

Secondary Legislation

Part 3E:

Maritime (Design, Construction, and Equipment – Machinery and Ancillary Equipment) Rules [year]

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Part 3E: Maritime (Design, Construction, and Equipment – Machinery and Ancillary Equipment) Rules

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Subpart A General

Section 1 Preliminary provisions

A1.1 Title

This Part may be cited as *Part 3E: Maritime (Design, Construction, and Equipment – Machinery and Ancillary Equipment) Rules [year]*

A1.2 Commencement and revocation

- (1) This Part comes into force on [].
- (2) [List current relevant 40-series Parts/provisions] are revoked.

A1.3 Application

- (1) This Part applies to the design and construction of—
 - (a) New Zealand ships that are commercial ships; and
 - (b) on-board machinery and ancillary equipment.
- (2) However, this Part does not apply to a ship to which any of the following Parts apply:
 - (a) a ship to which *Part 2A: Maritime (Design, Construction, and Equipment – SOLAS Ships) Rules* applies;¹
 - (b) a ship to which *Part 404: Design, Construction, and Equipment – New Zealand Cape Town Vessels and Foreign Cape Town Vessels* applies;
 - (c) a ship to which *Part 40G: Design, Construction, and Equipment – Novel Ships* applies;
 - (d) a ship to which *Part 40F: Design, Construction, and Equipment – Hovercraft* applies.
- (3) The Schedule contains provisions relating to how this Part applies to existing ships.
- (4) In this Part, a reference to a ship includes a reference to a barge only with persons on board during the course of a voyage except for rule C7.6, subject to subrule (5).
- (5) Rule 7.6 applies to a barge with no persons on board.

A1.4 Certification

A ship and its machinery and ancillary equipment must be certified for compliance with this Part in accordance with *Part 1A: Maritime (Design, Construction, and Equipment - Survey and Certification) Rules*.

A1.5 Transitional and savings provisions

The transitional, savings, and related provisions set out in the Schedule have effect according to their terms.

Section 2 Interpretation

A2.1 Conflict

- (1) If there is a conflict between this Part and an MTI, this Part applies.
- (2) This Part does not limit or affect the *Health and Safety at Work Act 2015*.

A2.2 References to rules and MTIs

- (1) Where a rule in this Part contains a reference to a rule in another Part, the reference includes the Part number as the prefix to the reference.
- (2) A reference, in this Part, to a rule includes any MTI provided for in the rule.

¹ Note that Parts 1A and 2A will be consulted on in 2024/25

- (3) A reference in a rule in this Part to an MTI is a reference to an MTI as amended or replaced from time to time.
- (4) An MTI is secondary legislation (see Part 3 of *the Legislation Act 2019* for publication requirements).

A2.3 Definitions

In this Part, unless the context otherwise requires,—

Act means the *Maritime Transport Act 1994*

auxiliary machinery space means a machinery space that contains any of the following:

- (a) internal combustion machinery for purposes other than main propulsion where the aggregate total power output of the machinery space is less than 375 kW;
- (b) electrical equipment when such equipment within the space has an aggregate total power of 30 kVA or more;
- (c) an oil fuel pump, oil fuel filter or oil fuel separator, not being an oil fuel unit;
- (d) any solid fuel-fired boiler

barge means any barge, lighter, or similar ship that has no means of self-propulsion

boat has the same meaning as ship

Certificate of Survey means a certificate issued by a surveyor in accordance with *Part 1A: Maritime (Design, Construction, and Equipment - Survey and Certification) Rules*

Certificate of Surveyor Recognition—

- (a) has the meaning set out in *Part 44: Surveyor Responsibilities and Survey, Certification, and Maintenance for Ships in Maritime Transport Operations*; and
- (b) includes any document that is deemed under *Part 44* to be a valid Certificate of Surveyor Recognition

coastal limits has the meaning set out in *Part 20 – Operating Limits*

commencement date means the date specified in rule A1.2

commercial ship has the meaning set out in section 2(1) of the Act

crew has the meaning set out in section 2(1) of the Act

Director has the meaning set out in section 2(1) of the Act

electrical equipment means any equipment that uses, or is designed or intended to use, electricity, and includes electrical appliances

engine space means a space that contains machinery

existing ship is a ship other than a new ship

fishing ship means a ship that is required to be registered under the *Fisheries Act 1996* other than an eel fishing boat

FRP means fibre-reinforced plastic

fuel of flash point less than 60 degrees Celsius means fuel that has been determined to have a flash point less than 60 degrees Celsius using the closed cup test

inshore fishing limits has the meaning set out in *Part 20 – Operating Limits*

length overall means the length of the ship measured from the foreside of the head of the stem to the aftermost part of the transom or stern of the ship and—

- (a) includes structures such as deckhouses that project beyond those terminal points; but
- (b) does not include fittings such as beltings, bowsprits, platforms, pulpits and booms that project beyond those terminal points

load line length has the meaning set out in *Part 2C: Maritime (Design, Construction, and Equipment – Load Lines) Rules*²

like-for-like, in relation to repairs or replacements means—

- (a) the replacement of equipment or materials for equipment or materials that are similar in design, function, use, and maintenance, whether or not they are from the same manufacturer; and
- (b) no additional alteration or modification of existing finishes or fixtures is required to install and occupy the same or similar footprint as the original equipment or materials

LLL means load line length

LOA means length overall

machinery space of Category A means a space, and trunk to such space, that contains—

- (a) internal combustion machinery used for main propulsion; or
- (b) internal combustion machinery used for purposes other than main propulsion where the machinery has in the aggregate a total power output of not less than 375 kW; or
- (c) any oil-fired boiler or oil fuel unit

major alteration—

- (a) means an alteration or repair to the design or construction of a ship and its structure, systems, equipment or fittings, specified in an MTI; and
- (b) includes the replacement, removal or addition of non-permanent parts; and
- (c) does not include direct like-for-like repairs or replacements of parts

major fire hazard area has the meaning set out in *Part 3D: Maritime (Design, Construction, and Equipment – Fire Protection) Rules*³

manufacturer's certificate is a certificate issued by the manufacturer of piping

maritime transport instrument means a transport instrument made by the Director for the purposes of this Part or any other Part, under section 452B of the Act

MTI means a maritime transport instrument

new ship means a ship that has its keel laid or that is at a similar stage of construction on or after the commencement date [and includes second-hand ships entering service in New Zealand after commencement date]

New Zealand ship has the meaning set out in section 2(1) of the Act

non-portable fuel tank means a fuel tank integral to the hull structure of a ship, or a fixed-in-place tank fitted to or permanently located on a ship

operator has the meaning set out in section 2(1) of the Act

Part means a group of rules made under the Act

passenger has the meaning set out in section 2(1) of the Act

PVC means polyvinyl chloride

recognised classification society means a classification society specified in an MTI

[See 6.2\(5\) of the MTI](#)

restricted coastal limits has the meaning set out in *Part 20 – Operating Limits*

restricted limits has the meaning set out in *Part 20 – Operating Limits*

² Note that Part 2B will be consulted on in 2024/25

³ Note that Part 3D will be consulted on in 2024/25

rigid air chamber means a buoyant compartment that is sealed watertight and contains air that is intended to be counted as part of the reserve buoyancy and—

- (a) made independent of the ship's structure; or
- (b) integral in the ship structure but is—
 - (i) too small to allow physical periodic inspection of the interior; and
 - (ii) not connected to the bilge system of the ship

sailing ship means a commercial ship that—

- (a) is designed to be navigated under wind power and for which any motor provided is an auxiliary means of propulsion only; or
- (b) possesses a non-dimensional ratio of (sail area/(volume of displacement)^{2/3} of more than 9

scope of certification, in relation to a ship, means the ship's category, activity, type, operating limits, minimum crew, maximum number of passengers on board, maximum number of people on board, and maximum cargo capacity

ship has the meaning set out in section 2(1) of the Act

For ease of reference, "ship" means every description of boat or craft used in navigation, whether or not it has any means of propulsion and includes—

- (a) a barge, lighter, or other like vessel:
- (b) a hovercraft or other thing deriving full or partial support in the atmosphere from the reaction of air against the surface of the water over which it operates:
- (c) a submarine or other submersible.

standard has the meaning set out in section 4(1) of the *Standards and Accreditation Act 2015* and includes other material incorporated by reference under section 452 of the Act

surveyor means a person who holds a current Certificate of Surveyor Recognition under *Part 44: Surveyor Responsibilities and Survey, Certification, and Maintenance for Ships in Maritime Transport Operations*

voyage has the meaning set out in section 2(1) of the Act and, for the purposes of this Part, a ship that is a barge is not on a 'voyage' if—

- (a) a person is on board only for the purpose of securing a mooring line so that the barge can be securely docked; or
- (b) the barge is secured with studs or anchors to the bed of the sea, river or lake; or
- (c) the barge is secured by means of cables, ropes or chains, to the land

watertight means capable of preventing the passage of water through the structure in any direction under a head of water for which the surrounding structure is designed

weathertight means that in any sea conditions water will not penetrate the ship

Subpart B Responsibilities

B1.1 General responsibilities of operators to ensure compliance, inspection, and testing

An operator must ensure that a ship's machinery and ancillary equipment comply with the requirements in this Part.

B1.2 Maintenance, testing, and inspection

An operator must ensure that the machinery and ancillary equipment on a ship are tested and inspected to the satisfaction of a surveyor before—

- (a) entering into service (if it is a new ship); and
- (b) re-entering service (if it is a ship that has undergone a major alteration).

B1.3 Major alteration or change to scope of certification

An operator must ensure that a ship undergoes the appropriate survey if, as specified in *Part 1A: Maritime (Design, Construction, and Equipment - Survey and Certification) Rules*,—

- (a) a major alteration is made to the ship; or
- (b) there is a change to the scope of certification.

B1.4 Responsibilities of surveyors

A surveyor must not certify a ship under *Part 1A: Maritime (Design, Construction, and Equipment - Survey and Certification) Rules* if they believe on reasonable grounds that the ship does not comply with this Part.

B1.5 Functions and powers of Director

The Director may impose requirements and conditions as to the performance of survey and testing activities under this Part.

Subpart C Ship requirements

Unless specified in the provisions, a reference to an MTI in Subparts B and C is a reference to an MTI for machinery. Note that Sections in the MTI correspond with Sections in this Subpart C and general enabling clauses refer to the MTI. For the purposes of consultation, references to specific clauses in the MTI are included in boxes under specific enabling clauses.

Section 1 General requirements for machinery and ancillary equipment

C1.1 General requirements for machinery and ancillary equipment

- (1) A ship must comply with the requirements in this Part (including the design, construction, and installation standards specified in an MTI).
- (2) A ship must have machinery and ancillary equipment that are properly maintained and arranged so they efficiently carry out their function and persons in the immediate vicinity are protected from moving parts, excessive heat, flammable vapours, and other hazards.

Section 2 Arrangements for ascertaining liquid quantity in tanks and watertight compartments

C2.1 General requirements for ascertaining liquid quantity

A ship must have a means for readily ascertaining the quantity of liquid within—

- (a) a non-portable tank; and
- (b) a watertight compartment that is not readily accessible at all times, on a ship of 24 metres or more in LLL.

C2.2 Type, design, and location of arrangements for ascertaining liquid quantity

- (1) The type, design, and location of arrangements for complying with rule C2.1 must comply with the requirements specified in an MTI.

Sounding pipes

- (2) If a sounding pipe is fitted as a means of complying with rule C2.1—
 - (a) the upper end of the sounding pipe must be extended—
 - (i) to a readily accessible position above the tank top; and
 - (ii) where practicable, above the working deck or bulkhead deck; and
 - (b) a doubling pad must be placed below the sounding pipe for the sounding rod, or sounding tape, to strike upon; and
 - (c) the openings of the sounding pipe must be provided with a permanently attached means of closing.
- (3) A sounding pipe that does not extend above the working deck or bulkhead desk must be fitted with a closing cock or an automatic self-closing device.

Other means of ascertaining liquid quantity

- (4) A means other than a sounding pipe, such as a level gauge or remote reading level device, may be used for complying with rule C2.1.
- (5) Where the amount of fuel contained in a fuel tank is to be ascertained by a sight glass made of glass or plastic, the gauge must be—
 - (a) protected with a metal case; and
 - (b) fitted with an automatic closing valve at each end of the gauge.

Section 3 Fuel systems and fuel tanks

C3.1 General requirements for fuel systems and fuel tanks

Fuel systems and fuel tanks on a ship must be designed, constructed, and installed—

- (a) to prevent the spillage of fuel in both normal and abnormal operating conditions; and
- (b) to prevent the build-up of explosive fumes; and
- (c) to avoid potential sources of ignition that might ignite those fumes arising from the proximity of machinery or other sources of ignition.

C3.2 Type, design, and location of fuel systems

- (1) The type, design, and location of a fuel system on a ship must comply with the requirements for fuel piping and fuel storage specified in an MTI.

Remote controls

- (2) A fuel oil transfer pump must be fitted with a remote control situated outside the space in which it is located so that it can be stopped in the event of a fire.

Inspection opening

- (3) A non-portable fuel tank, unless it is of the freestanding type and less than 800 litres capacity, must be fitted with an inspection opening to facilitate cleaning and inspection.

Fuel piping

- (4) If a ship has a machinery space in which a fuel feed pipe is present, that pipe must be fitted with a valve or cock—
 - (a) as close as possible to the fuel tank; and
 - (b) that can be closed from a position outside the machinery space.
- (5) A vent pipe fitted to a non-portable fuel tank must be installed with a roll-over safety valve, appropriate for its use, fitted as near as practical to the top of the tank, if the tank—
 - (a) holds fuel of flash point less than 60 degrees Celsius; and
 - (b) is fitted on a ship that has a planing hull; and
 - (c) is on a ship of less than 12 metres in LOA.
- (6) A fuel tank filling pipe and a vent pipe must be constructed of fuel-compatible, fire-resistant, non-kinking material and be of sufficient dimensions to prevent spillage during filling.
- (7) A fuel pipe must be adequately supported along its entire length, particularly in the way of pipe connections, with consideration being given to vibrations and the movement of fuel tanks or machinery.
- (8) In a fuel supply system, short lengths of flexible fuel pipes may be used where necessary to allow for relative movements and vibration between fuel tanks and fixed fuel pipes, or fuel consumers and fixed fuel pipes.
- (9) On a ship propelled by an outboard propulsion engine fuelled by petrol or diesel, a flexible fuel pipe may be used provided that the pipe does not run through a machinery space or a major fire hazard area.
- (10) For the purposes of subrules (8) and (9), if flexible fuel pipes are present, they must be fire-resistant, metal-reinforced, or otherwise protected from fire and be manufactured in accordance with standards specified in an MTI.

See clause 3.2(1) and (2) of the MTI.

- (11) The fuel filler cap must provide a secure watertight seal.

Fuel storage and pump requirements

- (12) Fuel must not be—
- (a) carried forward of the collision bulkhead; and
 - (b) stored in tanks integral with the hull structure if it has a flash point below 60 degrees Celsius; and
 - (c) able to come into contact with a heated surface, in the event that it escapes from a tank, piping, or fitting.
- (13) A pump forming part of the fuel system must be separate from all other systems.

Portable fuel tanks

- (14) A portable fuel tank must—
- (a) have a capacity of 25 litres or less; and
 - (b) be adequately secured in place in an open or a well-ventilated space where the tank can be readily jettisoned and any spillage will drain overboard.
- (15) A portable fuel tank must be manufactured in accordance with a standard specified in an MTI.

[See clause 3.2\(2\) of the MTI](#)

Non-portable fuel tanks

- (16) A safe detector of hydrocarbon gas must be fitted under or adjacent to a non-portable fuel tank on a ship where the possibility of accumulation of hydrocarbon vapours exists and where a source of ignition may be present.
- (17) A non-portable fuel tank on a ship must—
- (a) have safe and efficient means to ascertain the amount of fuel contained in the tank; and
 - (b) be constructed to prevent overpressure; and
 - (c) have vents and filling connections located in a safe open-air position; and
 - (d) have a flash-proof fitting on the tank vent opening to protect the vent pipe from sources of ignition.
- (18) A non-portable fuel tank on a ship supplying fuel with a flash point below 60 degrees Celsius must, if a section of the fuel tank filling pipe is a non-conductor of electricity, be joined by a conductor for protection against static spark when filling.
- (19) A non-portable thermoplastic fuel tank must not be fitted in a machinery space of Category A.
- (20) A fixed-in-place fuel tank fitted on a ship, must be constructed of—
- (a) mild steel; or
 - (b) stainless steel; or
 - (c) aluminium alloy; or
 - (d) FRP; or
 - (e) thermoplastic.
- (21) A fixed-in-place fuel tank constructed of thermoplastic must—
- (a) not exceed a capacity of 400 litres; and
 - (b) be constructed in accordance with a standard specified in an MTI.

[See clause 3.2\(3\) of the MTI](#)

- (22) An integral fuel tank may be fitted on a ship, if the fuel tank—
- (a) is constructed of mild steel, stainless steel, aluminium alloy, or FRP; and
 - (b) is tested to a pressure of 0.3 bar.

Section 4 Steering gear

C4.1 General requirements for steering gear

- (1) A ship must have an efficient and effective means of steering.
- (2) The steering system must be capable of reliably—
 - (a) altering the ship's heading at a rate appropriate for the navigational hazards that might be expected in normal and abnormal operating conditions; and
 - (b) holding or returning the ship's heading to a given course to counteract the effects of wind, current, and waves.
- (3) The rudder, steering nozzle, or other directional control device must have sufficient strength to meet the demands of service in both ahead and astern operation, and in normal and emergency situations, and must comply with the following requirements:
 - (a) the steering gear must be designed to withstand maximum helm at maximum ahead and astern speeds:
 - (b) the steering position must be located where the helmsperson has a clear view for the safe navigation of the ship under all operating conditions:
 - (c) where a rudder is power operated, the angle of the rudder must be indicated at the steering position:
 - (d) indicators showing whether the motors of electric and electrohydraulic steering gear are operating must be installed at the steering position:
 - (e) the rudder and rudder stock construction materials, overall design (including tiller head attachments, bearings, and pintles), and the supporting structures, where fitted, must be adequate for the operating conditions of the ship.

C4.2 Type and design of steering gear

- (1) The type and design of steering gear on a ship must comply with the requirements in an MTI.

Steering controls run through a networked control system

- (2) Subrule (3) applies to an on-board control system or an on-board monitoring system that is essential for the safe operation of a ship.
- (3) If a data network forms part of the system,—
 - (a) the network must be used exclusively for that system; and
 - (b) data loss or overload of the network must not result in the loss of the ability to operate controls and alarms essential for the safe operation of the ship; and
 - (c) if a control system or monitoring system (or both) malfunction, including a main or alternative power supply failure, the network must operate a visual and audible alarm at the helm; and
 - (d) the system must be provided with a main and an alternative power supply.

Emergency steering

- (4) Emergency steering must be capable of steering the ship at navigable speed and of being brought readily into action in an emergency.
- (5) If steering gear is fitted with remote control, including a mechanical, hydraulic, or electrical linkage, arrangements must be made for an emergency means of actuating the steering in the event of failure of the remote control.

- (6) For the purposes of subrule (5), the emergency means for actuating the rudder must be—
 - (a) capable of putting the rudder over from 15 degrees on one side, to 15 degrees on the other side, in not more than 60 seconds with the ship running at one-half of its maximum service speed ahead; and
 - (b) operated by power where the requirements in paragraph (a) are unable to be complied with through manual operation of the emergency steering gear.
- (7) A means of communication must be provided between the main steering position and emergency steering position to enable safe navigation of the ship when operating the emergency steering.
- (8) Emergency steering is not required on the following ships:
 - (a) a twin propulsion ship if it can manoeuvre adequately on both engines:
 - (b) a ship where the main steering gear is comprised of 2 or more identical power units and the main steering gear is capable of fully operating the rudder when any 1 of the units is out of operation.
- (9) The main steering gear power units, where arranged in accordance with subrule (8)(b), and any means of emergency steering, must be independently powered and so arranged that a failure in 1 unit will not render the other inoperative.

Section 5 Main and auxiliary machinery

C5.1 General requirements for main and auxiliary machinery

- (1) Machinery installations and systems on a ship must be arranged to—
 - (a) facilitate their proper operation and maintenance; and
 - (b) protect the health and safety of persons on board the ship, in the immediate vicinity, from moving parts, excessive heat, flammable vapours, and other hazards.
- (2) Machinery on a ship must be—
 - (a) designed, constructed, and installed to control the risk of fire or explosion; and
 - (b) secured to the ship's structure in such a manner as to prevent injury to persons on board the ship, damage to machinery or structure, or excessive vibration.
- (3) A main engine or an auxiliary engine on a ship must be—
 - (a) designed and manufactured specifically for marine use; or
 - (b) adapted for marine use.

C5.2 Type and design of main and auxiliary machinery

- (1) The type and design of main and auxiliary machinery must comply with the requirements in an MTI.
- (2) Main machinery and auxiliary machinery that is essential to the propulsion and the safety of a ship must be designed to operate when the ship—
 - (a) is upright; or
 - (b) is inclined at any angle of heel and trim up to and including 15 degrees of heel and 7.5 degrees of trim.
- (3) If an engine draws its combustion air from a machinery space on a ship, the machinery space must have sufficient engine combustion air, for as long as the engine is running, to ensure the machinery can operate at maximum power within the space and without adversely depressurising the space.

- (4) It must be possible to disperse heat radiated from machinery on a ship—
 - (a) so that the temperature within the machinery space is maintained at a level comfortable for the crew; and
 - (b) to prevent machinery, equipment, and structures that are sensitive to heat, from exceeding temperature limits.
- (5) Drip trays must be fitted, where necessary, to prevent oil leaking into bilges.

Main machinery

- (6) Main machinery and controls on a ship must be designed, constructed, and installed to provide and maintain control over the ship's motion in both normal and abnormal operating conditions.
- (7) The main machinery on a ship must be designed, constructed, and installed so that the primary means of starting does not rely on aid external to the ship.
- (8) If the sole means of starting the main machinery on a ship is by battery, it must comply with *Part 3F: Maritime (Design, Construction, and Equipment – Electrical) Rules*.⁴
- (9) If the power available for propulsion exceeds 5 kW, a ship must have sufficient astern power to enable manoeuvrability under normal operating conditions.
- (10) If a main engine in a ship is located in a space that is not readily accessible from a permanently manned control station, a manual mechanical means must be provided—
 - (a) to enable the engine to be quickly shut down from a location outside the engine space; and
 - (b) that is capable of operating when exposed to flame and heat from a fire within the engine space.

Engine exhaust

- (11) An engine exhaust system on a ship must be arranged and constructed to discharge the products of combustion while—
 - (a) protecting the health and safety of persons on board the ship; and
 - (b) maintaining the watertight integrity of the ship.
- (12) Main and auxiliary machinery exhaust pipes and other hot surfaces exceeding a temperature of 200 degrees Celsius must be insulated and—
 - (a) kept well clear of woodwork or other combustible materials; or
 - (b) fitted with a radiation guard to prevent heat transfer to woodwork or other combustible materials and to protect persons on board.

Alarms

- (13) An engine that is essential for the safe operation of a ship must have audible or visible alarms fitted at a continuously manned control station to indicate abnormal conditions to crew.
- (14) Subrule (13) does not apply in the case of an engine that has propulsion power below 120 kW.

Skylights and other windows

- (15) Glass, acrylic, or similar materials must not be fitted in machinery space boundaries.

C5.3 Inboard petrol engine

- (1) A ship that uses 1 or more inboard spark-ignition (petrol) engine as its primary means of propulsion power must not—
 - (a) carry more than 12 persons on board; and
 - (b) proceed beyond restricted limits or inshore fishing limits.

⁴ Draft Part 3F will be consulted on in 2024/25

- (2) A ship, other than a sailing ship, may be fitted with an inboard spark-ignition (petrol) engine if—
- (a) the engine has electronic fuel injection; and
 - (b) the engine is located in a space that complies with applicable requirements in *Part 3D: Maritime (Design, Construction, and Equipment – Fire Protection) Rules*⁵; and
 - (c) the engine space is ventilated with a powered ventilation system before the engine is started and during the operation of the engine; and
 - (d) electrical devices within the engine and tank compartments have protection against ignition of surrounding flammable gases; and
 - (e) a flexible hose used between the engine and a solidly mounted metallic line to eliminate vibration failure is made of fire-resistant fuel hose; and
 - (f) the equipment specified in paragraphs (c) to (e) comply with a standard specified in an MTI.

See clause 5.2 of the MTI.

Petrol engine compartments

- (3) A ventilation and exhaust system for a compartment on a ship, containing an engine using or fuel tank containing petrol with a flash point below 60 degrees Celsius, must be non-sparking and flame-proof with each duct opening located away from sources of vapour ignition.
- (4) An exhaust fan for a compartment on a ship, containing an engine or fuel tank using petrol with a flash point below 60 degrees Celsius, must be interlocked with the engine ignition switch so that the fan is in operation for sufficient time to ensure at least 1 complete change of air in the compartment before the engine ignition is switched on.

C5.4 Outboard petrol engine

- (1) A ship that is not fitted with an in-board petrol engine and that is fitted with 1 or more outboard spark-ignition (petrol) engine must not proceed beyond restricted coastal limits.
- (2) Any ship that is fitted with 1 or more outboard spark-ignition (petrol) engine must—
- (a) have each engine securely fastened to the hull; and
 - (b) provide each engine with an effective safety chain or cable, if the engine or engines are not permanently secured; and
 - (c) have effectively drained engine wells that are long enough for the engine or engines to be tilted up.
- (3) An outboard engine that is tiller controlled must have either—
- (a) an engine kill switch with a lanyard attachment (kill cord); or
 - (b) a sprung-loaded throttle to return to idle.

C5.5 Restriction on installation of ammonia plant

Ammonia plant must not be installed in a manned machinery space in a ship.

C5.6 Sailing ships - requirements for auxiliary engines

- (1) A sailing ship must be fitted with an engine that provides sufficient power for use as an auxiliary means of propulsion.
- (2) If an inboard engine is installed on a sailing ship, the engine must not be a spark-ignition (petrol) engine.

⁵ Draft Part 3D will be consulted on in 2024/25

Section 6 Inlets, discharges, and seawater piping

C6.1 General requirements for inlets, discharges, and seawater piping

- (1) The number of openings below the weather deck in a ship's side must be kept to a minimum.
- (2) Openings through the shell of a ship that are located below the weather deck must have an efficient means of closure fitted as close as possible to the side of the ship.
- (3) An inlet or discharge located below a ship's waterline must be provided with a seacock or valve to control potential water ingress, unless—
 - (a) the internal diameter of the discharge does not exceed 50 millimetres and the lowest point of the discharge is not less than 225 millimetres above the deepest loaded waterline; or
 - (b) the discharge is a scupper discharge that passes through the ship's side from a space above the bulkhead deck, in which case, it may be fitted with a non-return valve instead of a screw-down valve or cock.
- (4) Seawater piping material must be suitable for its intended service taking into account the nature of fluid carried and the location of the piping in the ship.

C6.2 Type and design of valves, openings, piping, and fittings

- (1) The type and design of valves, openings, piping, and fittings must comply with the requirements in an MTI.

Valves, seacocks and fittings

- (2) A seacock or other valve and associated fittings attached to the shell must be of steel, bronze, or other ductile metal, except that a reinforced plastic ball valve may be used on a ship of less than 15 metres in LOA in a space that is not a machinery space.
- (3) A seacock or other valve must—
 - (a) be accessible; and
 - (b) be protected against potential impact damage; and
 - (c) indicate at its control position whether the seacock or other valve is open or closed.

Seawater piping and fittings

- (4) Seawater piping and fittings must be—
 - (a) of sufficient design strength for their purpose; and
 - (b) highly resistant to saltwater, fuel oil, heat, and vibration; and
 - (c) resistant to impact damage; and
 - (d) resistant to erosion, ageing, fatigue, and fluid absorption; and
 - (e) capable of operating under suction without collapse and resultant reduction of its effective cross-sectional area; and
 - (f) compatible with other materials used in the seawater system and in the immediate proximity of the piping.
- (5) In the case of seawater piping made of plastic, the piping must also—
 - (a) be located so as to prevent mechanical damage and prevent contact with hot surfaces; and
 - (b) be arranged so that it is readily accessible for inspection; and
 - (c) comply with the requirements specified in an MTI.

See clause 6.2 of the MTI.

Toilets

- (6) An inlet or discharge pipe that supplies seawater to, or drains water from, a toilet must be—
- (a) looped up within the hull to the highest practicable point below the weathertight deck; and
 - (b) provided with anti-siphon measures, if the rim of a toilet is less than 300 millimetres above the deepest heeled waterline of the ship.

Logs and other sensors

- (7) An opening for a log or other sensor that is capable of being withdrawn must be fitted so that it is watertight, and provided with an effective means of closure when the fitting is removed.

Engine exhausts

- (8) An engine exhaust outlet penetrating the hull below the weather deck must have an effective means to prevent backflooding into the hull through the exhaust system which may be provided by—
- (a) a built-in valve; or
 - (b) a portable fitting that can be readily applied in an emergency; or
 - (c) the design and arrangement of the system.

Flexible piping

- (9) Flexible piping may only be used—
- (a) in lengths of no more than 760 millimetres for vibration damping or to accommodate relative movement of machinery; or
 - (b) in a ship of less than 12 metres in LOA, if—
 - (i) the length of piping does not exceed half the beam of the ship; and
 - (ii) the run of the piping is as direct as practicable; and
 - (iii) the piping is adequately supported.

Section 7 Bilge management

C7.1 General requirements for monitoring and draining watertight compartments

- (1) Rules C7.2 and C7.3 do not apply to—
- (a) an open boat of 6 metres or less in LOA to which rule C7.5 applies;
 - (b) a barge to which rule C7.6 applies;
 - (c) a ship of 45 metres or more in LLL or a ship which applies the rules of a recognised classification society, to which rule C7.7 applies.
- (2) A ship must have an efficient means of removing water from watertight spaces under all practical conditions, whether the ship is upright or listed.
- (3) Bilge piping must be—
- (a) suitable for its intended application and the range of temperatures and conditions that will be experienced in service; and
 - (b) arranged to prevent water passing from the sea into holds or machinery spaces, or from one watertight compartment to another.
- (4) A ship must have a practicable means of detecting water that collects within bilge and watertight compartments.

C7.2 Type and design of bilge system arrangements

- (1) The type and design of bilge arrangements on a ship, including bilge suction, pipes, and strainers, must comply with the requirements in an MTI.

Ships of less than 24 metres in LLL that proceed beyond coastal limits

- (2) On a ship of less than 24 metres in LLL, the bilge system may be arranged with either—
- (a) bilge pump arrangements with or without a manifold; or
 - (b) submersible bilge pumps that are electrically driven.

Ships of 24 metres or more in LLL

- (3) The bilge system on a ship of 24 metres or more in LLL must be provided with a bilge main and manifold that—
- (a) is easily accessible; and
 - (b) provided with non-return valves at the manifold for each branch line.

Ships of 15 metres or more in LOA

- (4) On a ship of 15 metres or more in LOA that proceeds beyond coastal limits, the bilge pumping system must be arranged so that,—
- (a) pumping and draining from every space in the ship is permitted when any 1 watertight compartment (except the propelling machinery space) is flooded; and
 - (b) if necessary, remote control of bilge valves within compartments is from above the bulkhead deck.

Drainage

- (5) A watertight compartment may be drained into an adjacent compartment by means of a self-closing valve or cock if—
- (a) the compartment being drained is less than 7 percent of the total under-deck volume; and
 - (b) the adjacent compartment is served by the bilge system; and
 - (c) the valve or cock is—
 - (i) fitted outside the compartment to be drained; and
 - (ii) operable from a readily accessible position.

Open boats of less than 12 metres in LOA

- (6) An open boat of less than 12 metres in LOA is not required to have bilge drainage arrangements for rigid air chambers constructed of the hull material and integral with the hull or deck structure if—
- (a) the boat complies with *Part 3B: Maritime (Design, Construction, and Equipment - Stability, Drainage, Subdivision and Freeboard) Rules*; ⁶and
 - (b) a means of ascertaining the contents of the rigid air chambers is provided, including for example, a drain plug, bung, or inspection port.

Bilge suction

- (7) A bilge suction pipe must be—
- (a) located at least 20 percent of the breadth of the ship inboard of the ship's sides to avoid damage in the event of a collision; or
 - (b) provided with non-return valves fitted within the space it serves.

⁶ Draft Part 3B will be consulted on in 2024/25

- (8) On a ship of 24 metres or more in LLL that proceeds beyond restricted limits and in which a bilge main is fitted, at least 2 bilge suction must be fitted in the machinery space, of which—
- (a) 1 suction must be connected to the bilge main; and
 - (b) 1 suction must be a direct bilge suction led to an independent powered pump, and so arranged that it can be used independently of the main bilge line suction.
- (9) Bilge suction and submersible pumps must be located to facilitate the drainage of water from within a compartment over a range of list not less than plus or minus 5 degrees.
- (10) Limber holes or other arrangements must be provided to allow water to drain past structural members to bilge suction and submersible pumps.

Avoiding contamination and pollution

- (11) To avoid mixing of liquids, a connected system of pumps installed as part of bilge pumping arrangements must not be connected to tanks designed to carry liquids such as oil, water, or liquid cargo.
- (12) To prevent pollution, a compartment containing potential pollutants including machinery spaces, must not be fitted with bilge pumps that may start automatically.

Valves and connections

- (13) The bilge connection to a pump that also draws from the sea or from water ballast spaces must be—
- (a) a screw-down non-return valve; or
 - (b) a cock that cannot be opened at the same time to—
 - (i) the bilges and to the sea; or
 - (ii) the bilges and the water-ballast spaces.
- (14) A manually operated valve must be readily accessible under normal circumstances.

Plastic bilge piping

- (15) Plastic bilge piping used in a major fire hazard area must comply with the requirements for plastic seawater piping in rule C6.2(4) and (5).
- (16) In a major fire hazard area, a bilge system that uses plastic piping must—
- (a) be arranged so as to prevent the bilge system becoming inoperable due to a single failure in any section of the pipe; and
 - (b) comprise—
 - (i) at least 2 bilge suction widely separated leading to the bilge pump or to a metal manifold; or
 - (ii) if submersible pumps are used, at least 2 separate pumping arrangements.
- (17) Spiral reinforced flexible hose that is made of PVC may be used in a submersible bilge pump system if the hose—
- (a) is fixed in place, suitably supported, and does not pass through a major fire hazard space; and
 - (b) complies with a standard specified in an MTI.

See clause 7.2(2) of the MTI

Bilge pipe size

- (18) The diameter of bilge suction pipes and discharge pipes on a ship must comply with the requirements in an MTI.

See clause 7.2(1) of the MTI

Flexible suction hose bilge systems (wandering hoses)

- (19) Subrules (20) to (22) apply to a ship of less than 12 metres in LOA operating within—
- (a) inshore fishing limits; or
 - (b) restricted limits.
- (20) A flexible suction hose bilge pumping system may be fitted to service a compartment if—
- (a) the pump is permanently mounted; and
 - (b) a compartment that is not a void is installed with a deck-mounted camlock fitting connected to a permanent bilge suction pipe within the compartment.
- (21) A flexible suction hose bilge pumping system must comply with a standard specified in an MTI.
- See clause 7.2(2) of the MTI
- (22) If there is a risk of downflooding in the event that hatches or other weathertight or watertight covers leading to a void compartment are opened, a void compartment must be installed with a deck-mounted camlock fitting, connected to a suction pipe permanently mounted within the compartment.
- (23) A flexible suction bilge pumping system or a spiral reinforced hose that is made of PVC may be fitted to service a compartment if the hose is of sufficient strength not to kink or collapse under suction.

Strainers

- (24) On a ship of 24 metres or more in LLL,—
- (a) a bilge suction in a machinery space must be fitted with a mudbox and a metallic tail pipe; and
 - (b) a bilge suction that is in a space other than a machinery space, must be fitted with a mudbox, a strum box, or a strainer, as appropriate to the ship and the design of the bilge system, except that, if a direct bilge suction pump is fitted that is capable of pumping solids and waste, a strum box or strainer must be fitted; and
 - (c) a mudbox, strum box, or strainer must be accessible for cleaning; and
 - (d) if a strum box or strainer is fitted, the strum box or strainer holes must be no greater than 10 millimetres in diameter and the aggregate area of the holes must be no less than twice the area of the suction pipe.

C7.3 Number, type, and capacity of bilge pumps

- (1) A ship must have the number, type, and capacity of bilge pumps specified in an MTI.
- See clause 7.3(2) of the MTI.
- (2) A ship does not require bilge pumping arrangements if—
- (a) over 90 percent of the space of the under-deck voids is filled with buoyancy material that is secured in place, impervious to water absorption, structurally stable, and chemically inert; and
 - (b) the absence of bilge pumping arrangements does not impair the safety of the ship.

Bilge pump general arrangements

- (3) An independently powered bilge pump may be—
- (a) driven by an auxiliary engine or an electric motor; and
 - (b) used for other services such as deck washing, fire extinguishing, or standby cooling water duty but not for pumping fuel oil or other flammable liquids.

- (4) Where a manually operated bilge pump is specified in an MTI, a powered bilge pump may be provided as an alternative.

See Table 7.1 in the MTI.

- (5) A bilge pump must be self-priming or be provided with a priming device.
 (6) A manually operated bilge pump must be operable from above the weather deck.

Bilge pumping arrangements where a ship has 2 powered bilge pumps (excluding submersible bilge pumps)

- (7) If independent bilge mains are fitted in the hulls of a multi-hulled ship, each independent bilge main must have 2 powered pumps, if the ship is required to have 2 powered pumps.

- (8) Where 2 powered bilge pumps are required in an MTI—

- (a) the powered pumps must not be dependent on the same source of power; and
- (b) the pumps and piping systems must be arranged to allow concurrent operation of the 2 pumps; and
- (c) the capacity of 1 pump may be less than that specified in an MTI by up to 20 percent provided the total required pumping capacity required in an MTI is achieved; and

See Table 7.1 in the MTI.

- (d) on a ship other than a ship that operates within the offshore limits or the unlimited area, 1 of the 2 pumps may be a portable pump that complies with the requirements of subrule (10).
- (9) Subrule 8(a) applies where a powered bilge pump has been substituted for a manually operated bilge pump in accordance with subrule (4).

Portable bilge pump

- (10) A portable bilge pump must be—

- (a) of a type that its suction and discharge hoses are suitable for connection to the pump; and
- (b) capable of operation in the range of normal and abnormal operating conditions that a ship is likely to encounter; and
- (c) able to be operated at full capacity within 5 minutes of flooding becoming known; and
- (d) self-priming; and
- (e) provided with a lanyard or other means of securing it when it is operating or being relocated; and
- (f) stored in a locker marked 'for emergency use only'.

Electrically driven submersible bilge pumps

- (11) A watertight compartment may be drained by 1 or more fixed submersible bilge pumps that are electrically driven instead of a bilge main provided that, if the compartment is the main machinery space, the compartment has at least 1 other means of bilge suction that is not a fixed submersible bilge pump that is electrically driven.

- (12) The capacity of a fixed submersible bilge pump that is electrically driven must comply with the requirements specified in an MTI.

See clause 7.3(3) of the MTI.

- (13) If a ship is fitted with a submersible bilge pump,—
- (a) the submersible bilge pump must be accessible for inspection, removal, or maintenance without the removal of permanent ship structure; and
 - (b) discharge piping arrangements must include at least 1 automatic non-return valve situated at or near the ship's side; and
 - (c) to prevent backflooding, a pipework loop must be taken up to the highest practicable point below the weathertight deck, and be fitted with an anti-siphon device, or a second automatic non-return valve.
- (14) On a ship of 12 metres or more in LOA, a service compartment other than the main machinery space that has only 1 submersible bilge pump fitted, must also have—
- (a) emergency bilge pumping arrangements; or
 - (b) a portable submersible pump that complies with subrule (10).
- (15) The capacity of a portable submersible bilge pump must be equal to or greater than the capacity required for the largest fixed submersible pump in the space in which it is being used.

Electrical requirements applying to fixed and portable submersible bilge pumps

- (16) A fixed or portable submersible bilge pump that is electrically driven, must—
- (a) be extra low voltage; and
 - (b) comply with a standard specified in an MTI; and
- See clause 7.3(4) of the MTI
- (c) if the pump is not in a machinery space, be fitted with a float switch or bilge alarm that automatically operates that pump, and the float switch or bilge alarm must be protected from jamming caused by bilge debris; and
 - (d) be supplied with power on a separately protected circuit from the circuit providing power to the float switch or bilge level alarm; and
 - (e) have a visual alarm at the steering position to indicate when it is running.
- (17) A ship must be provided with main and alternative sources of electrical energy sufficient to operate fixed or portable submersible bilge pumps, that are electrically driven, for the periods specified in *Part 3F: Maritime (Design, Construction, and Equipment – Electrical) Rules*.
- (18) A submersible bilge pump that is electrically driven and operates automatically must be fitted with a manual override switch which can be used if the float switch gets jammed and the automatic function fails.

C7.4 Bilge level alarm

- (1) Subrule (2) applies to—
- (a) a decked ship; or
 - (b) an open boat of more than 6 metres in LOA.
- (2) The ship must be fitted with a bilge level alarm in, as applicable,—
- (a) the propulsion machinery space; and
 - (b) cargo holds and fish holds; and
 - (c) all other compartments that contain seawater piping systems.
- (3) A bilge level alarm must be clearly audible at the steering position or continuously manned control position with the machinery operating under full power conditions.

- (4) A bilge level alarm must be—
- (a) operational whenever there are persons on board the ship; and
 - (b) contained on a separate circuit to the circuits providing power to submersible bilge pumps that are electrically driven.

C7.5 Open boat of 6 metres or less in LOA – bailing bucket

- (1) An open boat of 6 metres or less in LOA may be provided with a bailing bucket instead of complying with rules C7.2 and C7.3, if there is ready access to the bilge for bailing.
- (2) A bucket provided under subrule (1) may also be counted in complying with the requirements for the number of buckets in *Part 3D: Maritime (Design, Construction, and Equipment – Fire Protection) Rules*.

C7.6 Barges with no persons on board

- (1) A barge with no persons on board must comply with the requirements in this Section, except for rules C7.2 and C7.3, and must be provided with a means of pumping from and draining—
- (a) void spaces that are penetrated by fixed sea water piping systems; and
 - (b) below-deck machinery spaces.
- (2) The means of pumping referred to in subrule (1) may include pumping by means of suitable hand pumps and fixed bilge piping systems or by means of portable pumps stored on board the barge.

C7.7 Rules of a recognised classification society

- (1) A ship of more than 45 metres or more LLL must comply with the relevant rules of a recognised classification society, instead of rules C7.2 and C7.3(2).
- (2) A ship of less than 45 metres in LLL may comply with the relevant rules of a recognised classification society, instead of rules C7.2 and C7.3(2).

Schedule

Transitional, savings, and related provisions

1. Meaning of commencement date

In this Schedule, **commencement date** means the date on which the Part commenced under rule A1.2(1).

2. Application to existing ships

- (1) From the commencement date, an existing ship must comply with this Part, as provided in subclause (2) and subject to subclauses (3) to (5).
- (2) An existing ship is not required to comply with the following rules:
 - (a) rule C3.2(4) (valve or cock in the fuel feed pipe to isolate the source of fuel):
 - (b) rule C7.2(3) (bilge main and manifold that is easily accessible and provided with non-return valves at the manifold for each branch line):
 - (c) rule C7.2(4) (bilge pumping and draining from spaces in ship except propelling machinery space permitted when any 1 watertight compartment flooded):
 - (d) rule C7.2(7) (bilge suction pipe must be either located at least 20 percent of the breadth of the ship inboard of the ship's sides to avoid damage in the event of a collision: provided with non-return valves):
 - (e) rule C7.2(8) (bilge suctions fitted in machinery space, 1 suction must be connected to bilge main; other suction must be direct bilge suction led to independent powered pump):
 - (f) rule C7.3(1) (number, type and capacity of bilge pumps):
 - (g) rule C7.3(12) (capacity of a submersible bilge pump that is electrically driven).
- (3) However, if a ship does not comply with the rules specified in subclause (2), it must comply with the rules specified in rule A1.2(2), as if those rules had not been revoked.

Transition arrangements for existing ships

- (4) An existing ship must comply with the following rules from the date that is 2 years from the commencement date:
 - (a) rule C3.2(5) (fuel piping – vent pipe roll-over safety valve):
 - (b) rule C7.4(2)(b) (bilge level alarm – cargo and fish holds).
- (5) An existing ship must comply with the following rules from the date that is 5 years from the commencement date:
 - (a) rule C5.2(10) (general requirements for main and auxiliary machinery – remote engine shut down):
 - (b) rule C5.2(13) (general requirements for main and auxiliary machinery – audible or visual alarms):
 - (c) rule C7.3(16)(d) (submersible electric bilge pump on separate circuit from float switch or bilge level alarm).

3. Existing exemptions continued

An exemption granted by the Director under section 40AA of the Act from a relevant requirement that is in force immediately before the commencement date continues in force on and after the commencement date and is subject to the same conditions (if any) as applied before the commencement date.