

MARINE SAFETY MANUAL

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CHAPTER 22: MANNING REQUIREMENTS FOR LICENSED INDIVIDUALS

A. Impact Of International Standards.

The combined effect of several international conventions significantly impacts manning standards for licensed personnel on U.S. and foreign vessels.

1. International Convention Of Standards Of Training, Certification And Watchkeeping For Seafarers (STCW) 1978, as amended.

The U.S. became party to the STCW Convention on October 1, 1991. STCW parallels the U.S. regulations (46 CFR Part 10, 12 and 15) regarding the qualification and training requirements for watchstanding personnel. Although STCW does not include specific manning requirements, it does impact manning decisions.

a. Deck Department Structure.

(1) STCW identifies three licensed deck officer positions: master, chief mate and officer in charge of a navigational watch (e.g., mate). It also requires that any unlicensed rating forming a part of the navigational watch must be certificated and possess a "watchstanding" endorsement.

(2) Any person assigned as person in command of survival craft must also possess a certificate of competency (e.g., lifeboatman).

b. Engine Department Structure.

STCW also identifies three licensed engineer officer positions: chief engineer, second engineer (equivalent to a U.S. licensed first assistant engineer), and officer in charge of engineering watch (e.g., an assistant engineer). Although certificates of competency are recommended for unlicensed engineering ratings, they are not required by the STCW convention until 1 FEB 2002.

2. International Convention On Tonnage Measurement Of Ships, 1969 (ITC).

The STCW Convention contains a number of deck license and document requirements based on tonnage thresholds, but the STCW Convention does not state what system of tonnage measurement is to be used in determining the applicability of those requirements to a particular ship or individual. In 1983, the International Maritime Organization (IMO) issued resolutions which declared that the ITC system of measurement should apply to STCW, SOLAS, and MARPOL, but provided a transitional procedure for applying tonnage measurement to minimize the impact a new ITC tonnage might have on affected ships in applying these other conventions. For U.S. vessels operating on domestic voyages the owner can choose either the U.S. regulatory or the ITC tonnage system.

a. Interim Scheme.

International Maritime Organization (IMO) Resolution A.540 applies to STCW and provides an "interim scheme" which allows our regulatory tonnage measurement system to be used when applying STCW requirements for all vessels built prior to 1 January 1986, and for cargo ships of less than 1600 gross Tons (GRT) (U.S. regulatory tonnage) until 18 July 1994 -- the date ITC comes fully into force. All

seagoing passenger vessels, and cargo ships of 1600 GRT and over (U.S. regulatory tonnage) built on or after 1 January 1986, must be under the control of individuals holding licenses endorsed for tonnage at least equal to the ITC tonnage when on international voyages. Vessels entitled to use the interim scheme on 18 July 1994, may continue to use the scheme for the life of the vessel or until the vessel is substantially altered.

b. ITC Impact On Specific Vessels.

Small passenger vessels (SPV) and seagoing tugs are the most significantly affected sectors of the marine industry. Consider the impact on a new small passenger vessel which measures in excess of 2500 ITC GT, but measures only 99 GRT by our regulatory measurement system. If the vessel remains exclusively in domestic service the master and mates must hold 100 GT licenses. If the same vessel engages in international voyages the master and mates must hold licenses with a 2500 GT endorsement. In essence, the officers of this vessel would need to hold an unlimited tonnage license when on foreign voyages.

3. The International Convention For Safety Of Life At Sea (SOLAS).

SOLAS Chapter V, Regulation 13 requires certain vessels engaged on international voyages to be "sufficiently and efficiently" manned and also requires a certificate of safe manning be issued by the flag-state. (The certificate of inspection serves as the safe manning document for U.S. vessels.)

4. Principles Of Safe Manning.

In establishing the safe manning level to assure a vessel is sufficiently and efficiently manned, SOLAS makes reference to IMO Resolution A.481 that establishes the principles of safe manning and prescribes the form and content of the safe manning document. Resolution A.481 suggests manning levels should be based on the presumption that the master and chief engineer do not stand watch under normal circumstances. It further acknowledges that watchstanders should normally be divided into three watches; and that lookout and helmsman duties are separate. Where an engineering watch is assigned, it recommends that an officer and at least one unlicensed rating be assigned, unless there is a watch monitoring system (e.g., "dead man alarm") installed on the bridge. [See IMO Resolution A.481 (XII) in the back of this manual.]

B. Masters.

The provisions of 46 U.S.C. 8301, 8304, and 8902 require certain self-propelled vessels to have the full-time services of a master. Various statutes, regulations, and customs place continuing responsibilities upon the master of a vessel, whether underway, at anchor, moored, or handling cargo. Except aboard vessels of limited size, or on vessels having dedicated limited routes, these responsibilities cannot be properly discharged when the master is in charge of a watch. It is not therefore expected that the master will stand watches in the regular routine of the vessel, except on vessels of 1000 gross tons or less.

C. Mates.

A number of statutory provisions in Title 46, U.S. Code dictate the minimum number of licensed mates required for a vessel. The statutes predominately specify manning level based upon watchkeeping requirements. In establishing the minimum number of mates required for safe operation, the Officer in Charge, Marine Inspection (OCMI) should consider a vessel's total operational requirements, such as cargo handling, emergency evolutions, and preventive maintenance in addition to mandated levels of manning. The sample manning scales in chapters 21 and 26 have been prepared following this philosophy.

1. Minimum Number Of Mates.

46 U.S.C. 8301 requires a minimum number of mates based on vessel tonnage, length of voyage, and in some cases upon vessel type. These mate manning levels are not discretionary. An OCMI may not authorize fewer mates than provided within this statutory section.

2. Master, Mate, Or Engineer License Requirement.

46 U.S.C. 8304 requires persons serving as master, mate, or engineer on any vessel operating on the high seas (e.g., operating beyond the boundary line) of 200 gross tons or over to hold a license appropriate for the route and tonnage of the vessel.

3. Working Conditions And Watch Requirements.

46 U.S.C. 8104 has a number of subsections concerning working conditions and watch requirements that may result in a higher number of mates being assigned than might otherwise be required by 46 U.S.C. 8301.

- a. Section 8104(a) requires a minimum rest period for the officer in charge of the navigation watch upon a vessel's departure from port or immediately after the vessel departs. A sufficient number of mates must be assigned to ensure all in-port duties may be accomplished safely and a rested crew is available for departure. 46 CFR 15.11 also provides rest hour provisions for vessels operating beyond the boundary line.
- b. Section 8104(b) provides that licensed individuals on a seagoing vessel of not more than 100 gross tons may not be required to work more than 12 hours in a 24-hour period at sea. The Coast Guard through regulation requires manning levels to ensure no licensed individual on an inspected vessel subject to this section would be required to work more than a 12 hour day. Under 46 CFR 15.810, a licensed mate is normally required in addition to the master. If the voyages do not exceed 12 hours in duration, the OCMI has the discretion to determine if the vessel can be safely operated without a licensed mate. The extent of the master's duties in port should be considered when making this determination. If no mate is required and the vessel operates more than 12 hours in a 24-hour period then an alternate crew must be provided to ensure safe operation while the vessel is underway.
- c. Section 8104(c) provides that licensed individuals and unlicensed seamen on Great Lakes towing vessels can not be required to work more than 8 hours in a day.

- d. Section 8104(d) provides that the licensed individuals and certain unlicensed crew positions on seagoing and Great Lakes vessels of more than 100 gross tons must be divided into at least three watches. Therefore, unless the master also stands watch, at least three mates would be required on such vessels. Section 8104(g) modifies this requirement in that it allows a 2-watch system for the licensed individuals and certain crewmembers on seagoing towing vessels, OSVs, and barges engaged on voyages of less than 600 nautical miles.
- e. Sections 8104(k) and (l) require either a 3-watch or 2-watch system for certain fish processing vessels based on inspection requirements, gross tonnage and service entry dates. Section 8104(m) exempts certain fish processing vessels from the above watch system requirements. (See chapter 24 for watchkeeping arrangements and workhour limits; also see chapter 26 for uninspected fishing industry vessels manning requirements.)
- f. Section 8104(n) limits a licensed individual or seamen on a tanker from working more than 15 hours in any 24-hour period. In effect, section 8104(n) imposes an average work limit of 12 hours in a 24-hour period for licensed individuals or seamen on tankers. OCMI should particularly take this factor into account in establishing tanker manning. (See detailed discussion of workhour limits in chapters 22 and 26 of this volume.)
- g. Section 8104(o) imposes a 3-watch or 2-watch system for fish tender vessels engaged in the Aleutian trade depending on gross tons and entry date or purchase date to serve in the trade.

D. Engineers.

Under 46 U.S.C. 8301, a licensed engineer must be employed aboard every seagoing vessel of 300 or more gross tons (GT), propelled by machinery, that carries freight or passengers. Further, section 8304 requires persons serving as engineer on most seagoing vessels of 200 gross tons or over to hold a license. Although 46 U.S.C. 8101 does permit discretion in establishing a manning scale, the following limitations must be strictly observed in exercising this discretion:

1. Inspected Oceangoing Or Coastwise Vessels Of 200 GT And Above.
Taking into account the applications of 46 U.S.C. 8104(d) and 8304(c), the requirements are as described in paragraph 22.D. Unless the vessel is automated, there should be at least three licensed engineers assigned to seagoing vessels of more than 100 gross tons to be divided into at least three watches per 46 U.S.C. 8104(d).
2. Oceangoing Or Coastwise Vessels Of Less Than 200 GT (Not Subject To 46 U.S.C. 8301).
None required by statute. However, if engineers are assigned for manual operation of the propulsion plant, there should be at least three licensed engineers assigned to seagoing vessels of more than 100 gross tons to be divided into at least three watches per 46 U.S.C. 8104(d).

3. Inspected Inland Vessels Of 300 Or More GT.

The number of licensed engineers required must be at least one. Although not required by law, typically an individual licensed as chief engineer or a license authorizing service as chief engineer (e.g., designated duty engineer) should be assigned. [46 CFR 15.820(a)(3)]

4. Inspected Inland Vessels Of Less Than 300 GT.

The scale may vary, from no requirement to a number adequate for the safe operation of the propulsion plant as determined necessary by the OCMI.

Automated engineering systems must meet the criteria of 46 CFR 62, Navigation and Vessel Inspection Circulars (NVICs) 1-69, 1-78, or 6-84, and the provisions of chapter 25 of this volume. [NOTE: Aboard non-seagoing vessels less than 200 gross tons, a licensed chief engineer is not required. Aboard such vessels, the grade(s) of licensed engineer(s) required by the OCMI shall be commensurate with the vessel's route, the complexity of the engineering plant, and watch system requirements.]

E. Operator Of Uninspected Towing Vessels (OUTV).

46 U.S.C. 8904 requires towing vessels, 26' and over, to be operated by an individual licensed by the Secretary of Transportation to operate that type of vessel. While a number of master and mate licenses may also authorize an individual to operate uninspected towing vessels, the particular license created to meet this statutory requirement is the "Operator of Uninspected Towing Vessels" (OUTV) license. The OUTV license authorizes an individual to operate towing vessels of any tonnage on the Great Lakes and Inland Waters and seagoing towing vessels of less than 200 gross tons. (See chapters 24, and 26 for further discussions.)

1. Section 8104(h) states that, for towing vessels that are required to have a licensed operator under section 8904, "an individual licensed to operate a towing vessel" may not work for more than 12 hours in a consecutive 24-hour period. The Coast Guard regulations at 46 CFR 15.705(d) interpret this statutory provision to permit the licensed operators to be divided into two watches.
2. 46 U.S.C. 8304 implements the Officer's Competency Certificates Convention, 1936. It requires individuals serving as master, mate, or engineer on seagoing vessels of 200 gross tons and more to have licenses issued which authorize service in those capacities. Seagoing towing vessels of 200 gross tons and more would therefore require licensed masters and mates, rather than OUTVs. The licensed individuals on such vessels, would be subject to the three watch rule because they are considered licensed individuals under section 8104(d). These licensed individuals could be divided into two watches when on voyages of less than 600 nautical miles, as allowed by section 8104(g).
3. 46 U.S.C. 8104(d) requires that "licensed individuals" and certain unlicensed crew positions are to be divided, at sea, into at least three watches (except that, when a towing vessel is on a voyage of less than 600 nautical miles, section 8104(g) permits the licensed individuals and certain crewmembers to be divided into two watches).

F. Operator Of Uninspected Passenger Vessels (OUPV).

46 U.S.C. 8903 requires an uninspected passenger vessel to be operated by a licensed individual as prescribed by regulation. 46 CFR 15.605 requires each self-propelled uninspected passenger vessel to be under the "direction and control" of a licensed individual. The intent is that the vessel must be under the physical control or direct supervision of a licensed individual. 46 U.S.C. 8104(b) provides that licensed individuals on oceangoing vessels of not more than 100 gross tons "may not be required" to work more than 12 hours in a 24-hour period while at sea. Licensed individuals serving as OUPV may voluntarily work more than 12 hours in a 24-hour period. However, OCMI's should strongly encourage uninspected passenger vessels operating in excess of 12 hours to have at least two licensed individuals assigned to prevent fatigue. It has been suggested by some operators that a qualified seaman could be left at the helm while the licensed operator sleeps close by. This position is untenable. As noted above, 46 U.S.C. 8903 mandates the vessel be operated by a licensed individual; the Coast Guard does not have the discretion to allow any unlicensed seaman to control the vessel without supervision. (See chapters 24 and 26 for further discussion regarding working conditions for these vessels.)

G. Pilots.

46 U.S.C. 8502 requires a coastwise seagoing vessel to be under the direction and control of a pilot licensed by the Coast Guard when underway on U.S. navigable waters. A coastwise seagoing vessel, generally means one which is carrying or authorized by its documentation to engage in trade between one U.S. port and another. (See chapter 11 for detailed discussion of pilotage requirements.)

H. Radar Observers.

All deck officers (including the master) aboard radar-equipped inspected vessels of 300 or more GT are required by 46 CFR 15.815 to be qualified as "radar observers."

I. Radio Officers.

The requirements for various items of radio communications equipment are basically controlled by the Federal Communications Commission (FCC). Primary attention must be given to radiotelegraph officers, who are licensed by the FCC and the Coast Guard (see 46 U.S.C. Chapter 71 and Section 7318); the requirement for such persons shall be noted on the vessel's Certificate of Inspection (COI). [NOTE: This is considered only a reinforcement of FCC authority.] On smaller vessels, radiotelephone installations are permitted; as radiotelephone operators are licensed solely by the FCC, their presence is not required on the COI (FCC requirements for equipment and personnel qualifications are contained in Title 47, CFR).

1. Oceangoing And Coastwise Vessels.

Generally, cargo (non-passenger) vessels of 1600 or more GT, and passenger vessels regardless of size (unless otherwise exempted), on ocean or coastwise routes must have in their complement a licensed radiotelegraph officer (see 46 U.S.C. 8101 and Chapter IV of the International Convention for the Safety of Life at Sea (SOLAS), 1974). 47 CFR 83.480 specifies a general exemption of the requirement for a radiotelegraph station for vessels of over 1600 GT, when navigated on domestic voyages within 150 nautical miles of the coast of the 48 contiguous United States, provided certain equipment requirements are satisfied. Ships meeting this exemption will have their FCC certificates annotated to reflect this fact. In such cases, the COI may be endorsed to remove the radio officer; however, it shall be noted the users of the radiotelephone must then possess the appropriate FCC license.

2. Great Lakes Vessels.

The controlling authority for radio operators aboard Great Lakes vessels is the "Agreement for the Promotion of Safety of the Great Lakes by Means of Radio Between the United States and Canada" (3 U.S.C. 4926). This treaty came into force on 13 November 1954. The Great Lakes Agreement and FCC regulations require licensed radio operators only to be aboard those vessels equipped with and making use of radiotelegraph installations. A vessel equipped with a radiotelegraph may be operated without a radio operator aboard, provided the installation is not used. However, such a vessel must be equipped with an approved radio-telephone installation, subject to FCC regulations, and must carry crewmembers licensed for its operation. As enforcement of the treaty and the regulations promulgated thereunder is a function of the FCC, the COI does not require a vessel to carry an FCC-licensed radiotelephone operator.

3. Global Maritime Distress And Safety System (GMDSS).

The 1989 amendments to SOLAS introduced requirements for the installation of GMDSS. FCC has promulgated regulations for implementation of this system, which is considered a significant improvement in search and rescue radio-communications. GMDSS requires individuals to be qualified and certificated to operate and maintain the system. Internationally, GMDSS becomes mandatory for all SOLAS ships on 1 February 1999, but may be voluntarily installed early in place of existing radiotelegraph installations.

