

the direct supervision of a qualified engineer officer or a member of a qualified rating in the engine department. The training must establish that the applicant has achieved the standard of competence prescribed in table A-III/4 of the STCW Code (incorporated by reference in §12.01-3), in accordance with the methods of demonstrating competence and the criteria for evaluating competence specified in that table.

[CGD 80-131, 45 FR 69241, Oct. 20, 1980, as amended by CGD 95-072, 60 FR 50460, Sept. 29, 1995; CGD 95-062, 62 FR 34538, June 26, 1997; CGD 95-062, 62 FR 40140, July 25, 1997; USCG-1998-4442, 63 FR 52189, Sept. 30, 1998; USCG-1999-5610, 67 FR 66069, Oct. 30, 2002; USCG-2006-24371, 74 FR 11257, Mar. 16, 2009]

§ 12.15-9 Examination requirements.

(a) Each applicant for endorsement as a qualified member of the engine department in the rating of oiler, watertender, fireman, deck engineer, refrigeration engineer, junior engineer, electrician, or machinist shall be examined orally or by other means and only in the English language on the subjects listed in paragraph (b) of this section. The applicant's general knowledge of the subjects must be sufficient to satisfy the examiner that he is qualified to perform the duties of the rating for which he makes application.

(b) List of subjects required:

Subjects	Machinist	Refrigerating engineer	Fireman/Watertender	Oiler	Electrician	Junior engineer	Deck engineer
1. Application, maintenance, and use of hand tools and measuring instruments	X	X	X	X	X	X	X
2. Uses of babbitt, copper, brass, steel, and other metals	X	X	X	X	X	X	X
3. Methods of measuring pipe, pipe fittings, sheet metal, machine bolts and nuts, packing, etc	X	X	X	X	X	X	X
4. Operation and maintenance of mechanical remote control equipment	X	.....	X	X	X	X	X
5. Precautions to be taken for the prevention of fire and the proper use of firefighting equipment	X	X	X	X	X	X	X
6. Principles of mechanical refrigeration; and functions, operation, and maintenance of various machines and parts of the systems .....	.....	X	.....	X	.....	X	.....
7. Knowledge of piping systems as used in ammonia, freon, and CO ₂ , including testing for leaks, operation of bypasses, and making up of joints .....	.....	X	.....	.....	.....	X	.....
8. Safety precautions to be observed in the operation of various refrigerating systems, including storage of refrigerants, and the use of gas masks and firefighting equipment	X	X	X	X	X	X	X
9. Combustion of fuels, proper temperature, pressures, and atomization .....	.....	.....	X	X	.....	X	.....
10. Operation of the fuel oil system on oil burning boilers, including the transfer and storage of fuel oil .....	.....	.....	X	X	.....	X	X
11. Hazards involved and the precautions taken against accumulation of oil in furnaces, bilges, floorplates, and tank tops; flarebacks, leaks in fuel oil heaters, clogged strainers and burner tips	X	X	X	X	X	X	.....
12. Precautions necessary when filling empty boilers, starting up the fuel oil burning system, and raising steam from a cold boiler .....	.....	.....	X	X	.....	X	.....
13. The function, operation, and maintenance of the various engineroom auxiliaries	X	X	X	X	X	X	.....
14. Proper operation of the various types of lubricating systems	X	X	X	X	X	X	X
15. Safety precautions to be observed in connection with the operation of engineroom auxiliaries, electrical machinery, and switchboard equipment	X	X	X	X	X	X	X
16. The function, operation, and maintenance of the bilge, ballast, fire, freshwater, sanitary, and lubricating systems ...	X	X	X	X	.....	X	X
17. Proper care of spare machine parts and idle equipment ...	X	X	X	X	X	X	X
18. The procedure in preparing a turbine, reciprocating, or Diesel engine for standby; also the procedure in securing ..	.....	.....	X	X	.....	X	.....
19. Operation and maintenance of the equipment necessary for the supply of water to boilers, the dangers of high and low water and remedial action .....	.....	.....	X	X	.....	X	.....
20. Operation, location, and maintenance of the various boiler fittings and accessories	X	X	X	X

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Subjects	Machinist	Refrigerating engineer	Fireman/Watertender	Oiler	Electrician	Junior engineer	Deck engineer
21. The practical application and solution of basic electrical calculations (Ohm's law, power formula, etc.)	X	X	X
22. Electrical wiring circuits of the various two-wire and three-wire D.C. systems and the various single-phase and poly-phase A.C. systems	X	X	X
23. Application and characteristics of parallel and series circuits	X	X	X
24. Application and maintenance of electrical meters and instruments	X	X	X
25. The maintenance and installation of lighting and power wiring involving testing for, locating and correcting grounds, short circuits and open circuits, and making splices	X	X	X
26. The operation and maintenance of the various types of generators and motors, both A.C. and D.C.	X	X	X
27. Operation, installation, and maintenance of the various types of electrical controls and safety devices	X	X	X
28. Testing and maintenance of special electrical equipment, such as telegraphs, telephones, alarm systems, fire-detecting systems, and rudder angle indicators	X	X	.....
29. Rules and Regulations and requirements for installation, repair, and maintenance of electrical wiring and equipment installed aboard ships	X	X	X
29a. Pollution laws and regulations, procedures for discharge containment and cleanup, and methods for disposal of sludge and waste from cargo and fueling operations	X	X	X	X	X	X	.....
30. Such further examination of a nonmathematical character as the Officer in Charge, Marine Inspection, may consider necessary to establish the applicant's proficiency	X	X	X	X	X	X	X

(c) Each applicant for an endorsement as a qualified member of the engine department in the rating of pumpman shall, by oral or other examination, demonstrate sufficient knowledge of the subjects peculiar to that rating to satisfy the Officer in Charge, Marine Inspection, that he or she is qualified to perform the duties of that rating.

(d) Applicants for an endorsement as qualified members of the engine department in the rating of deck engine mechanic or engineman, who have proved eligibility for such endorsement under either §12.15-13 or §12.15-15, will not be required to take a written or oral examination for such ratings.

[CGFR 65-50, 30 FR 16640, Dec. 30, 1965, as amended by CGFR 66-46, 31 FR 13649, Oct. 22, 1966; CGD 71-161R, 37 FR 28263, Dec. 21, 1972; CGD 74-75, 42 FR 24741, May 16, 1977; CGD 94-029, 61 FR 47064, Sept. 6, 1996; USCG-2006-24371, 74 FR 11257, Mar. 16, 2009]

§ 12.15-11 General provisions respecting an endorsement as qualified member of the engine department.

The holder of an endorsement with one or more qualified members of the engine department ratings may serve

in any unqualified rating in the engine department without obtaining an additional endorsement. This does not mean that an endorsement of one qualified member of the engine department rating authorizes the holder to serve in all qualified member of the engine department ratings. Each qualified member of the engine department rating must be a separate endorsement. When, however, the applicant qualifies for all ratings covered by an endorsement as a QMED, the endorsement may read QMED—any rating. The ratings are as follows:

- (a) Refrigerating engineer.
- (b) Oiler.
- (c) Deck engineer.
- (d) Fireman/Watertender.
- (e) Junior engineer.
- (f) Electrician.
- (g) Machinist.
- (h) Pumpman.
- (i) Deck engine mechanic.
- (j) Engineman.

[CGFR 65-50, 30 FR 16640, Dec. 30, 1965, as amended by CGFR 66-46, 31 FR 13649, Oct. 22, 1966; CGD 74-45, 42 FR 24741, May 16, 1977; USCG-2006-24371, 74 FR 11257, Mar. 16, 2009]