

Competency Framework for Skipper Restricted Limits



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Function: Navigate the vessel at the management level

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a vessel passage		1: Practical 1A: On board 2: Knowledge	
<i>Chart work, use of navigation instruments and publications</i>	1. The principles of Mercator projection.	2	Explained as applied to the development of navigational charts.
	2. Measuring distance	1	Distance between two points is measured on a navigational chart using the Mercator principles.
	3. Plotting and expressing position.	1	Position plotted and expressed by latitude and longitude.
	4. Plotting a safe course.	1	Course plotted between two defined points and expressed in terms of true and magnetic bearings.
	5. Use of plotting instruments.	1	Correct use is demonstrated including: <ul style="list-style-type: none"> • dividers • plotter, and • parallel rule.
	6. Navigational chart symbols, notes and corrections.	2	Chart symbols are identified and their meanings described in accordance with Chart BA 5011 including: rocks and other hazards, chart datum, depth contours, sea bed type and submerged features, coastline features, light characteristics, magnetic variation data, chart.
	7. Position plotted	1	Position expressed using latitude, longitude, bearing, distance from a location

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	and expressed using chart work techniques and expected time of arrival is determined.		or charted feature, transits and soundings.
	8. Information contained within maritime publications, including information accessible via the Land Information New Zealand (LINZ) website.	2	Information in relation to safe navigation is explained, including: Notices to New Zealand Mariners, New Zealand Safety Notices, NZ Nautical Almanac, NZ 202 and BA 5011.
	9. Techniques demonstrated to fix position.	2	Position is fixed utilising the following techniques, or a combination of techniques: <ul style="list-style-type: none"> • DR positions • visual bearing by magnetic compass • transits • radar ranges, and • GPS Latitude/Longitude readout. Course and ground track, and logged speed and speed over ground are explained.
<i>Magnetic compass</i>	1. The Earth's magnetic field.	2	Magnetic variation and magnetic anomalies are explained.

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	2. Construction, care, and maintenance	2	Described in accordance with manufacturers' specifications.
	3. Compass bearings, including: true to magnetic, magnetic to true.	1	Bearings are converted in accordance with the stated current or predicted value of variation at a given time and location.
	4. Magnetic influences within a vessel are identified.	2	Influences which may affect a compass are described, including an awareness of heeling error.
	5. Deviation and its effect on a magnetic compass.	2	Effects of deviation and methods for applying, eliminating or minimising are explained and are described when a compass needs to be adjusted, and who carries this out. The use of the Compass Declaration and Table of Deviations is described.
<i>Tides</i>	1. Causes of tidal phenomena.	2	The causes and cycle of tides are described.
	2. Abbreviations and terms associated with tides.	2	Understanding of meanings is demonstrated, including: spring tides, neap tides, height, range, duration, MHWS, MLWS, MHWN, MLWN and chart datum.
	3. The use of tide tables to find tidal information.	1	Use of tide table demonstrated including: times and heights of high and low water at standard ports and times of high and low water at secondary ports. Describe the effect of barometric pressure on tide heights.
	4. Use of tidal diamonds.	1	Determination of the predicted direction and rate of tidal current at the charted location of tidal diamonds is demonstrated.
	5. Predict sea	2	Conditions are predicted for a combination of varying tidal flows, wind

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	conditions.		direction, strength and fetch, related to the limitations of the vessel and crew.
<i>Meteorology and navigational marks</i>	1. Pressure systems.	2	Systems and associated weather conditions are identified and explained from a mean sea level analysis chart including: anticyclones, depressions, cold fronts, warm fronts and occluded fronts.
	2. Estimate wind speed and direction.	1	Wind is estimated for New Zealand waters from interpretation of a mean sea level analysis chart.
	3. Meteorological conditions leading to the formation of fog and other forms of restricted visibility.	2	Effects are described including advection & radiation fog, rain and snow.
	4. Geographic influences on surface winds	2	Effects are explained and terms interpreted, including: funnelling, katabatic winds and land and sea breezes.
	5. Weather forecast sources and terminology.	2	Sources of New Zealand national and local marine weather forecasts are stated and terminology interpreted, including: backing, veering, gusts, knots, sea, swell, anticyclone, high pressure, depression, low pressure, cyclone, tropical depression, cold front, warm front and occluded fronts.
	6. Use and interpretation of an aneroid barometer.	2	Use and interpretation of readings is demonstrated including: recording regular readings, direction and rate of change of surface pressure.
<i>Knowledge of Buoys and Beacons</i>	1. Knowledge of IALA region A buoyage system.	2	The international system of buoyage is explained and applied in accordance with the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) System 'A' Maritime Buoyage System.
	2. The	2	Explained in accordance with New Zealand's System of Buoys and Beacons.

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	conventional direction of buoyage in NZ.		
<i>Maintenance of a safe navigational watch</i>	1. Safe watchkeeping practices under different conditions	2	Conditions include: <ul style="list-style-type: none"> • restricted visibility • good visibility • at anchor • heavy weather, and • hours of darkness
	2. Effect of human factors on safe watchkeeping practices	2	The effects of fatigue, stress, distraction, over-reliance and complacency are explained and mitigation, management practises described.
	3. Collision prevention	1A	Vessel is operated in accordance with the Collision Prevention rules.
	4. Watchkeeping	1A	Watchkeeping practices are demonstrated including: <ul style="list-style-type: none"> • single operator practice • single point error • risk management principles • situational awareness, and • communication.
	5. Monitor vessel's position and course.	1A	Position is fixed by a variety of methods and action is taken to return vessel to planned ground track as necessary.

Function: Electronic navigation at the management level

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Knowledge of electronic navigational systems		1: Practical 1A: On board 2: Knowledge	
<i>Electronic aids and navigation systems</i>	1. Principles of operation, controls and terminology of GPS / Chart Plotters	2	Explains: <ul style="list-style-type: none"> • equipment set-up • satellite geometry • accuracy and errors • initialisation • controls • screens, and • terminology to use paper charts. Purpose, limitations and precautions when using the global positioning system (GPS) are explained, including; speed over ground, course over ground and waypoints.
	2. Electronic charts.	2	Describes differences between an approved ECDIS and a non-approved chart plotter. Explains: <ul style="list-style-type: none"> • scale & detail • over-zooming • vector versus raster

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			<ul style="list-style-type: none"> • updating • layers • interrogation and data boxes • screen selection and orientation, and • emphasizing the limitations of electronic charts.
	3. GPS/Chart plotter functions and tools.	1A	Demonstrate use of MOB, Mark, and safety margin alarms.
	4. Route planning.	1	Passage is planned using approved paper charts and transferred to an electronic navigation system. Hazard identification, waypoint placement, position monitoring, bearing to way point & cross track error, waypoint realisation & abeam passage.
	5. Principles of operation, components, controls and displays of vessel marine radar.	2	Magnetron and solid state, basic components, common controls , functions and their use. Over-lays, north-up, head-up, off centre, true motion, stabilised & un-stabilised and the set-up procedure is described.
	6. Target discrimination, collision avoidance, use and limitations of radar navigation.	2	Bearing, range and effect of change. Effect of poor weather and sea conditions, radar reflectors. Use of RACONs & SARTs, EBL, VRM & parallel index, plotting. Knowledge of requirements of Maritime Rule Part 22.19.

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	7. Radar is used to position vessel and avoid collision	1A	Radar is used in accordance with Maritime Rule Part 22.
	8. Echo sounder	2	Describe principles of operation and use as a navigational aid.
	9. Automated Identification System	2	Describe principles of operation and use in collision avoidance.

Function: Manage vessel operations

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Management of vessel operations		1: Practical 1A: On board 2: Knowledge	
<i>Maintain vessel stability</i>	1. Factors affecting the stability of the vessel	2	Factors are correctly described including: <ul style="list-style-type: none"> • G, B, M, GZ • capsize lever • righting lever • loll • list • heel • lifting and lowering weights • the effect of list and trim, and • the effect of “free surface” and how to minimise or eliminate.
	2. Interprets stability data	1A	Vessel data is interpreted to maintain stability across the range of load and weather conditions for which the vessels is designed.
	3. Maintain adequate vessel stability for prevailing conditions.	1A	Vessel stability is maintained across a range of load and weather conditions.

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	4. Recognise and correct a loss in stability.	2	Likely causes and signs of a loss of stability are described including roll period. Actions to be taken to correct any loss of stability are described.
<i>Manoeuvre the vessel</i>	1. Effects of elements and vessel characteristics.	1A	The effects of the rudder, propeller, pivot point, tide and windage on a vessel are explained and demonstrated.
	2. Vessel handling techniques.	1A	Techniques are described and demonstrated including: <ul style="list-style-type: none"> • stopping and turning in confined spaces utilising transverse thrust / prop-walk • use of back-up engine controls • coming alongside and springing off • correct use of mooring lines, including: <ul style="list-style-type: none"> – bow line – stern line – bow spring, and – stern spring as applicable to the vessel.
	3. Types and purpose of anchors and ground tackle.	2	Anchor types and compatibility with seabed are identified. Anchors carried are described.
	4. Anchoring techniques.	2	Techniques are described and demonstrated in relation to different types of anchor, anchorage seabed, and the use of chain and warp combinations in accordance with industry practice in a variety of situations and conditions.

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	5. Anchorage selection.	2	Suitable anchoring positions are selected in accordance with: <ul style="list-style-type: none"> • shelter afforded • absence of hazards • depth • effect of tides, and • weather conditions.
	6. Vessel handling in heavy weather.	2	Preparation for heavy weather is described and techniques for helming, use of speed, engines, drogues, sea anchors, following seas, head-seas and beam seas including preparation for heavy weather and actions in heavy weather are discussed.
	7. Bar crossing.	2	Techniques are described in accordance with MNZ guidelines and best industry practice, including life jacket use.
	8. Use of small boats including dinghies and tenders.	2	Safe use is described, including: <ul style="list-style-type: none"> • launching • retrieving and handling • safety equipment, and • use of life jackets.
<i>Ropes and rope-work and safe practices working on deck</i>	1. Laid and braided rope.	2	Materials, properties, and marine applications of commonly used laid and braided rope are identified in accordance with industry practice.
	2. General care.	2	General care of lines to ensure longevity and minimise the likelihood of failure is described in accordance with best industry practice.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	3. Knots, bends and hitches.	1	Common knots, bends and hitches for marine applications are tied including: <ul style="list-style-type: none"> • single sheet bend • double sheet bend • round turn and two half hitches • bowline • clove hitch • figure of eight knot, and • reef knot.
	4. Safe techniques for securing to cleats, bollards, coiling and use of heaving lines.	1	Coiling rope and securing to a cleat or bollard and use of a heaving line is demonstrated.
	5. Safe deck practices are described	2	Safe practices and correct techniques are described when using: <ul style="list-style-type: none"> • winches • anchor windlasses • lifting gear • surge drums, and • fishing equipment

Function: Manage Vessel Safety and Compliance

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Management of the vessel, legal compliance and emergencies		1: Practical 1A: On board 2: Knowledge	
<i>Maritime Transport Act and Maritime Rules</i>	1. Duties of the master of a vessel.	2	Responsibilities and authority for safety and compliance are explained in accordance with sections 19 & 65 of the Maritime Transport Act.
	2. Collision Prevention Rules.	2	Rules are explained and applied in accordance with Part 22 of the Maritime Rules.
	3. Navigation Safety Rules and Regional By Laws.	2	Rules are explained and applied in accordance with Part 91 of the Maritime Rules.
	4. Pollution Prevention Regulations & Local Bylaws.	2	Rules are explained and applied in relation to discharge and disposal of oil, sewage, and garbage in accordance with the Maritime Transport Act, Marine Protection Rules and the Resource Management Act.
<i>Lifesaving and safety equipment</i>	1. Lifesaving appliances required to be carried.	2	Explained in accordance with Maritime Rules 42A and 42B and N25 5823 for a restricted limit vessel.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	2. The purpose/use and maintenance of personal flotation devices.	1	Use of demonstrated, including man overboard equipment, floatation devices and inflatable life rafts.
<i>Fire on-board, fire prevention techniques, and fire extinguishers</i>	1. Purpose, limitations, use and servicing / maintenance requirements for different types of fire extinguishers.	1A	Explained in accordance with Maritime Rules and New Zealand Standards 4503. Including: dry powder, carbon dioxide, aqueous film forming foam, and water extinguishers
	2. Fire fighting appliances.	1	Use of demonstrated in accordance with Maritime Rules for a restricted limit vessel.
	3. Fire prevention.	1A	The common locations of equipment, maintenance of equipment and causes and prevention of fire on-board vessels are identified and described, including: Locations: <ul style="list-style-type: none"> • machinery space • galley • wheelhouse • accommodation. Causes: <ul style="list-style-type: none"> • electrical • fuel and refuelling • LPG, and • smoking hazards. Extinguishing a fire using a fire extinguisher and/or fire blanket is explained.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<i>Enclosed spaces</i>	1. Dangers of enclosed and confined spaces.	2	The dangers of entering enclosed and confined spaces are understood. Procedures are described for entry, rescue and safe working.
<i>International distress signals</i>	1. Limitations and effectiveness of international distress signals.	2	Described in accordance with industry practice. Obligations to assist in a distress explained. All international distress signals listed. Use of: <ul style="list-style-type: none"> • pyrotechnics /EPIRB/ VHF described • knowledge of actions to be taken if distress signal sighted/heard understood.
	2. The activation process of manual and float-free EPIRBs.	2	Described in accordance with manufacturer's specifications.
	3. Activation process of distress pyrotechnics	2	Including red parachute flares, red hand-held flares, buoyant and hand-held orange smoke signals; explained in accordance with manufacturers' instructions.
	4. The meaning and format of radio telephone signals including: distress, urgency & safety calls.	2	Described in accordance with the current MNZ Radio Handbook for Coastal Vessels.
	5. Cellular phones in distress situations at sea.	2	Uses and limitations are described.
<i>Emergencies, accidents and</i>	1. Reporting	2	Maritime New Zealand requirements for accident and incident reporting process are understood and described

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<i>Incidents.</i>	2. Collision.	2	Actions to take in the event of an accident or incident and the responsibilities of the master of a vessel involved in a collision are explained in terms of safety considerations regarding own vessel and crew and other vessel and its crew.
	3. Fire	2	Preventative fire measures are understood and explained including fire drills, fire detectors and fire patrols. Actions to be taken in event of fire aboard the vessel are explained including fire fighting systems and equipment and operation and crew duties.
	4. Grounding.	2	Actions to be taken in the event of grounding of a vessel are explained in accordance with best seamanship and industry practises.
	5. Man Overboard.	1A	Actions in the event of, a “Man Overboard” incident are demonstrated in terms of techniques and equipment to aid the location, approach and recovery of a person in a simulated situation including: life rings, vessel handling and approach. Prevention actions described
	6. Engine and steering failure.	1A	Actions to be taken in the event of propulsion engine failures in vessels are demonstrated.
	7. Controlling water ingress	1A	Causes of, and methods of, controlling water ingress of water in a vessel are described.
	8. Towing.	2	Equipment, techniques, safety issues and legal responsibilities associated with towing another vessel, and being towed, are described including: the advantages and dangers of spring and/or stretch in the tow line, setting up and adjusting the tow for prevailing sea conditions and trimming the towed vessel.
	9. Abandon-ship.	1A	The procedure for abandoning ship is understood and explained.
	10. Medical emergencies, care and equipment.	2	The equipment to be carried on-board vessels and the procedures in the following medical emergencies are described.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	11. Hypothermia and seasickness.	2	The cause, prevention, signs and treatment of hypothermia and seasickness are explained.
	12. Radio medical advice.	2	The procedure for obtaining radio medical advice is explained in accordance with the current Maritime New Zealand Radio Handbook for Coastal Vessels.
<i>Safety Drills.</i>	Conduct safety drills.	1A	Safety drills are conducted in accordance with the vessels safety system. MOB, fire, collision and abandon ship.
<i>Search and rescue (SAR)</i>	1. New Zealand search and rescue system.	2	SAR organisation roles are explained including Maritime New Zealand/Rescue Coordination Centre New Zealand, Police and Coastguard.
	2. SAR / EPIRB registration and reporting.	2	The importance of correct recording of all details which may be used in a SAR are explained including EPIRB registration, MMSI number, call sign, trip report and emergency contact details.
<i>Hazard management.</i>	Conduct hazard identification.	1A	Hazard identification is conducted and a vessel hazard register maintained.

Function: Manage Legal Compliance on a Restricted Limits Vessel

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Legal requirements for operation of a commercial vessel		1: Practical 1A: On board 2: Knowledge	
<i>Meets legislative requirements</i>	1. Vessel operation and applicable legislation	2	The operations of a commercial vessel are identified as conforming to all applicable legislation including: <ul style="list-style-type: none"> operational limits qualifications crewing and watch keeping minimum personnel all applicable maritime rules guidance notices, and safety bulletins.
<i>Maritime Operator Safety System</i>	1. Maritime Operator Safety System (MOSS)	2	The requirements of MOSS are understood and described consistently with Maritime Rules Parts 19 and 44.
	2. Maritime Transport operator Certificate (MTOC)	2	The requirements for issue of a MTOC are understood and described consistently with rule requirements, including requirements for a Fit and Proper Person certificate.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	3. Maritime Transport Operator Plan (MTOP)	2	The requirements for development of an MTOP are understood and described consistently with maritime rules.
<i>Integrated compliance</i>	1. Integrate compliance within vessel operation	1A	Vessel safety management system is integrated into the operation and management of the vessel. On-going continuous improvement is demonstrated by evolving safety system and documentation and review.

Function: Manage Operation of Vessel Machinery and Systems

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operation of vessel's propulsion and auxiliary machinery, and systems		1: Practical 1A: On board 2: Knowledge	
<i>Operation and care of diesel engines</i>	1. Common systems and components	2	Demonstrates knowledge of 4 & 2 stroke cycle, principal engine components, location and functions.
	2. Fuel systems	1A	Key components are identified and their purpose described, including: <ul style="list-style-type: none"> • diesel supply from fuel tank to injectors • filters • pumps and bleed points • identifying faulty injectors by touch • common rail and jerk systems including refuelling the vessel.
	3. Lubrication system	1A	Key components are identified and their purpose described, including: <ul style="list-style-type: none"> • layout of a typical lubrication system • types of oil and checking oil, and • reasons and cures for abnormal oil pressure.
	4. Air system	1A	Key components are identified and their purpose described, including: filters, turbo charger, blowers, exhaust system and exhaust colour diagnosis.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	5. Cooling system	1A	Key components are identified where applicable and their purpose described, including typical raw water cooling systems, components and functions, impeller replacement, system blockages and rectification, anodes, anti-siphoning valves, typical fresh water cooling systems, components and functions. Impeller replacement, heat exchangers, the importance of correct coolant, thermostat checking and replacement and keel-cooling systems are understood and explained.
	6. Electrical system 7. 8.	1A	Key components are identified and their purpose described, including batteries, starting systems, glow plugs, alternators, charging systems, drive-belt adjustments, fuses and circuit breakers.
	9. Propellers & stern glands	1A	Key components are identified and described, including propeller shaft, stern glands and flexible couplings.
	10. Gearboxes	1	Key components are identified and their purpose described including monitoring of oil levels, operations of different types of controls, and emergency operation of gearbox
	11. Engine and thrust bearing mountings	1	Key components are identified and their purpose described.
	12. Control systems	1	Key components are identified and their purpose described.
<i>Operation of care of outboard engines</i>	1. Background knowledge.	2	Knowledge is described and where applicable identified including differences between 2 and 4 stroke engines, location of electrics, spark plugs, engine controls, air filter, carburettor, gearbox, filler plugs, anodes, water intake and outlet.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	2. Fuel system.	1A	Integral/portable/built in fuel tanks, 2 stroke fuel mixture, venting, effects of stale fuel, filters, carburetor (jets, floats) are understood and demonstrated.
	3. Lubrication system	1A	2 stroke lubrication, 4 stroke lubrication, types of oil, checking and topping up oil in engines and gearboxes are understood and demonstrated.
	4. Cooling system	1A	Water flow path, impeller, overheating, salt build-up, flushing, cooling tell-tale are understood and described.
	5. Electrical system	1A	Battery installation, safety and maintenance. ignition systems and spark plugs. electrolysis, sacrificial anodes, salt water corrosion, trim tabs, starter motor, emergency starting, 'kill switch' and 'kill-cord', stop button are understood and described.
	6. Gearbox and propeller	1	Changing gear, changing a propeller, shear pin replacement, cavitation & ventilation, definition of pitch are understood and described...
	7. Control systems	1	Remote, and emergency steering, cable, wire and hydraulic systems, throttle and gear cables, trim and tilt, shallow water use, recoil starter are understood and described.
<i>Operational procedures</i>	1. Machinery operating procedures	2	Describes normal operational procedures for engine as described in the safety management system
	2. Safe working practices	1A	Vessel's propelling machinery is operated whilst maintaining safe working practices and situational awareness.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<i>Operate and monitor a vessel's propulsion engines and auxiliary equipment</i>	1. Load/check spares, fuel, lubricants and fresh water for intended voyage.	1A	Vessel is prepared in accordance with the vessel's safety management plan including knowledge of fuel and lubricant piping systems, valves, pumps and safety arrangements. Fuel and lubricants are loaded in accordance with the vessel's safety management plan. Spare parts are checked and ensured as sufficient to cover emergencies and are in accordance with the vessel operating practices. Fresh water tanks are filled in accordance with the vessel operating practices. Documentation is completed in accordance with the vessel's safety management plan.
	2. Pre-start checks of engines and auxiliary equipment.	1A	Pre-start checks are completed in accordance with the vessel's safety management plan including where applicable, propulsion engine/s, including: fuel, oil and cooling water header tank levels, valves, V-belts and hoses. Auxiliary equipment including: generators, batteries, bilge pumps, strainers, bilge water levels and alarms, refrigeration, hydraulic system, fire-fighting system, electrical system (fuses/circuit breakers and switchboards) are understood and demonstrated where appropriate.
	3. Start and monitor engines and auxiliary equipment.	1A	Engines and auxiliary equipment are started with gauges and instrument readings monitored during warm-up in accordance with the manufacturer's operating instructions.
	4. Test alarms and safety arrangements	1A.	Alarms are tested in accordance with the manufacturer's operating instructions.
	5. Emergency starting.	2.	Procedures are described in accordance with the vessel's safety management plan.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	6. Shut-down of engines and auxiliary equipment.	1A.	Procedures are followed in accordance with the vessel's safety management plan.
<i>Monitor the operation of the vessel's engines, drive train, and auxiliary equipment</i>	1. Operate vessel's engines and equipment.	1A	Machinery is operated to maintain maximum performance, observing safety precautions, in accordance with the manufacturer's operating instructions.
	2. Changes in operational performance.	2	Any changes are monitored and adjusted in accordance with the vessel's safety management plan, and likely causes identified including: heavy weather, reduced visibility, fishing, towing, breakdowns, low fuel, propeller and hull damage.

Function: Manage Maintenance of Vessel Machinery and Systems

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain propulsion and auxiliary machinery and systems		1: Practical 1A : On board 2: Knowledge	
<i>Planned maintenance</i>	1. Preventative maintenance and inspection of equipment	2.	Checks are in accordance with the vessels Maintenance Plan, the manufacturers recommended guidelines and accepted best industry practice, and recorded.
	2. Planned maintenance	1.	Planned maintenance and inspection is carried out: <ul style="list-style-type: none"> • oil change • fuel filters • bleeding air from fuel • battery checks and top-up • electrical switchboards, wiring, fuses and circuit breakers inspected, and • replacement of drive belts.
<i>Maintenance and repairs on a vessel's mechanical and electrical systems</i>	1. Select and prepare stores and spare parts.	1A	Stores and spares are selected for scheduled maintenance to mechanical and electrical systems in accordance with manufacturer's instructions.

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<i>Scheduled maintenance</i>	1. Scheduled maintenance tasks are performed.	1A	<p>Tasks to include where possible:</p> <p>Electrical systems:</p> <ul style="list-style-type: none"> • alternators or generators • batteries • navigation lights • switch boards • fuses and fuse links • circuit breakers • power points • switches, and • lights. <p>Mechanical systems:</p> <ul style="list-style-type: none"> • propulsion system (main engine, gearbox, shafting, stern tube and propeller) • bilge system (pumps and motors, strainers, valves, piping) • refrigeration plant • hydraulic system (pumps and motors, piping, control and other valves, filters, header tanks and piping) • deck machinery (trawl winches, anchor windlass and anchors, deck cranes) • steering systems (wheel, means of transmission from wheel to rudder, steering motor, rudder, emergency steering) • fire pumps • valves and piping, and • hoses and nozzles.
	2. Systems are tested.	1A	Systems are tested prior to return to service in accordance with manufacturer's instructions.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	3. Documentation.	1A	Documentation completed, and filed in accordance with the vessel's safety management plan.
	4. Handle materials safely.	1A	Maintenance materials and equipment are handled, stored, and secured in accordance with vessel's safety management plan.
<i>Fault diagnosis.</i>	1. Diagnose faults in mechanical and electrical systems.	2.	Faults are diagnosed including: mechanical systems – change in oil pressure, overheating, lack of fuel, discolouration of exhaust, uneven running, unusual noises, failure to operate, fault indicating light or alarm. Also electrical systems – failure to operate, fault indicating light or alarm.
<i>Unscheduled maintenance</i>	1. Perform unscheduled maintenance tasks.	2.	Perform unscheduled maintenance and repair tasks where possible to mechanical and electrical systems in accordance with manufacturer's instructions, including: <ul style="list-style-type: none"> mechanical and electrical components requiring replacement are identified, removed, replaced and tested repairs to mechanical systems allow the vessel to continue to operate without causing further damage to the vessel and/or its engines and equipment, and any improvised repairs are performed to rectify component failures where replacement or full repair is not possible, to ensure continued safety of the vessel, its crew, and passengers in accordance with the vessel's safety management plan.
<i>Maintain outboard motor</i>		2.	Cleaning, lubrication, greasing, electrics, winter storage.
<i>Bilge pumping systems</i>	1. Operate bilge pumping equipment	1A	Equipment is operated efficiently according to vessel operating procedures.

Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<i>Generators and fire fighting systems</i>	1. Operation of auxiliary power generators and fire fighting systems	2	Equipment is explained according to vessel operating procedures and manufacturer's guidelines.