must be monitored through the—

(i) Keeping on board the towing vessel or in company files of a record of the towline's initial minimum breaking strength as determined by the manufacturer, by a classification ("class") society authorized in §157.04 of this chapter, or by a tensile test that meets API Specification 9A, Specification for Wire Rope, Section 3; ASTM D 4268 (incorporated by reference, see §164.03), Standard Test Method for Testing Fiber Ropes; or Cordage Institute CIA 3, Standard Test Methods for Fiber Rope Including Standard Terminations;

(ii) If the towline is purchased from another owner, master, or operator of a vessel with the intent to use it as a towline or if it is retested for any reason, keeping on board the towing vessel or in company files of a record of each retest of the towline's minimum breaking strength as determined by a class society authorized in §157.04 of this chapter or by a tensile test that meets API Specification 9A, Section 3; ASTM D 4268 (incorporated by reference, see §164.03) or Cordage Institute CIA 3, Standard Test Methods;

(iii) Conducting visual inspections of the towline in accordance with the manufacturer's recommendations, or at least monthly, and whenever the serviceability of the towline is in doubt (the inspections being conducted by the owner, master, or operator, or by a person on whom the owner, master, or operator confers the responsibility to take corrective measures appropriate for the use of the towline);

(iv) Evaluating the serviceability of the whole towline or any part of the towline, and removing the whole or part from service either as recommended by the manufacturer or a class society authorized in §157.04 of this chapter or in accordance with a replacement schedule developed by the owner, master, or operator that accounts for at least the—

(A) Nautical miles on, or time in service of, the towline;

(B) Operating conditions experienced by the towline;

(C) History of loading of the towline;

(D) Surface condition, including corrosion and discoloration, of the towline;

(E) Amount of visible damage to the towline;

(F) Amount of material deterioration indicated by measurements of diameter and, if applicable, measurements of lay extension of the towline; and

(G) Point at which a tensile test proves the minimum breaking strength of the towline inadequate by the standards of paragraph (a)(1) of this section, if necessary; and

(v) Keeping on board the towing vessel or in company files of a record of the material condition of the towline when inspected under paragraphs (a)(3)(iii) and (iv) of this section. Once this record lapses for three months or more, except when a vessel is laid up or out of service or has not deployed its towline, the owner, master, or operator shall retest the towline or remove it from service.

(b) *Terminal gear.* The owner, master, or operator of each vessel towing astern shall ensure that the gear used to control, protect, and connect each towline meets the following criteria:

(1) The material and size of the terminal gear are appropriate for the strength and anticipated loading of the towline and for the environment;

(2) Each connection is secured by at least one nut with at least one cotter pin or other means of preventing its failure;

(3) The lead of the towline is appropriate to prevent sharp bends in the towline from fairlead blocks, chocks, or tackle;

(4) There is provided a method, whether mechanical or non-mechanical, that does not endanger operating personnel but that easily releases the towline;

(5) The towline is protected from abrasion or chafing by chafing gear, lagging, or other means;

(6) Except on board a vessel towing in ice on Western Rivers or one using a towline of synthetic or natural fiber, there is fitted a winch that evenly spools and tightly winds the towline; and

(7) If a winch is fitted, there is attached to the main drum a brake that has holding power appropriate for the horsepower or bollard pull of the vessel and can be operated without power to the winch.

[CGD 94-020, 61 FR 35074, July 3, 1996, as amended by USCG-1999-5151, 64 FR 67176, Dec. 1, 1999]

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#### **§164.76 Towline and terminal gear for towing alongside and pushing ahead.**

The owner, master, or operator of each vessel towing alongside or pushing ahead shall ensure that the face wires, spring lines, and push gear used—

(a) Are appropriate for the vessel's horsepower;

(b) Are appropriate for the arrangement of the tow;

(c) Are frequently inspected; and

(d) Remain serviceable.

[CGD 94-020, 61 FR 35075, July 3, 1996]

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#### **§164.78 Navigation under way: Towing vessels.**

(a) The owner, master, or operator of each vessel towing shall ensure that each person directing and controlling the movement of the vessel—

(1) Understands the arrangement of the tow and the effects of maneuvering on the vessel towing and on the vessel, barge, or object being towed;

(2) Can fix the position of the vessel using installed navigational equipment, aids to navigation, geographic reference-points, and hydrographic contours;

(3) Does not fix the position of the vessel using buoys alone (Buoys are aids to navigation placed in approximate positions either to alert mariners to hazards to navigation or to indicate the orientation of a channel. They may not maintain exact charted positions, because strong or varying currents, heavy seas, ice, and collisions with vessels can move or sink them or set them adrift. Although they may corroborate a position fixed by other means, they cannot fix a position; however, if no other aids are available, buoys alone may establish an estimated position.);

(4) Evaluates the danger of each closing visual or radar contact;

(5) Knows and applies the variation and deviation, where a magnetic compass is fitted and where charts or maps have enough detail to enable this type of correction;

(6) Knows the speed and direction of the current, and the set, drift, and tidal state for the area to be transited;

(7) Proceeds at a safe speed taking into account the weather, visibility, density of traffic, draft of tow, possibility of wake damage, speed and direction of the current, and local speed-limits; and

(8) Monitors the voyage plan required by §164.80.

(b) The owner, master, or operator of each vessel towing shall ensure that the tests and inspections required by §164.80 are conducted and that the results are entered in the log or other record carried on board.

[CGD 94-020, 61 FR 35075, July 3, 1996, as amended by USCG-2000-6931, 68 FR 22610, Apr. 29, 2003; 69 FR 34068, June 18, 2004]

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#### **§164.80 Tests, inspections, and voyage planning.**

(a) The owner, master, or operator of each towing vessel of less than 1,600 GT shall ensure that the following tests and inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(1) *Steering-systems.* A test of the steering-gear-control system; a test of the main steering gear from the alternative power supply, if installed; a verification of the rudder-angle indicator relative to the actual position of the rudder; and a visual inspection of the steering gear and its linkage.

(2) *Navigational equipment.* A test of all installed navigational equipment.

(3) *Communications.* Operation of all internal vessel control communications and vessel-control alarms, if installed.

(4) *Lights.* Operation of all navigational lights and all searchlights.

(5) *Terminal gear.* Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and of the winch brake, if installed.

(6) *Propulsion systems.* Visual inspection of the spaces for main propulsion machinery, of machinery, and of devices for monitoring machinery.

(b) The owner, master, or operator of each towing vessel of 1,600 GT or more shall ensure that the following tests of equipment occur at the frequency required by §164.25 and that the following inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(1) *Navigational equipment.* Tests of onboard equipment as required by §164.25.

(2) *Terminal gear.* Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and of the winch brake, if installed.

(c)(1) The voyage-planning requirements outlined in this section do not apply to you if your towing vessel is—

(i) Used solely for any of the following services or any combination of these services—

(A) Within a limited geographic area, such as a fleeting-area for barges or a commercial facility, and used for restricted service, such as making up or breaking up larger tows;

(B) For harbor-assist;

(C) For assistance towing as defined by 46 CFR 10.103;

(D) For response to emergency or pollution;



(ii) A public vessel that is both owned, or demise chartered, and operated by the United States Government or by a government of a foreign country; and that is not engaged in commercial service;

(iii) A foreign vessel engaged in innocent passage; or

(iv) Exempted by the Captain of the Port (COTP).

(2) If you think your towing vessel should be exempt from these voyage planning requirements for a specified route, you should submit a written request to the appropriate COTP. The COTP will provide you with a written response granting or denying your request.

(3) If any part of a towing vessel's intended voyage is seaward of the baseline (*i.e.*, the shoreward boundary) of the territorial sea of the U.S., then the owner, master, or operator of the vessel, employed to tow a barge or barges, must ensure that the voyage with the barge or barges is planned, taking into account all pertinent information before the vessel embarks on the voyage. The master must check the planned route for proximity to hazards before the voyage begins. During a voyage, if a decision is made to deviate substantially from the planned route, then the master or mate must plan the new route before deviating from the planned route. The voyage plan must follow company policy and consider the following (related requirements noted in parentheses):

(i) Applicable information from nautical charts and publications (also see paragraph (b) of section 164.72), including Coast Pilot, Coast Guard Light List, and Coast Guard Local Notice to Mariners for the port of departure, all ports of call, and the destination;

(ii) Current and forecast weather, including visibility, wind, and sea state for the port of departure, all ports of call, and the destination (also see paragraphs (a)(7) of section 164.78 and (b) of section 164.82);

(iii) Data on tides and currents for the port of departure, all ports of call, and the destination, and the river stages and forecast, if appropriate;

(iv) Forward and after drafts of the barge or barges and under-keel and vertical clearances (air-gaps) for all bridges, ports, and berthing areas;

(v) Pre-departure checklists;

(vi) Calculated speed and estimated time of arrival at proposed waypoints;

(vii) Communication contacts at any Vessel Traffic Services, bridges, and facilities, and any port-specific requirements for VHF radio;

(viii) Any master's or operator's standing orders detailing closest points of approach, special conditions, and critical maneuvers; and

(ix) Whether the towing vessel has sufficient power to control the tow under all foreseeable circumstances.

[CGD 94-020, 61 FR 35075, July 3, 1996, as amended by USCG-2000-6931, 68 FR 22610, Apr. 29, 2003; 69 FR 34068, June 18, 2004]

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### **§164.82 Maintenance, failure, and reporting.**

(a) *Maintenance.* The owner, master, or operator of each towing vessel shall maintain operative the navigational-safety equipment required by §164.72.

(b) *Failure.* If any of the navigational-safety equipment required by §164.72 fails during a voyage, the owner, master, or operator of the towing vessel shall exercise due diligence to repair it at the earliest practicable time. He or she shall enter its failure in the log or other record carried on board. The failure of equipment, in itself, does not constitute a violation of this rule; nor does it constitute unseaworthiness; nor does it obligate an owner, master, or operator to moor or anchor the vessel. However, the owner, master, or operator shall consider the state of the equipment—along with such factors as weather, visibility, traffic, and the dictates of good seamanship—in deciding whether it is safe for the vessel to proceed.

(c) *Reporting.* The owner, master, or operator of each towing vessel whose equipment is inoperative or otherwise impaired while the vessel is operating within a Vessel Traffic Service (VTS) Area shall report the fact as required by 33 CFR 161.124. (33 CFR 161.124 requires that each user of a VTS report to the Vessel Traffic Center as soon as practicable:

(1) Any absence or malfunction of vessel-operating equipment for navigational safety, such as propulsion machinery, steering gear, radar, gyrocompass, echo depth-sounding or other sounding device, automatic dependent surveillance equipment, or navigational lighting;

(2) Any condition on board the vessel likely to impair navigation, such as shortage of personnel or lack of current nautical charts or maps, or publications; and

(3) Any characteristics of the vessel that affect or restrict the maneuverability of the vessel, such as arrangement of cargo, trim, loaded condition, under-keel clearance, and speed.)

(d) *Deviation and authorization.* The owner, master, or operator of each towing vessel unable to repair within 96 hours an inoperative marine radar required by §164.72(a) shall so notify the Captain of the Port (COTP) and shall seek from the COTP both a deviation from the requirements of this section and an authorization for continued operation in the area to be transited. Failure of redundant navigational-safety equipment, including but not limited to failure of one of two installed radars, where each satisfies §164.72(a), does not necessitate either a deviation or an authorization.

(1) The initial notice and request for a deviation and an authorization may be spoken, but the request must also be written. The written request must explain why immediate repair is impracticable, and state when and by whom the repair will be made.

(2) The COTP, upon receiving even a spoken request, may grant a deviation and an authorization from any of the provisions of §§164.70 through 164.82 for a specified time if he or she decides that they would not impair the safe navigation of the vessel under anticipated conditions.

[CGD 94-020, 61 FR 35075, July 3, 1996]

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