

CHANGES IN BUREAU OF NAVAL PERSONNEL MANUAL NO. 8

NAVY DEPARTMENT,
BUREAU OF NAVAL PERSONNEL,
Washington, D. C., 11 August 1945

Changes in the Bureau of Naval Personnel Manual of 1 October 1942, indicated herein have been approved by the Secretary of the Navy. They will be inserted in their proper places in the Manual.

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Assistant Chief of Naval Personnel.

CHANGES TO BE MADE WITH TYPEWRITER OR INK

- Page 82A, Article D-5101—In the first note under the table change Article "D-5212" to read "D-5201"
- Page 129, Article D-5206.01(3)(A)(b)—Change to read as follows:
"ADJUSTMENTS AND SIMPLE REPAIRS.—Demonstrate ability to adjust, calibrate, and make *simple repairs* to the radio and radio direction finder equipment."
- Page 129, Article D-5206.01(4)(A)(b)—Delete the following portion only:
"including Loran and Countermeasures if so assigned."
- Page 130, Article D-5206.01(4)(B)(i)—Delete the following portion only:
"and Loran if so assigned."
- Page 130, Article D-5206.01(4)(B)(j)—Change "procedure" to "procedures" in the two places it appears.
- Page 165⁸², Article D-5209.031—In lines 2 and 3, delete "designed for commercial-scale reproduction."
- Page 165¹⁴, Article D-5212—Delete paragraph (5). (See Article D-5201 for list of Specialists' Ratings).

AMENDED OR NEW ARTICLES PRINTED ON PAGES TO BE INSERTED

- Pages 93 to 95A, inclusive—Revised list of Ratings and Rating Designators.
- Page 96, Article D-5203—Revision of article on Fundamental Knowledge Required of All Men in the Navy.
- Page 97, Article D-5204—Revision of General Qualifications Required of All Petty Officers.
- Page 98, Article D-5205.01—Qualifications for Seamen, First and Second Class, revised.
- Page 99, Article D-5205.021—Qualifications for Boatswain's Mates revised to include damage control qualification.
- Page 127, Article D-5206.01—Revision of qualifications for Radiomen, Third Class.
- Page 153, Article D-5206.102—Qualifications for Special Artificers I—Instruments.
- Pages 165⁴⁸ through 165⁶², Article D-5208.07—Revised qualifications for Aviation Ordnancemen superseding present article.
- Article D5208-.071—Revised qualifications for Aviation Fire Controlmen superseding present article.

Article D-5208.072—Revised qualifications for Aviation Ordnancemen T (Aviation Turret Mechanics) superseding present article.

Page 165⁴⁹, Article D-5212.15—Designators for Specialists (X) ratings.

Page 165⁶³, Article D-5212.171—Qualifications for Specialists (E)(PS)—Motion Picture Service (Bookers)

Article D-5212.172—Qualifications for Specialists (E)(RW)—Recreation and Welfare Assistants.

Section 2. QUALIFICATIONS FOR ADVANCEMENT IN RATING

D-5201. ALPHABETIC LIST OF RATINGS AND RATING DESIGNATORS WITH APPROPRIATE ARTICLE NUMBERS.

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D-5202. FOREWORD

A petty officer is a man-of-war's-man who is first, a leader, and second, a specialist. Before being advanced to a petty officer rating, a man must possess the fundamental knowledge required of all men in the Navy (See D-5203), must be found qualified in the General Qualifications required of all petty officers, and must meet the technical qualifications for a particular rating.

Most of the General Qualifications, set forth in D-5204, are best determined by observation of the candidate in situations that require a demonstration of his knowledge, skills, and abilities. Such observation is preferred to formal examination and should be used when circumstances permit. The scope of the subject matter to be covered under D-5203 and D-5204, respectively, is outlined in the General Training Course for Non-Rated Men, the General Training Courses for Petty Officers, and related training materials. These courses and materials are revised from time to time.

The technical qualifications, set forth in subsequent articles of this section, are prescribed as a standard for each grade in the various ratings. These qualifications are indicated as PRACTICAL FACTORS, EXAMINATION SUBJECTS, and SCHOOL QUALIFICATIONS, and must be met by each person prior to advancement to the grade concerned. (See D-5104 ff and current circular letters concerning advancement in rating.) The scope of the subject matter to be covered is outlined in the training course for the particular rating and in the technical pamphlets and materials issued by the various bureaus and offices.

A candidate for promotion to a higher grade in any rating is also responsible for the technical qualifications prescribed for lower grades of that rating. As a reminder of this requirement, subparagraphs in the qualifications for each rating grade refer back to the qualifications for the lower grade of the rating. In addition to having qualified in the practical factors for the higher grade, the candidate must have demonstrated more thoroughness, greater expertness, and a higher degree of skill in the practical factors for the lower grade. In addition to qualifying in the examination subjects for the higher grade, he must also show a more detailed and thorough knowledge in examination subjects carefully selected from the qualifications for the lower grade.

D-5203. FUNDAMENTAL KNOWLEDGE REQUIRED OF ALL MEN IN THE NAVY.

All men in the Navy shall be conversant with the following general naval subjects:

1. Uniform regulations and care of clothing.
2. Discipline and offenses.
3. Salutes and colors.
4. Manual of arms.
5. Drill.
6. Handling of boats and oars.
7. Knots and splices.
8. The compass and relative bearings.
9. Visual signaling.
10. Swimming and life saving.
11. General naval and shipboard organization.
12. Advancements and awards.
13. Enlistments, discharges, and pay accounts.
14. Types, general characteristics, and nomenclature of naval vessels and aircraft.
15. Daily routine in port and at sea.
16. General drills aboard ship.
17. Hygiene and first aid.
18. Gas protective apparatus.

19. Rust removal and painting.
20. General safety precautions.

Entries in service records that men concerned have completed a course and passed an examination in the *General Training Course for Non-rated Men* may be accepted by the examining board in lieu of examination in these subjects.

NOTE.—These general naval subjects were formerly referred to as "A to N".

D-5204. GENERAL QUALIFICATIONS REQUIRED OF ALL PETTY OFFICERS.

(1) PRIMARY REQUIREMENTS.

- (a) LEADERSHIP.—Demonstrate the qualities of a good leader when in charge of a group of men. Demonstrate ability to train subordinates.
- (b) AUTHORITY AND RESPONSIBILITY.—Demonstrate ability to exert authority and maintain discipline under all conditions. If so assigned, demonstrate a knowledge of the duties and responsibilities of a shore patrolman or police petty officer.
- (c) SECURITY.—Demonstrate knowledge of regulations regarding the security of classified matter.
- (d) DRILL.—Demonstrate ability to take charge of a group, and conduct infantry drill and physical exercises.
- (e) DAMAGE CONTROL.—Demonstrate knowledge of watertight integrity and material conditions. Demonstrate knowledge of the uses of all fire fighting equipment and rescue breathing apparatus.
- (f) FIRST AID.—Demonstrate ability to administer first aid, including artificial respiration.
- (g) ARITHMETIC.—Demonstrate a fundamental knowledge of elementary arithmetic, including addition, subtraction, multiplication, division, simple and decimal fractions, and measurement.
- (h) SOUND-POWERED TELEPHONES.—Demonstrate ability to man a telephone station, handle the equipment correctly, and follow standard talking procedure.
- (i) CHEMICAL WARFARE.—Demonstrate an elementary knowledge of chemical warfare and defensive measures.
- (j) SURFACE PRESERVATION.—Demonstrate knowledge of painting regulations, paints, and painting equipment.
- (k) SURVIVAL.—Demonstrate knowledge of the proper method of abandoning ship, swimming in oil covered water, and the use of life raft supplies and equipment.

(2) ADDITIONAL REQUIREMENTS FOR SEAMAN BRANCH.

- (a) SIGNALS.—
 - Semaphore.—Demonstrate ability to send and receive.
 - Flashing Light.—Demonstrate ability to send and receive.
 - Flags.—Identify all alphabet flags, numeral pennants, and repeaters.
 - (b) LOOKOUTS.—Demonstrate knowledge of the duties of a lookout.
 - (c) RECOGNITION.—Demonstrate proficiency in the recognition of friendly ships and aircraft that operate in the area in which stationed.
 - (d) SMALL ARMS.—Demonstrate ability to use rifles, pistols, automatic rifles, and machine guns. Know the safety precautions connected with their use.
- (Ch. No. 8)

D-5205. SEAMAN BRANCH.**D-5205.01. Seamen.****(1) SEAMAN, SECOND CLASS.**

A seaman, second class, within a reasonable time after arrival on board ship should be expected to know the names of the captain, executive officer, heads of departments, deck division officers, and other principal officers on his own ship; the duties that he is expected to perform at general quarters and emergency drills, and be able to recognize the signals for these drills; the duties of a life buoy watch, and the location of all life buoys; the duties of a messenger, side boy, anchor watch, telephone talker and lookout, including recognition of ships and aircraft; the location of boats, life rafts, guns, bridges, officers' quarters, chief petty officers' quarters, engine rooms, fire rooms, and other principal compartments; a detailed knowledge of his own part of the ship including the location of all fire plugs and other fire apparatus and damage control equipment, and a working knowledge of their use. (Ch. No. 8)

(2) SEAMAN, FIRST CLASS.**(A) PRACTICAL FACTORS.**

- (a) **MARLINSPIKE SEAMANSHIP.**—Demonstrate ability to tie the more common knots and hitches in general use aboard ship and be able to describe the uses of each. Be able to put a whipping on a rope, put a stopper on a line, and put a strap on a line. Demonstrate proper methods of mousing a hook and making an eye splice and a short splice with manila line.
- (b) **DECK SEAMANSHIP.**—Demonstrate ability to heave the lead, heave a line, and coil down, fake down, and flemish down a line. Be able to identify the various blocks and tackles and the different kinds and uses of rope (wire and manila) used on board ship. Demonstrate a knowledge of methods of measuring, handling, and stowage of rope. Demonstrate a knowledge of the meaning of common sea terms and expressions.
- (c) **GUNNERY.**—Demonstrate ability to perform the duties of own battle station.
- (d) **WATCH STANDING.**—Demonstrate competence in standing watch on the following stations: steersman (not lee helmsman), messenger, side boy, telephone talker, anchor watch, speed indicator, lookout (including recognition of ships and aircraft that might operate in the area in which stationed), and on any other station to which a seaman may be regularly assigned. (Ch. No. 8)

(B) EXAMINATION SUBJECTS.

- (a) **BOATS.**—Classes and types of boats and their nomenclature. Working knowledge of the duties of a boat crew, the boat gear carried, and elementary boat etiquette. Orders and expressions used in hoisting and lowering. Securing a lifeboat for sea.
- (b) **SEAMANSHIP.**—Working knowledge of the steps necessary in preparing a ship for port and for getting under way. Names of lines used in mooring a ship alongside a dock. Elementary knowledge of the Rules of the Road and the United States system of buoyage. Standard steering and engine orders. Marking of a lead line. Standard compass card and methods of taking relative bearings.
- (c) **GROUND TACKLE.**—Working knowledge of the uses of anchors, shackles, swivels, and stoppers, and how the anchor chain is made up and marked. General knowledge of methods of heaving in, letting go, and securing the anchor.

- (d) GUNNERY.—Duties of a gun's crew and common gunnery safety precautions. General knowledge of the parts and types of naval guns and methods of stowing and handling ammunition aboard ship. Detailed knowledge of the duties of own battle station.

D-5205.02. Coxswains.

(1) COXSWAIN.

(A) PRACTICAL FACTORS.

- (a) D-5204. (1) and (2).
(b) BOATS.—Demonstrate ability as coxswain of a boat.
(c) MARLINSPIKE SEAMANSHIP.—Demonstrate ability to tie all of the knots used aboard ship and to use them properly. Demonstrate ability to make a boat fender. Demonstrate a knowledge of making cargo nets or life nets.
(d) CANVAS.—Demonstrate ability to use palm and needle.
(e) DECK MACHINERY.—Demonstrate ability to operate a deck winch.
(f) D-5205.01 (2) (A).

(B) EXAMINATION SUBJECTS.

- (a) BOATS.—Duties of a boat coxswain and safety precautions to be observed in power boats. Working knowledge of the Rules of the Road, boat etiquette, and boat hails.
(b) GENERAL SEAMANSHIP.—Know the use of hawsers, fenders, and boatlines; overhaul of blocks and gear, and care of standing rigging.
(c) SIGNALS.—Know signals to indicate distress, boat recall, and storm warning. Lifeboat directive signals, and other special signals. Use of special boat flags and pennants.
(d) GUNNERY.—Thorough knowledge of the duties of a gun captain.
(e) AVIATION SEAMANSHIP.—Handling of boats in the vicinity of planes and going alongside a plane. Proper methods of towing a plane, and fueling a plane from a boat. Rescue of crew of a burning plane.
(f) COMPASS AND CHART, BUOY SYSTEM.—Set up and read a boat compass. Working knowledge of the U. S. Buoyage System and harbor charts.
(g) D-5205.01 (2) (B).
(h) D-5203.

D-5205.021. Boatswain's Mates.

(1) BOATSWAIN'S MATE, SECOND CLASS.

(A) PRACTICAL FACTORS.

- (a) HOISTING AND LOWERING BOATS, PLANES, AND WEIGHTS.—Demonstrate ability to hoist boats, planes, and heavy weights in own ship.
(b) SEAMANSHIP.—Demonstrate ability to splice a wire (eye splice and long splice) and fit a wire in a socket.
(c) GUNNERY.—Demonstrate ability to station a gun crew and be able to instruct and train each member in his duties. Demonstrate ability to prepare a gun for firing.
(d) BOATSWAIN'S CALL.—Demonstrate ability to pipe all shipboard calls.
(e) CANVAS.—Demonstrate ability to make a canvas article required on board ship.
(f) DAMAGE CONTROL.—Demonstrate ability to function as a member of a damage control party.
(g) D-5205.02 (1) (A).

(B) EXAMINATION SUBJECTS.

- (a) BOATS.—Equipping and provisioning of boats and rafts. Handling boats in surf.
- (b) GROUND TACKLE.—Know the methods of overhauling anchors, chain cable, and shackles.
- (c) GENERAL SEAMANSHIP.—Procedures for preparing to enter port, going alongside, and getting underway.
- (d) GUNNERY.—General knowledge of the gun casualties which are likely to occur in battle, and the procedures for handling. Working knowledge of safety precautions in handling ammunition and explosives.
- (e) EMERGENCY DRILL EQUIPMENT.—Detailed knowledge of the location of all equipment used and the limitations of each piece of equipment.
- (f) WATCH STANDING.—Duties of the boatswain's mate of the watch at sea and in port.
- (g) DAMAGE CONTROL.—Know the organization of damage control party to which assigned.
- (h) D-5205.02 (1) (B)

(2) BOATSWAIN'S MATE, FIRST CLASS.

(A) PRACTICAL FACTORS.

- (a) PARAVANES.—Demonstrate ability to rig paravanes.
- (b) PILOTING.—Demonstrate ability to take and plot bearings.
- (c) SEAMANSHIP.—Demonstrate ability to rig for heavy hoisting.
- (d) DAMAGE CONTROL.—Demonstrate ability to act as petty officer in charge of a damage control party.
- (e) D-5205.021 (1) (A).

(B) EXAMINATION SUBJECTS.

- (a) HANDLING HEAVY WEIGHTS.—Practical rules to follow when working with manila and wire rope in the handling of heavy weights and the proper use of rigging and tackles. Thumb rules for finding the breaking strain of manila rope.
- (b) SEAMANSHIP.—Rigging ship for provisioning. Use of breeches buoy. Working knowledge of methods of carrying out an anchor.
- (c) ADMINISTRATION.—Organization of a division.
- (d) GUNNERY.—Thorough knowledge of the common terms used in fire control and the control of fire of a gun in local control. Duties of a petty officer in charge of a target repair party.
- (e) O.O.D. DUTIES.—Duties of the O.O.D. under way and at anchor.
- (f) DAMAGE CONTROL.—Know the purpose of damage control and the duties that are likely to be performed by the petty officer in charge of a repair party.
- (g) D-5205.021 (1) (B).

(3) CHIEF BOATSWAIN'S MATE.

(A) PRACTICAL FACTORS.

- (a) PILOTING.—Demonstrate ability to determine position by bearing plots, lay off courses and distances, and use navigational equipment commonly employed in piloting.
- (b) SEAMANSHIP.—Demonstrate ability to rig ship for towing and being towed, and for fueling under way.
- (c) ADMINISTRATION.—Prepare a standard work request.

- (d) DAMAGE CONTROL.—Demonstrate ability to organize and direct damage control parties.
 - (e) D-5205.021 (2) (A).
- (B) EXAMINATION SUBJECTS.
- (a) SHIPHANDLING (AS APPLIED TO SMALL CRAFT).—Proper methods of coming to anchor, mooring and unmooring alongside, and getting under way. Towing operations. Maneuvering in a restricted space, effects of engines, rudder, lines, wind, and current.
 - (b) PILOTING.—Understand the use of danger bearings and soundings. Be familiar with the magnetic compass and know how it is compensated. Have a general knowledge of compass error and how it is applied.
 - (c) WEATHER.—Knowledge of how and when to obtain information concerning the weather. Functions of the barometer and wet-bulb and dry-bulb thermometers in weather predictions. General knowledge of the laws of storms.
 - (d) ADMINISTRATION.—Duties of the O.O.D. under way and at anchor. Thorough knowledge of the duties of a division officer as outlined in Chapter 30, *U. S. Navy Regulations*, and the records to be kept and reports to be made. Familiarity with the contents of relevant naval publications and sources of information.
 - (e) DAMAGE CONTROL.—Thorough knowledge of damage control organization aboard own ship.
 - (f) D-5205.021 (2) (B).

D-5205.022. Boatswain's Mates A—(Masters-at-Arms).

No qualifications published.

D-5205.03. Gunner's Mates.

(1) GUNNER'S MATE, THIRD CLASS.

- (A) PRACTICAL FACTORS.
- (a) D-5204 (1) and (2).
 - (b) TOOLS AND MEASURING INSTRUMENTS.—Demonstrate ability to use properly all hand tools including special tools and precision measuring instruments used in the maintenance of the battery to which attached.
 - (c) GUNS.—Demonstrate ability to disassemble and assemble the breech and firing mechanisms of the gun on which stationed or demonstrate ability to disassemble and assemble the machine gun on which stationed. Demonstrate ability to carry out routine maintenance procedure on battery to which attached.
 - (d) SMALL ARMS.—Demonstrate ability to disassemble and assemble a rifle, a pistol, and a light machine gun.
 - (e) GUN CAPTAIN.—Demonstrate ability to qualify as gun captain, second class, at a main, secondary, or anti-aircraft battery gun of a caliber of 1-inch or greater.
 - (f) MAGAZINE CREWS.—Demonstrate ability to station magazine and handling room crews on battery to which attached, to maintain flow of ammunition.

- (e) ALIGNMENT OF FIRE CONTROL EQUIPMENT.—Detailed knowledge of procedure to be followed in aligning all fire control equipment installed on submarine, on initial installation, or after major overhaul.
- (f) D-5205.082 (3) (B).

(C) SCHOOL QUALIFICATIONS.

- (a) Must be a graduate of an advanced fire control school. (This requirement may be waived by the Bureau of Naval Personnel or by the commanding officer in accordance with current instructions.)

D-5206. ARTIFICER BRANCH.

D-5206.01. Radiomen.

(1) RADIOMAN, THIRD CLASS.

(A) PRACTICAL FACTORS.

- (a) D-5204 (1).
- (b) OPERATING ADJUSTMENTS.—Start, stop, regulate, and make necessary operating adjustments on the naval radio transmitting and receiving equipment in own ship or station and know the safety precautions involved. This includes the shifting of frequencies within the time limit and degree of accuracy set as a standard within the fleet or force to which attached.
- (c) WATCH STANDING.—Qualify as a watch stander on an 18 w.p.m. fleet circuit and be able to copy standard Fox method broadcasts, keeping required logs. Demonstrate ability to stand watch on a voice circuit, using the proper procedure.
- (d) RADIO DIRECTION FINDER.—Obtain accurate bearings with radio direction finder in own ship or station.
- (e) TELETYPEWRITER EQUIPMENT.—Demonstrate ability to operate teletypewriter equipment if own ship or station is so equipped.
- (f) ANTENNAS.—Demonstrate ability to rig emergency radio receiving and transmitting antennas.
- (g) CRYPTOGRAPHIC AIDS.—Demonstrate ability to use current cryptographic aids required for circuit use by radiomen in own ship or station.

(B) EXAMINATION SUBJECTS.

- (a) TRANSMITTING AND RECEIVING.—Transmit and receive according to the standard tests given below.
- (b) TYPEWRITING.—Qualify in touch typewriting, with speed and accuracy sufficient for the successful completion of the receiving test given below.
- (c) FIRST AID.—Demonstrate a thorough knowledge of first aid with emphasis upon treatment for personnel suffering from electric shock and burns.
- (d) BATTERIES.—Familiarity with the types, uses, care, and maintenance of batteries used in naval radio equipment.
- (e) OPERATING PROCEDURES.—Working knowledge of naval radio operating procedures as set forth in *Communication Instructions*.
- (f) DISTRESS COMMUNICATION.—Know the procedure for communicating with a ship or aircraft in distress.
- (g) INTERNATIONAL PROCEDURE.—General knowledge of international radio procedure.
- (h) THEORY.—Elementary knowledge of wave propagation, electron theory, vacuum tubes, and magnetism.

- (i) FREQUENCIES.—General knowledge of frequencies assigned for general naval use.
 - (j) SAFETY PRECAUTIONS.—Know the safety precautions to be observed with radio and related equipments in own ship or station.
 - (k) SECURITY.—Know the principles of, and requirements for, maintenance of communication security.
 - (l) D-5203.
- (2) RADIOMAN, SECOND CLASS.
- (A) PRACTICAL FACTORS.
 - (a) WATCH STANDING.—Demonstrate ability to stand a watch on any fleet circuit.
 - (b) EMERGENCY REPAIRS.—Perform simple emergency radio and electrical repairs.
 - (c) TRAFFIC.—Demonstrate ability to route traffic to, from, and within own ship or station.
 - (d) RADIO OPERATING PROCEDURES.—Demonstrate detailed knowledge of naval radio operating procedures.
 - (e) NAVIGATION.—Demonstrate ability to take bearings and plot positions, using radio direction finder.
 - (f) D-5206.01 (1) (A).
 - (B) EXAMINATION SUBJECTS.
 - (a) TRANSMITTING AND RECEIVING.—Transmit and receive according to the standard tests given below.
 - (b) OPERATION OF RADIO AND ASSOCIATED EQUIPMENTS.—Have a good working knowledge of the operation, adjustment, and care of the radio and radio direction finder (including HFDF) equipment in own ship or station.
 - (c) COMMUNICATION INSTRUCTIONS.—Possess a detailed knowledge of operating procedures, communication instructions, and naval organization as set forth in *U. S. Navy Regulations, Communication Instructions*, and current operating instructions.
 - (d) GENERAL OPERATING PROCEDURES.—Working knowledge of commercial traffic instructions and international procedure. Know the regulations regarding communications as prescribed for the safety of life at sea, and know how to communicate by radio with a merchant vessel at sea.
 - (e) PUBLICATIONS.—List and know how to use the major publications and manuals pertaining to naval, commercial, and international procedure.
 - (f) ANTENNAS.—General knowledge of the characteristics of the various types of antennas used on board ship.
 - (g) WATCH STANDING.—Know how to take charge of a watch, handle traffic as a supervisor, and act as a monitor engineer for several receiving equipments.
 - (h) ELECTRICITY.—General knowledge of A.C. and D.C.
 - (i) FREQUENCIES.—Thorough knowledge of frequencies assigned for general naval use.
 - (j) D-5206.01 (1) (B).
- (3) RADIOMAN, FIRST CLASS.
- (A) PRACTICAL FACTORS.
 - (a) WATCH STANDING.—Demonstrate ability to take charge of a watch, act as supervisor, and perform duties of senior radioman on board.

- (d) INSPECTIONS.—Thorough knowledge of all inspection and checking procedures used in special device installation and maintenance.
 - (e) D-5206.101 (2) (B).
- (4) CHIEF SPECIAL ARTIFICER D.
- (A) PRACTICAL FACTORS.
 - (a) SUPERVISION OF REPAIRS.—Demonstrate ability to supervise and inspect the overhaul and repair of all special devices equipment.
 - (b) SUPERVISION OF TESTING.—Demonstrate ability to superintend the calibration, testing, and adjustment of all devices used at a Naval Training School for Special Devices, or in a ship or station.
 - (c) TRAINING.—Demonstrate ability to train others in the maintenance techniques of special devices.
 - (d) ORGANIZATION AND ADMINISTRATION.—Demonstrate ability to organize and administer a special devices repair shop.
 - (e) D-5206.101 (3) (A).
 - (B) EXAMINATION SUBJECTS.
 - (a) ORGANIZATION.—Knowledge of naval organization pertaining to the specialized field of activity.
 - (b) DUTIES.—Thorough familiarity with the duties of all ratings associated with special device maintenance activities.
 - (c) INSPECTION REPORTS.—Knowledge of how to keep periodic reports of inspections of special devices equipment, as required by the various bureaus.
 - (d) D-5206.101 (3) (B).

D-5206.102. Special Artificers I—Instruments.

NOTE:—The term “instruments” in the following qualifications applies only to shipboard mechanical instruments. It does *not* include the following: electrical and optical instruments; chronometers, clocks and watches; typewriters and office equipment.

- (1) SPECIAL ARTIFICER I, THIRD CLASS.
- (A) PRACTICAL FACTORS.
 - (a) D-5204 (1).
 - (b) TOOLS.—Demonstrate ability to use common instrument repair hand tools. Demonstrate ability to sharpen simple cutting tools and drills and to keep tools in good condition.
 - (c) MACHINE TOOLS.—Demonstrate ability to use precision lathe, milling machine, shaper and drill press in making new parts and repairing old parts.
 - (d) TEST EQUIPMENT.—Demonstrate ability to use such test equipment as tachometer testers, dead weight gage testers, and vacuum gage testers in the general check-up and adjustment of instruments.
 - (e) MAINTENANCE AND REPAIR.—Demonstrate ability to dismantle, clean, test, adjust, calibrate, assemble, and make minor repairs to such common mechanical instruments as tachometers, tank level indicators, and the following types of gages: Bourdon tube, simplex, duplex, depth, external pressure, compensated depth, hydraulic, differential pressure, and compound.
 - (f) BLUEPRINTS.—Demonstrate ability to read simple blueprints and schematic drawings.
 - (g) TROUBLE SHOOTING.—Demonstrate ability to recognize and diagnose faulty operation of common instruments.
 - (h) SOLDERING.—Demonstrate ability to solder small instrument parts and equipment.

(B) EXAMINATION SUBJECTS.

- (a) D-5203.
- (b) NOMENCLATURE.—Thoroughly understand standard instrument nomenclature.
- (c) RECORDS AND PUBLICATIONS.—Be familiar with records, logs, publications, and maintenance manuals relating to instruments.
- (d) MATHEMATICS.—Have a basic understanding of simple mechanics and shop mathematics, including whole numbers, fractions, decimals, per cent, area, volume, and simple functions of the right angle.
- (e) HYDRAULICS.—Know the principles of hydraulics applicable to pressure instruments.
- (f) INSTRUMENTS.—Have a general knowledge of the construction and principles of operation of common mechanical instruments.
- (g) ELECTRICITY.—Have an elementary knowledge of electricity applicable to instruments.
- (h) SAFETY PRECAUTIONS.—Know the safety precautions which must be observed in performing instrument work.
- (i) MAINTENANCE.—Know the proper lubricants, corrosion preventives, cleansing solutions and solvents used in instrument maintenance and the procedures for their application.

(2) SPECIAL ARTIFICER I, SECOND CLASS.

(A) PRACTICAL FACTORS.

- (a) TOOLS.—Demonstrate proficiency in the use of hand and machine tools used for instrument repair.
- (b) MAINTENANCE AND REPAIR.—Demonstrate ability to dismantle, clean, test, adjust, repair, calibrate and assemble instruments such as precision gages, and meters which record speed, revolutions, temperature, pressure and vacuum.
- (c) TEST EQUIPMENT.—Demonstrate ability to maintain and repair instrument test equipment.
- (d) INSTRUMENT PIVOTS.—Demonstrate ability to recondition instrument pivots.
- (e) JEWELS.—Demonstrate ability to select and set jewels in instruments.
- (f) BLUEPRINTS.—Demonstrate ability to perform work from blueprints and schematic drawings.
- (g) D-5206.102 (1)(A).

(B) EXAMINATION SUBJECTS.

- (a) INSTRUMENTS.—Have a thorough knowledge of the construction and principles of operation of common mechanical instruments.
- (b) MATERIALS AND PARTS.—Know the materials and component parts of instruments. Know how to obtain spare parts by reference to stock numbers.
- (c) SPARE PARTS AND SUPPLIES.—Know how spare parts and supplies are stored, how they are obtained from stock, and the records which must be kept on such items.
- (d) D-5206.102 (1)(B).

(3) SPECIAL ARTIFICER I, FIRST CLASS.

(A) PRACTICAL FACTORS.

- (a) SUPERVISION.—Demonstrate ability to supervise and train instrument men in the routine maintenance and repair of instruments.
- (b) OVERHAUL.—Demonstrate ability to overhaul and install all types of instruments.

- (c) TROUBLE SHOOTING.—Demonstrate ability to recognize, analyze and correct faulty operation of all types of instruments.
 - (d) RECORDS.—Demonstrate ability to supervise the maintenance of all required records.
 - (e) D-5206.102 (2)(A).
- (B) EXAMINATION SUBJECTS.
- (a) RECORDS AND REPORTS.—Have a general knowledge of all records, reports, catalogues, manuals, and other technical instructions pertaining to instruments.
 - (b) TESTING PROCEDURES.—Have a thorough knowledge of procedures for testing all instruments.
 - (c) ADJUSTMENT AND CALIBRATION.—Have a thorough knowledge of instrument adjustment and calibration.
 - (d) INSPECTIONS AND CHECKS.—Have a thorough knowledge of required instrument inspections and checks.
 - (e) INSTRUMENTS.—Be familiar with the construction and principles of operation of levelometers and liquidometers.
- (4) CHIEF SPECIAL ARTIFICER I.
- (A) PRACTICAL FACTORS.
- (a) ADMINISTRATION.—Demonstrate ability to set up, organize, and administer an instrument repair shop.
 - (b) SUPPLIES.—Demonstrate ability to supervise the stowage, preservation of, and accounting for instrument spare parts, and to obtain replacements.
 - (c) TRAINING.—Demonstrate ability to train men in all phases of instrument work.
 - (d) D-5206.102 (3)(A).
- (B) EXAMINATION SUBJECTS.
- (a) RELATED DUTIES.—Know the duties of other rated men on own ship or station as they relate to instrument work.
 - (b) REPORTS, RECORDS, AND PUBLICATIONS.—Have a thorough knowledge of reports, records and publications concerning instruments and know how to procure required publications and technical information.
 - (c) INSTRUMENTS.—Have a thorough knowledge of the construction and principles of operation of all types of instruments.
 - (d) D-5206.102 (3)(B). (Ch. No. 8)
- D-5206.1021. Special Artificers I (WR)—(Watch Repairmen).
- (1) SPECIAL ARTIFICER I (WR), THIRD CLASS.
- (A) PRACTICAL FACTORS.
- (a) D-5204 (1).
 - (b) TOOLS.—Demonstrate proficiency in the use of simple small tools and equipment. Demonstrate ability to sharpen simple cutting tools and drills, and to keep tools in good condition.
 - (c) WATCHMAKER'S LATHE.—Demonstrate ability to use a watchmaker's lathe in cutting the following: straight diameters, tapered diameters, and square seats and shoulders.
 - (d) FABRICATION.—Demonstrate ability to fabricate clock parts from steel, brass, german-silver, and copper. Be able to make simple pins, springs, and levers for clocks.
 - (e) CLEANING.—Demonstrate ability to disassemble, clean, and reassemble clock movements. Be able to use a cleaning machine properly and to lubricate a clock.

- (f) REFINISHING.—Demonstrate ability to refinish watch parts.
- (g) BALANCE AND STAFF.—Demonstrate ability to use a staking tool, poisoning tool, and truing caliper in repairing a balance and staff.
- (h) WATCH RATE RECORDER.—Demonstrate ability to operate a watch rate recording machine and interpret the records correctly.
- (i) CLICK SPRING.—Demonstrate ability to make a clock click spring from flat steel stock, and to harden, temper, and finish the part.

(B) EXAMINATION SUBJECTS.

- (a) MAGNETISM.—Explain the effect of magnetism in a clock and how it is removed.
- (b) CHEMICALS AND COMPOUNDS.—Know the use of cyanide, ammonia, alcohol, shellac, wax, and other chemicals and compounds used in horology.
- (c) NOMENCLATURE.—Be thoroughly familiar with all the terms commonly used in horology.
- (d) PROCESSES.—Be able to explain in detail the following processes with reference to a standard Navy clock:
 - (i) Disassembly.
 - (ii) Cleaning.
 - (iii) Replacement of balancing staff.
 - (iv) Reassembly.
 - (v) Lubrication.
 - (vi) Regulation on watch rate recording machine.
- (e) D-5203.

(2) SPECIAL ARTIFICER I (WR), SECOND CLASS.

(A) PRACTICAL FACTORS.

- (a) WATCHMAKER'S LATHE.—Demonstrate ability to use a watchmaker's lathe in performing the following operations:
 - (i) Drilling.
 - (ii) Boring.
 - (iii) Polishing pivots.
 - (iv) Manufacturing winding arbors.
 - (v) Rebushing clock plates.
- (b) SOLDERING.—Demonstrate ability to make hard-solder and soft-solder joints using a gas torch or electrical equipment.
- (c) COMPARING WATCH.—Demonstrate ability to disassemble, clean, reassemble, lubricate, and regulate to Navy specifications a comparing watch movement. Also demonstrate ability to fit ready-made watch parts such as staffs, mainsprings, stems, crowns, and jewels in comparing watches.
- (d) BELL-CLOCK.—Demonstrate ability to disassemble, clean, reassemble, and regulate a standard ship's bell-clock movement.
- (e) D-5206.1021 (1) (A).

(B) EXAMINATION SUBJECTS.

- (a) MAINSPRINGS.—Explain the construction and function of mainsprings.
- (b) MOVEMENT TRAIN.—Trace the power from the mainspring through the entire train of a watch movement.
- (c) GEARING RATIOS.—Explain simple gearing ratios as used in watches including both 12 hour and 24 hour dial trains.
- (d) LEVER ESCAPEMENT.—Explain the theory and operation of the lever escapement.
- (e) D-5206.1021 (1) (B).

(3) SPECIAL ARTIFICER I (WR), FIRST CLASS.

(A) PRACTICAL FACTORS.

- (a) FABRICATION.—Demonstrate ability to make balance staffs, jewel settings, setting levers, setting detents, actuating springs, stems, clicks, bushings, screws, and balance cocks.
- (b) CHRONOGRAPH STOP WATCH.—Demonstrate ability to disassemble, clean, reassemble, lubricate, and regulate to Navy specifications a chronograph stop watch movement.
- (c) FLAT HAIRSPRING.—Demonstrate ability to repair, vibrate, and form an overcoil on a damaged flat hairspring. Adjust and regulate a watch containing this type of hairspring to pass standard Navy timing specifications.

- (b) ANNEALING.—Be able to anneal aluminum alloy sheet and copper tubing using emergency methods when necessary.
 - (c) REPAIRS.—Demonstrate ability to repair all types of removable sheet metal sections. Demonstrate ability to inspect and determine what repairs should be made.
 - (d) RIVETING.—Demonstrate ability to do all types of airplane riveting including the use of special rivets and fasteners.
 - (e) SKIN REPAIRS.—Demonstrate ability to make skin repairs on float and hulls.
 - (f) WELDING.—Demonstrate ability to weld ferrous and aluminum alloys. Be able to braze applicable metals.
 - (g) ALIGNMENT.—Be able to align all airplane parts such as wings, control surfaces, landing gear, etc.
 - (h) FABRIC.—Be able to make repairs to and refinish fabric covering on aircraft structures.
 - (i) WOOD AND PLASTICS.—Be able to make all minor repairs to wooden or plastic structures of an airplane.
 - (j) CONTROL SYSTEMS.—Be able to inspect, install, and adjust all mechanical control systems on own airplanes.
 - (k) TUBING.—Be able to inspect and install all types of metal tubing lines. Be able to identify all tubing by markings.
 - (l) FUEL TANKS.—Be able to remove, clean, inspect, and install all types of fuel tanks and cells. Be able to test for leaks and make necessary repairs to all types of metal fuel and oil tanks, observing all safety precautions.
 - (m) STRUCTURAL REPAIRS.—Be able to make complicated structural repairs on own airplanes, such as replacement and splicing of stringers, bulkheads, etc.
 - (n) JIGS AND TEMPLATES.—Be able to make necessary jigs and templates for fabrication of aircraft structural parts.
 - (o) D-5208.06 (1) (A).
- (B) EXAMINATION SUBJECTS.
- (a) HEAT TREATING.—Knowledge of the principles of and reasons for heat treatment of aluminum and steel alloys. Knowledge of the composition of airplane steel and steel alloys.
 - (b) STRUCTURES.—General knowledge of all types of stresses and strains on all airplane structural members.
 - (c) ELECTRO-PLATING.—Elementary knowledge of the principles and processes of electro-plating, anodizing, and passivating.
 - (d) WELDING AND BRAZING.—Knowledge of the principles of welding and brazing airplane metals.
 - (e) PLASTICS.—Elementary knowledge of the characteristics and uses of plastics used in airplane skin and structures.
 - (f) WOOD AND FABRIC.—Knowledge of the characteristics of wood, fabric, and fabric finishes used in airplane construction. Knowledge of the preparation and application of wood glues.
 - (g) PLANE CAPTAIN.—Knowledge of the general duties of a plane captain.
 - (h) D-5208.06 (1) (B).
- (3) AVIATION METALSMITH, FIRST CLASS.
- (A) PRACTICAL FACTORS.
- (a) REQUISITIONS.—Demonstrate ability to order stock from a standard stock catalogue.
 - (b) TECHNICAL NOTES AND ORDERS.—Demonstrate ability to interpret and execute all technical notes and orders.

- (c) METALS.—Be able to identify various types of metals by sight or shop tests.
- (d) STRUCTURE.—Be able to make all structural changes on own airplanes from change bulletins.
- (e) REPAIRS.—Demonstrate ability to make repairs to all types of stressed skin. Be able to repair, splice, and weld all airplane tubular structures.
- (f) FITTINGS.—Be able to fabricate, heat treat, and install steel airplane fittings.
- (g) RIGGING.—Be able to make necessary changes and alterations for proper rigging of own airplanes.
- (h) FUEL CELLS.—Be able to make permanent repairs to self sealing fuel cells, including replacement of all metal fittings and connections.
- (i) SUPERVISION.—Demonstrate ability to supervise the work and training of personnel in the duties of an aviation metalsmith.
- (j) D-5208.06 (2) (A).

(B) EXAMINATION SUBJECTS.

- (a) TECHNICAL NOTES.—Knowledge of the origin and interpretation of all technical notes and orders.
- (b) AIRPLANE METALS.—Knowledge of the composition of all airplane metals.
- (c) WOOD.—Knowledge of the principles governing repairs to the wooden structural parts of an airplane.
- (d) AERODYNAMICS.—Knowledge of the basic aerodynamic principles governing the rigging of airplanes.
- (e) CORROSION PREVENTION.—Knowledge of surface treatment for magnesium alloys.
- (f) WELDING.—Knowledge of the special technique required for welding magnesium alloys.
- (g) D-5208.06 (2) (B).

(4) AVIATION CHIEF METALSMITH.

(A) PRACTICAL FACTORS.

- (a) SUPERVISION.—Demonstrate ability to assume the duties of an airplane squadron structural officer. Demonstrate ability to equip and supervise an aviation metalsmith shop.
- (b) INSTALLATION OF AIRPLANE CHANGES.—Demonstrate ability to interpret and supervise the installation of airplane changes.
- (c) D-5208.06 (3) (A).

(B) EXAMINATION SUBJECTS.

- (a) ORGANIZATION.—Knowledge of all phases of aviation administrative organization.
- (b) METALLURGY.—Knowledge of practical metallurgy as applied to metals used in the construction and repair of aircraft.
- (c) SPECIFICATIONS.—Knowledge of preparation of metals to meet airplane construction or repair qualifications.
- (d) D-5208.06 (3) (B).

D-5208.07. Aviation Ordnancemen.

(1) AVIATION ORDNANCEMAN, THIRD CLASS.

(A) PRACTICAL FACTORS.

- (a) D-5204 (1) and (2), except (2) (b) which is not required of non-flying personnel.
- (b) TOOLS.—Demonstrate ability to use and care for hand tools, small power tools, and special equipment used in aviation ordnance work.

- (c) WORKING DRAWINGS.—Demonstrate ability to read working drawings, simple wiring diagrams and blueprints, and shop sketches pertaining to aviation ordnance.
- (d) INSTALLATIONS.—Demonstrate ability to install and adjust aircraft guns and accessories, rocket launchers, shackles, gun cameras and torpedo cameras, pyrotechnics dischargers, and target equipment. Be able to assemble, disassemble, boresight, and synchronize aircraft guns.
- (e) MAINTENANCE.—Demonstrate ability to care for and perform line maintenance including lubrication of small arms, aircraft guns, shackles, racks, rocket launchers, target equipment, munition handling equipment, and aircraft munitions.
- (f) OPERATION.—Demonstrate ability to test-fire small arms and aircraft guns.
- (g) REARMING.—Demonstrate ability to load (including fuzing) all aircraft munitions in aircraft of own squadron.
- (h) STOWAGE AND HANDLING.—Demonstrate ability to remove from stowage, uncrate, and make ready aircraft munitions.
- (i) SAFETY PRECAUTIONS.—Demonstrate ability to observe all safety precautions in handling aircraft munitions.
- (j) SIGHTS.—Demonstrate ability to align all types of sights used in own unit. Be able to identify all aviation ordnance, fire control, and turret equipment.

(B) EXAMINATION SUBJECTS.

- (a) D-5203.
- (b) EQUIPMENT.—Be familiar with the construction and operation of aviation ordnance equipment. Have a basic knowledge of aviation fire control equipment, turrets, and powered gun mounts and methods of operation.
- (c) BALLISTIC THEORY.—Have a general knowledge of ballistic theory as applied to aviation ordnance equipment.
- (d) ELECTRICITY.—Have an elementary knowledge of A. C. and D. C. electricity. Be familiar with the definition of common terms employed, use of electrical measuring instruments, and the electrical circuits used in aviation ordnance.
- (e) MATHEMATICS.—Have a working knowledge of shop mathematics.
- (f) PHYSICS.—Have an elementary knowledge of physics, with emphasis on mechanics, optics, and hydraulics applicable to aviation ordnance equipment.
- (g) AIRCRAFT MUNITIONS.—Know the types of identifying marks of all aircraft munitions including small arms and aircraft gun ammunition, fuzes, bombs, torpedoes, mines, rockets, and pyrotechnics.
- (h) BORESIGHTING.—Know the procedures to be used for boresighting aircraft guns, and the precautions to be observed in the handling of sights.
- (i) SAFETY PRECAUTIONS.—Know the safety regulations and precautions pertaining to the above equipment and munitions.

(C) SCHOOL QUALIFICATIONS.

- (a) Graduation from Class A Aviation Ordnance School or possession of the equivalent in practical experience.

(2) AVIATION ORDNANCEMAN, SECOND CLASS.

(A) PRACTICAL FACTORS.

- (a) REPAIRS.—Demonstrate ability to make minor repairs and replacements to aviation ordnance equipment, such as small arms, aircraft guns, rocket launchers, racks, and shackles.

- (b) MAINTENANCE.—Demonstrate ability to maintain pyrotechnic dischargers smoke tanks and dischargers, gun cameras and torpedo cameras, target equipment and munition handling equipment.
- (c) FUZES.—Demonstrate ability to assemble and disassemble fuzes used in own squadron.
- (d) REARMING CREW.—Demonstrate ability to take charge of a rearming crew.
- (e) TECHNICAL INFORMATION.—Demonstrate ability to read and work from blueprints, wiring diagrams, schematics, shop sketches, and other sources of technical information.
- (f) D-5208.07 (1) (A).

(B) EXAMINATION SUBJECTS.

- (a) AVIATION ORDNANCE EQUIPMENT.—Have a working knowledge of principles, construction, and operation of aviation ordnance equipment.
- (b) MUNITIONS.—Have a general knowledge of the composition and characteristics of explosives. Know the tactical uses, characteristics, and principles of operation of all aircraft munitions, including a thorough knowledge of the operation of fuzes used in own squadron. Know current instructions for belting ammunition for different type missions.
- (c) TURRETS.—Know the procedures for boresighting and zoning aircraft turrets.
- (d) MUNITION HANDLING EQUIPMENT.—Know the safety factors and strength limitations of munition handling equipment.
- (e) D-5208.07 (1) (B).

(3) AVIATION ORDNANCEMAN, FIRST CLASS.

(A) PRACTICAL FACTORS.

- (a) SUPERVISION.—Demonstrate ability to supervise and train personnel engaged in the maintenance and repair of aviation ordnance equipment. Be able to direct a squadron ordnance crew.
- (b) TROUBLE SHOOTING.—Demonstrate ability to locate, diagnose, and repair malfunctioning aviation ordnance equipment.
- (c) OVERHAUL.—Demonstrate ability to overhaul aviation ordnance equipment.
- (d) FUZES.—Demonstrate ability to assemble, make adjustments and repairs, and disassemble all service type fuzes.
- (e) TURRETS.—Demonstrate ability to boresight and zone power turrets. Be able to make field adjustments and minor repairs of turrets and powered gun mounts.
- (f) SKETCHES AND DIAGRAMS.—Demonstrate ability to make working sketches for aviation ordnance equipment.
- (g) D-5208.07 (2) (A).

(B) EXAMINATION SUBJECTS.

- (a) ORGANIZATION.—Having a knowledge of Air Department organization and routine aboard own ship or station.
- (b) RECORDS AND REPORTS.—Know all records and reports required for aviation ordnance equipment.
- (c) EQUIPMENT.—Know thoroughly the construction and operating principles of all aviation ordnance equipment.
- (d) TECHNICAL INFORMATION.—Have a thorough knowledge of the sources of technical information and methods of procuring such information.

- (e) SUPPLIES.—Know the types of spare parts and other supplies available in own ship or station, and the procedures for obtaining them from stock. Know how to obtain drawing and part numbers.
 - (f) FUZES.—Have a thorough knowledge of the operation of all service type fuzes.
 - (g) ARMAMENT.—Have a knowledge of the armament of current types of service aircraft.
 - (h) FIRE CONTROL PROBLEMS.—Know what factors must be considered in solving aviation fire control problems.
 - (i) D-5208.07 (2) (B).
- (4) AVIATION CHIEF ORDNANCEMAN.
- (A) PRACTICAL FACTORS.
- (a) SUPERVISION.—Demonstrate ability to supervise the installation, removal, and overhaul of all types of aviation ordnance equipment. Be able to assume the duties of the leading C. P. O. of the aviation unit to which assigned, and to function as an assistant to the gunnery or ordnance officer.
 - (b) ADMINISTRATION.—Demonstrate ability to organize and direct maintenance, repair, or overhaul facilities for aviation ordnance equipment.
 - (c) REARMING CREWS.—Demonstrate ability to select and train aircraft rearming crews.
 - (d) SUPPLIES.—Demonstrate ability to estimate, requisition, and keep account of aviation ordnance equipment and supplies.
 - (e) D-5208.07 (3) (A).
- (B) EXAMINATION SUBJECTS.
- (a) SUPPLIES.—Know how to procure spare parts and supplies for all types of aviation ordnance equipment by reference to allowance lists, stock lists, drawing and part numbers. Know the care required and the responsibility for Title B equipment.
 - (b) RECORDS AND REPORTS.—Know how to prepare all records and report required of the Gunnery or Ordnance Department of the aviation service unit to which assigned.
 - (c) RELATED DUTIES.—Have a general knowledge of the duties performed by aviation fire controlmen and aviation turret mechanics.
 - (d) D-5208.07 (3) (B). (Ch. No. 8)

D-5208.071. AVIATION FIRE CONTROLMEN.

(1) AVIATION FIRE CONTROLMAN, THIRD CLASS.

(A) PRACTICAL FACTORS.

- (a) D-5204 (1) and (2), except (2) (b) which is not required of nonflying personnel.
- (b) TOOLS.—Demonstrate ability to use and care for hand and small power tools employed in aviation fire control work.
- (c) WORKING DRAWINGS.—Demonstrate ability to read simple blueprints, wiring diagrams, and shop sketches.
- (d) MAINTENANCE.—Demonstrate ability to lubricate, perform routine ground and flight checks, and make minor repairs and adjustments of aviation fire control equipment. Be able to align gun and torpedo cameras.
- (e) INSTALLATION AND OPERATION.—Demonstrate ability to install, align, operate, and remove all types of aviation fire control equipment, and to operate turrets.
- (f) REARMING.—Demonstrate ability to assist in rearming aircraft.

- (g) ELECTRICAL CIRCUITS.—Demonstrate ability to make simple electrical circuit checks using voltmeter, ammeter and ohmmeter.
- (h) SAFETY PRECAUTIONS.—Demonstrate ability to observe all safety precautions while working with above equipment and munitions.

(B) EXAMINATION SUBJECTS.

- (a) D-5203.
- (b) EQUIPMENT.—Be familiar with the construction and operation of aviation fire control equipment. Have a basic knowledge of turrets and powered gun mounts and methods of operation, and the relationship of such operation to aviation fire control equipment.
- (c) BALLISTIC THEORY.—Have a general knowledge of ballistic and bombing theory, as applied to aviation fire control equipment.
- (d) ELECTRICITY.—Have an elementary knowledge of AC and DC electricity. Be familiar with the definition of common terms employed, use of electrical measuring instruments, and the solution of simple problems.
- (e) ELECTRONICS.—Have an elementary knowledge of electronics as applied to aviation fire control equipment.
- (f) PHYSICS.—Have an elementary knowledge of physics with emphasis on hydraulics, pneumatics, optics, and mechanics applicable to aviation fire control equipment.
- (g) MATHEMATICS.—Have a working knowledge of shop mathematics.
- (h) GYROSCOPE.—Have an elementary knowledge of gyroscope theory.
- (i) SPECIAL CONDITIONS.—Know the procedures to be observed for cold weather operation, protection against corrosion, and salt water immersion of aviation fire control equipment.
- (j) SAFETY PRECAUTIONS.—Know the safety precautions to be observed in the installation, maintenance, and operation of aviation fire control equipment and in handling aircraft munitions.
- (k) SECURITY REGULATIONS.—Know the security regulations pertaining to aviation fire control equipment and publications.

(C) SCHOOL QUALIFICATIONS.

- (a) Must be a graduate of a Class A Aviation Ordnance School, or have demonstrated the possession of equivalent practical experience.
- (b) Must, in addition, be a graduate of a Class B Aviation Fire Control School or Aviation Bombsight School, or have demonstrated the possession of equivalent practical experience.

(2) AVIATION FIRE CONTROLMAN, SECOND CLASS.

(A) PRACTICAL FACTORS.

- (a) MAINTENANCE AND REPAIR.—Demonstrate ability to make all checks, adjustments, and repairs on aviation fire control equipment. Be able to make field adjustments and minor repairs to turrets and powered gun mounts.
- (b) TECHNICAL INFORMATION.—Demonstrate ability to read and work from blueprints, wiring diagrams, shop sketches and other sources of technical information.
- (c) TOOLS.—Demonstrate ability to use and care for special hand, precision, and machine tools, and special test equipment used in aviation fire control work.
- (d) PACKING AND HANDLING.—Demonstrate ability to pack and prepare aviation fire control equipment for shipment.
- (e) D-5208.071 (1) (A).

(B) EXAMINATION SUBJECTS.

- (a) FIRE CONTROL EQUIPMENT.—Have a working knowledge of the principles, construction, and operation of aviation fire control equipment.
- (b) TURRETS.—Know the procedures for boresighting and zoning aircraft turrets.
- (c) ELECTRICITY.—Have a working knowledge of AC and DC electricity and electrical auxiliaries, such as motors, generators, amplidynes, condensers, etc., associated with aviation fire control equipment.
- (d) ELECTRONICS.—Have a working knowledge of electronics as applied to aviation fire control equipment.
- (e) FIRE CONTROL PROBLEMS.—Know what factors must be considered in solving aviation fire control problems.
- (f) D-5208.071 (1) (B).

(C) SCHOOL QUALIFICATIONS.

- (a) D-5208.071 (1) (C).

(3) AVIATION FIRE CONTROLMAN, FIRST CLASS.

(A) PRACTICAL FACTORS.

- (a) SUPERVISION.—Demonstrate ability to supervise and train personnel engaged in the maintenance and repair of aviation fire control equipment.
- (b) TROUBLE SHOOTING.—Demonstrate ability to locate, diagnose and repair malfunctioning aviation fire control equipment.
- (c) REARMING.—Demonstrate ability to take charge of a rearming crew.
- (d) CHECKS.—Demonstrate ability to make all checks on aviation fire control equipment, and preflight and operating checks on electronic components, turrets, and powered gun mounts.
- (e) SKETCHES AND DIAGRAMS.—Demonstrate ability to make working sketches and wiring diagrams for aviation fire control equipment.
- (f) D-5208.071 (2) (A).

(B) EXAMINATION SUBJECTS.

- (a) ORGANIZATION.—Have a knowledge of Air Department organization and routine aboard own ship or station.
- (b) RECORDS AND REPORTS.—Know all records and reports required for aviation fire control equipment.
- (c) EQUIPMENT.—Know thoroughly the construction and operating principles of all aviation fire control equipment.
- (d) OPTICAL SYSTEMS.—Have a thorough knowledge of the care, gassing, and sealing of optical systems in aviation fire control equipment.
- (e) TECHNICAL INFORMATION.—Have a thorough knowledge of the sources of technical information and methods of procuring such information.
- (f) SUPPLIES.—Know the types of spare parts and other supplies available in own ship or station and the procedures for obtaining them from stock. Know how to obtain drawing and part numbers.
- (g) D-5208.071 (2) (B).

(C) SCHOOL QUALIFICATIONS.

- (a) D-5208.071 (1) (C).

(4) AVIATION CHIEF FIRE CONTROLMAN.

(A) PRACTICAL FACTORS.

- (a) SUPERVISION.—Demonstrate ability to supervise the installation, removal, and repair of all types of aviation fire control equipment. Be able to

assume the duties of the leading C.P.O. of the aviation unit to which assigned, and to function as an assistant to the gunnery or ordnance officer.

- (b) ADMINISTRATION.—Demonstrate ability to organize and direct a maintenance shop or repair facilities for aviation fire control equipment.
- (c) REARMING CREW.—Demonstrate ability to select and train aircraft rearming crews.
- (d) SUPPLIES.—Demonstrate ability to estimate, requisition, and keep account of aviation fire control equipment and supplies.
- (e) D-5208.071 (3) (A).

(B) EXAMINATION SUBJECTS.

- (a) SUPPLIES.—Know how to procure spare parts and supplies for all types of aviation fire control equipment by reference to allowance lists, stock lists, drawing and part numbers. Know the care required and the responsibility for Title B equipment.
- (b) RECORDS AND REPORTS.—Know how to prepare all records and reports required of the Gunnery or Ordnance Department of the aviation service unit to which assigned.
- (c) RELATED DUTIES.—Have a general knowledge of the duties performed by aviation ordnancemen and aviation turret mechanics.
- (d) D-5208.071 (3) (B).

(C) SCHOOL QUALIFICATIONS.

- (a) D-5208.071 (1) (C). (Ch. No. 8)

D-5208.072. Aviation Ordnancemen T—Aviation Turret Mechanics.

(1) AVIATION ORDNANCEMAN T, THIRD CLASS.

(A) PRACTICAL FACTORS.

- (a) D-5204 (1) and (2), except (2) (b) which is not required of nonflying personnel.
- (b) TOOLS.—Demonstrate ability to use and care for hand tools, power tools and special equipment employed in maintenance of turrets and powered gun mounts.
- (c) WORKING DRAWINGS.—Demonstrate ability to read and work from simple blueprints, wiring diagrams, schematics, and shop sketches relating to turrets and powered gun mounts.
- (d) MAINTENANCE.—Demonstrate ability to lubricate, perform routine ground and flight checks, and make minor repairs and adjustments to turrets and powered gun mounts.
- (e) INSTALLATION AND OPERATION.—Demonstrate ability to align, operate, and assist in the installation and removal of all types of turrets and powered gun mounts, and to operate aviation fire control equipment.
- (f) REARMING.—Demonstrate ability to assist in rearming aircraft.
- (g) ELECTRICAL CIRCUITS.—Demonstrate ability to locate minor electrical troubles, such as shorts, opens, and grounds, and make necessary repairs. Be able to check all wiring for proper anchorage of conduits and terminal boxes, and to correct defective connections. Demonstrate ability to use voltmeter, ammeter and ohmmeter.
- (h) SAFETY PRECAUTIONS.—Demonstrate ability to observe necessary safety precautions in the installation and maintenance of turrets and powered gun mounts.

(B) EXAMINATION SUBJECTS.

- (a) D-5203.

- (b) **EQUIPMENT.**—Be familiar with the construction and operation of turrets and powered gun mounts. Have a basic knowledge of aviation fire control equipment and methods of operation.
 - (c) **ELECTRICITY.**—Have an elementary knowledge of AC and DC electricity. Be familiar with the definition of common terms employed, the use of electrical measuring instruments, and the solution of simple problems.
 - (d) **PHYSICS.**—Have an elementary knowledge of physics with emphasis on hydraulics, pneumatics, optics, and mechanics applicable to aircraft turrets and powered gun mounts.
 - (e) **MATHEMATICS.**—Have a working knowledge of shop mathematics.
 - (f) **GYROSCOPE.**—Have an elementary knowledge of gyroscope theory.
 - (g) **ELECTRONICS.**—Have an elementary knowledge of electronics as applied to turret aviation fire control equipment.
 - (h) **BORESIGHTING.**—Know the procedures for boresighting turrets and powered gun mounts. Know how to zone aircraft turrets.
 - (i) **MATERIALS.**—Have a working knowledge of the characteristics of materials, corrosion preventives, and lubricants used in turrets and powered gun mounts.
 - (j) **SAFETY PRECAUTIONS.**—Know the safety precautions to be observed in the installation, maintenance and operation of aircraft turrets and powered gun mounts and in handling aircraft munitions.
- (C) **SCHOOL QUALIFICATIONS.**
- (a) Must be a graduate of a Class A Aviation Ordnance School, or have demonstrated the possession of equivalent practical experience.
 - (b) Must, in addition, be a graduate of a Class B School providing extensive training in turrets, or have demonstrated the possession of equivalent practical experience.
- (2) **AVIATION ORDNANCEMAN T, SECOND CLASS.**
- (A) **PRACTICAL FACTORS.**
- (a) **MAINTENANCE AND REPAIR.**—Demonstrate ability to make all checks, adjustments, and repairs on turrets and powered gun mounts. Be able to make field adjustments and minor repairs to aviation fire control equipment.
 - (b) **TECHNICAL INFORMATION.**—Demonstrate ability to read and work from blueprints, wiring diagrams, schematics, shop sketches, and other sources of technical information.
 - (c) **TURRET GUNS.**—Demonstrate ability to maintain turret guns and associated equipment.
 - (d) D-5208.071 (1) (A).
- (B) **EXAMINATION SUBJECTS.**
- (a) **TURRETS AND POWERED GUN MOUNTS.**—Have a working knowledge of the principles, construction and operation of turrets, powered gun mounts, and component parts.
 - (b) **SIGHTS.**—Know the procedure for connecting sights with turret mechanisms.
 - (c) **ELECTRICITY.**—Have a working knowledge of AC and DC electricity and electrical auxiliaries, such as motors, generators, etc., associated with aircraft turrets and powered gun mounts.
 - (d) **HYDRAULICS.**—Have a working knowledge of hydraulics, and hydraulic auxiliaries, such as pumps, motors, actuating units, etc. associated with aircraft turrets and powered gun mounts.
 - (e) D-5208.072 (1) (B).

(C) SCHOOL QUALIFICATIONS.

- (a) D-5208.072 (1) (C).

(3) AVIATION ORDNANCEMAN T, FIRST CLASS.

(A) PRACTICAL FACTORS.

- (a) SUPERVISION.—Demonstrate ability to supervise the work and training of personnel maintaining and repairing turrets and powered gun mounts.
- (b) TROUBLE SHOOTING.—Demonstrate ability to locate, diagnose, and repair malfunctioning turret and powered gun mount in equipment.
- (c) INSTALLATION AND REMOVAL.—Demonstrate ability to install and remove aircraft turrets.
- (d) OVERHAUL.—Demonstrate ability to overhaul turrets and powered gun mounts.
- (e) REARMING.—Demonstrate ability to take charge of a rearming crew.
- (f) CHECKS.—Demonstrate ability to make all checks on turrets and powered gun mounts, and preflight and operating checks on aviation fire control equipment and electronic components.
- (g) SKETCHES AND DIAGRAMS.—Demonstrate ability to make working sketches and wiring diagrams for turrets and powered gun mounts.
- (h) D-5208.072 (2) (A).

(B) EXAMINATION SUBJECTS.

- (a) ORGANIZATION.—Have a knowledge of Air Department organization and routine aboard own ship or station.
- (b) RECORDS AND REPORTS.—Know all records and reports required for turret and powered gun mount equipment.
- (c) FREE GUNNERY FIRE CONTROL.—Be familiar with factors to be considered in solving free gunnery fire control problems.
- (d) RIGGING.—Have a working knowledge of equipment procedures and safety precautions involved in installing and removing turrets. Know the parting strength of cables and use of slings.
- (e) TECHNICAL INFORMATION.—Have a thorough knowledge of the sources of technical information and methods of procuring such information.
- (f) SUPPLIES.—Know the types of spare parts and other supplies available in own ship or station, and the procedures for obtaining them from stock. Know how to obtain drawing and part numbers.
- (g) D-5208.072 (2) (B).

(C) SCHOOL QUALIFICATIONS.

- (a) D-5208.072 (2) (C).

(4) AVIATION CHIEF ORDNANCEMAN T.

(A) PRACTICAL FACTORS.

- (a) SUPERVISION.—Demonstrate ability to supervise the installation, removal, and overhaul of aircraft turrets and powered gun mounts. Be able to assume the duties of the leading C.P.O. of the aviation unit to which assigned, and to function as an assistant to the gunnery or ordnance officer.
- (b) ADMINISTRATION.—Demonstrate ability to organize and direct maintenance, repair, or overhaul facilities for aircraft turrets and powered gun mounts.
- (c) REARMING CREWS.—Demonstrate ability to select and train aircraft rearming crews.
- (d) SUPPLIES.—Demonstrate ability to estimate, requisition, and keep account of aircraft turrets and powered gun mounts, and supplies.
- (e) D-5208.072 (3) (A).

(B) EXAMINATION SUBJECTS.

- (a) SUPPLIES.—Know how to procure spare parts and supplies for all types of aircraft turrets and powered gun mounts by reference to allowance lists, stock lists, drawing and part numbers. Know the care required and the responsibility for Title B equipment.
- (b) RECORDS AND REPORTS.—Know how to prepare all records and reports required of the Gunnery or Ordnance Department of the aviation service unit to which assigned.
- (c) RELATED DUTIES.—Have a general knowledge of the duties performed by aviation ordnancemen and aviation fire controlmen.
- (d) D-5208.072 (3) (B).

(C) SCHOOL QUALIFICATIONS.

- (a) D-5208.072 (3) (C). (Ch. No. 8)

D-5212.15. Specialists (X)—Specialists Not Elsewhere Classified.

NOTE.—No qualifications published for Specialists (X) or Specialist (X) designators set forth in Articles D-5212.1501-5212.1529.

- D-5212.1501 Specialists (X) (ED)—*Engineering Draftsmen.*
- D-5212.1502 Specialists (X) (TD)—*Topographic Draftsmen.*
- D-5212.1503 Specialists (X) (CT)—*Cartographers.*
- D-5212.1504 Specialists (X) (PL)—*Plastics Experts.*
- D-5212.1505 Specialists (X) (TS)—*Air Station Operations Desk (Time Shack).*
- D-5212.1506 Specialists (X) (QM)—*Operations—Plotting and Chart Work.*
- D-5212.1507 Specialists (X) (PI)—*Pigeon Trainers.*
- D-5212.1508 Specialists (X) (SB)—*Telephone Switchboard Operators and Supervisors.*
- D-5212.1509 Specialists (X) (VA)—*Visual Training Aids.*
- D-5212.1510 Specialists (X) (ID)—*Intelligence Duties.*
- D-5212.1511 Specialists (X) (NC)—*Naval Correspondents.*
- D-5212.1512 Specialists (X) (RS)—*Armed Forces Radio Service and Special Navy Radio Units.*
- D-5212.1513 Specialists (X) (AC)—*Archivists.*
- D-5212.1514 Specialists (X) (AR)—*Artists.*
- D-5212.1515 Specialists (X) (BL)—*Ballistics.*
- D-5212.1516 Specialists (X) (CC)—*Cable Censors.*
- D-5212.1517 Specialists (X) (CG)—*Crystal Grinders.*
- D-5212.1518 Specialists (X) (FP)—*Fingerprint Experts.*
- D-5212.1519 Specialists (X) (GU)—*Gage Specialists.*
- D-5212.1520 Specialists (X) (IR)—*Interpreters.*
- D-5212.1521 Specialists (X) (JO)—*Journalists.*
- D-5212.1522 Specialists (X) (KP)—*Key Punch Operators and Supervisors.*
- D-5212.1523 Specialists (X) (DI)—*Discharge Interviewers.*
- D-5212.1524 Specialists (X) (OP)—*Special Projects.*
- D-5212.1525 Specialists (X) (PC)—*Position Classifiers.*
- D-5212.1526 Specialists (X) (PR)—*Public Information.*
- D-5212.1527 Specialists (X) (RL)—*Research Laboratory.*
- D-5212.1528 Specialists (X) (RT)—*Passenger Transportation.*
- D-5212.1529 Specialists (X) (ST)—*Strategic Services.* (Ch. No. 8)

D-5212.16. Specialists (Y)—(Control Tower Operators).

NOTE.—All specialists (Y) (control tower operators) must meet the physical requirements set forth in paragraph (5) and shall be examined once each calendar year to determine physical fitness to continue in the rating.

(1) SPECIALIST (Y), THIRD CLASS.**(A) PRACTICAL FACTORS.**

- (a) D-5204 (1).
- (b) ARTICULATION.—Demonstrate ability to speak clearly and distinctly without any accent or impediment of speech which would interfere with two-way radio conversation. Voice must be well modulated and pitched in medium range (contralto range for V-10 personnel).
- (c) TEMPERAMENT.—Demonstrate ability to make decisions calmly and quickly in order to insure the safety of personnel and materiel in the air and on the ground. Must be mature, emotionally stable, and alert. Must possess physical endurance.

- (d) OPERATION.—Demonstrate ability to stand a watch as airport traffic control operator. Demonstrate ability to operate field lighting system. Demonstrate knowledge of crash procedure.
 - (e) COMMUNICATIONS EQUIPMENT.—Demonstrate ability to operate, tune, and adjust radio receivers to proper level. Demonstrate ability to operate microphone and interphone in standard manner.
 - (f) LIGHT GUN.—Demonstrate ability to operate traffic control light gun in accordance with standard procedures.
 - (g) RECORDS AND REPORTS.—Demonstrate ability to keep accurate and complete operating and materiel logs, to process airway clearance forms in accordance with approved flight plans, and to submit accident and other reports as required.
 - (h) REMOTE CONTROL EQUIPMENT.—Demonstrate ability to operate remote control equipment to prevent failure of aids to navigation if station to which assigned is so equipped.
 - (i) ALTIMETER SETTINGS.—Demonstrate ability to obtain, adjust, and relay altimeter settings.
 - (j) RECOGNITION.—Demonstrate ability to recognize and identify with speed and accuracy all types of commercial and military planes normally operating in the vicinity of airport to which attached.
 - (k) EXPERIENCE.—Must have had sixty (60) days' operating experience as striker in an approved airport control tower and have operated under supervision for the last thirty (30) days.
- (B) EXAMINATION SUBJECTS.
- (a) AIRPORT RULES AND REGULATIONS.—Possess a C.A.A. Junior Rating Certificate for the airport to which assigned OR have a working knowledge of the following:
 - (i) Local airport rules of the airport to which assigned.
 - (ii) Local aircraft operations and such other aircraft operations as may affect conditions at the airport to which assigned.
 - (iii) Teletype symbols and weather sequences of the airways converging on the airport to which assigned.
 - (iv) Local emergency rules, crash procedures, crash signals, and radio frequencies.
 - (b) AIRWAY TRAFFIC CONTROL.—Elementary knowledge of theory and principles of airway traffic control.
 - (c) INSTRUMENT FLYING.—Elementary knowledge of principles and theory of instrument flight and the use of radio aids to navigation.
 - (d) REGULATIONS.—Familiarity with C.A.A. and Navy Department Regulations for airway traffic control, instrument flight, and voice communications. Knowledge of C.A.A. publication *Standard Airport Traffic Control Procedures*.
 - (e) METEOROLOGY (AEROLOGY).—Elementary knowledge of meteorology (aerology) directed principally toward ability to read hourly weather reports and to apply them to the required weather minimums covering flight.
 - (f) CONTROL TOWER PROCEDURE.—Thorough knowledge of interphone hookup and procedure of airport control tower to which assigned.
 - (g) NOMENCLATURE AND PHRASEOLOGY.—Familiarity with aviation nomenclature and thorough knowledge of radio telephone and traffic control phraseology.
 - (h) SECURITY.—Know the principles of, and requirements for, maintenance of general security pertaining to aircraft operations and communications.

- (i) AIRCRAFT.—Familiarity with the general characteristics, including size, weight, speed, and recognition features, of commercial and military aircraft operating within contact radius of airport to which attached.
- (j) D-5203.

(C) SCHOOL QUALIFICATIONS.

- (a) Must have completed satisfactorily a course of instruction for control tower operators at a training school authorized by the Bureau of Naval Personnel. (This requirement may be waived by commanding officers in the case of specially qualified candidates who meet the requirements of (1) (A) and (1) (B) with an excellent performance and examination record.)

(2) SPECIALIST (Y), SECOND CLASS.

(A) PRACTICAL FACTORS.

- (a) OPERATION.—Demonstrate ability to take charge of a watch, handle traffic as a supervisor, and assist in the training of other operators.
- (b) COMMUNICATIONS EQUIPMENT.—Demonstrate ability to start, stop, regulate, and make necessary operating adjustments on naval radio transmitters and receivers used in control towers, observing all safety precaution.
- (c) RECORDER.—Demonstrate ability to start, stop, regulate, and adjust two-way radio conversation recorder if tower to which assigned is so equipped.
- (d) RECOGNITION.—Demonstrate ability to recognize and identify with speed and accuracy all types of commercial and military planes likely to operate in the vicinity of the airport to which attached.
- (e) AIRWAY TRAFFIC CONTROL.—Demonstrate thorough working knowledge of airway traffic control.
- (f) D-5212.16 (1) (A).

(B) EXAMINATION SUBJECTS.

- (a) AIRPORT RULES AND REGULATIONS.—Possess a C.A.A. Senior Rating Certificate for the airport to which assigned OR have a working knowledge of the following:
 - (i) Air-navigation facilities within a radius of 200 miles of the airport to which assigned.
 - (ii) Airway traffic control procedures in the area in which the airport to which assigned is located.
 - (iii) Instrument approach and departure procedures at the airport, to which assigned.

- (g) There shall be no pathology of the eye, or adenexia which may interfere with proper function as control tower operator.
 - (h) Color vision shall be within the requirements prescribed for general service.
 - (i) Stammering or poor diction, or other evidence of speech impediment which might become manifest or aggravated under excitement shall be cause for rejection.
 - (j) Hearing shall be normal for whispered voice as prescribed for general service.
- (B) Normally, the special examination for specialists (Y) shall be conducted by a flight surgeon or aviation medical examiner. The results of this examination will be entered in the special duty abstract of the candidate's health record and commanding officers shall be notified as to the candidate's physical qualifications for the rating. No report of the examination will be submitted to the Bureau of Medicine and Surgery or the Bureau of Naval Personnel. Reports of original qualifying examinations and periodic annual examinations, however, shall be entered in the service records of personnel concerned.

D-5212.171. Specialists (E) (PS).—Motion Picture Service (Bookers).

(1) SPECIALIST (E) (PS), THIRD CLASS.

(A) PRACTICAL FACTORS.

- (a) D-5204 (1).
- (b) FILM.—Demonstrate ability to inspect and care for safety film and nitro-cellulose film.
- (c) BOOKING RECORDS.—Demonstrate ability to assist in maintaining accurate and systematic film booking records and files. Be able to make entries in a booking book.
- (d) SHIPMENTS.—Demonstrate ability to check shipping reports and receipts and be able to trace lost or overdue shipments.
- (e) ROUTING.—Demonstrate ability to assist in the routing of prints.
- (f) CUT-OFF RECORD.—Demonstrate ability to keep a cut-off record of subjects which have already played naval activities.
- (g) REPORT.—Demonstrate ability to keep an accurate check of box office reports and damaged print reports.
- (h) FOLLOW-UP.—Demonstrate ability to operate a follow-up system to insure the shipment of film prints in time for showings as booked.
- (i) CORRESPONDENCE.—Demonstrate ability to assist in handling correspondence relative to film booking.
- (j) FILM STOCK.—Demonstrate ability to check and maintain film stock levels.

(B) EXAMINATION SUBJECTS.

- (a) D-5203.
- (b) NOMENCLATURE.—Be familiar with nomenclature common to motion picture booking.
- (c) ORGANIZATION.—Have a general knowledge of the Navy welfare program. Know welfare organization at own activity.
- (d) FIRE FIGHTING.—Know common fire fighting equipment and procedures.
- (e) FILMS.—Know thoroughly the care and stowage of film, and all safety precautions to be observed in handling film.
- (f) OPERATING SCHEDULES.—Be familiar with the operating schedules of all carriers handling film shipments for activities within the area served.
- (g) PROGRAMS.—Know the type programs most in demand by the area served and how to procure the pictures desired. Know how to obtain pictures for set dates, and what film exchanges to contact.

- (h) **BOOKING BOOKS.**—Be familiar with all types of booking books and know how to make entries. Be familiar with booking procedure at own activity.
 - (i) **SHIPPING AND RECEIVING.**—Be familiar with shipping and receiving procedures at own activity.
 - (j) **REPORTS AND CORRESPONDENCE.**—Have a general knowledge of reports involving print turnover and availability. Know the forms and routing of official correspondence; and how to notify delinquent accounts when programs are not returned.
 - (k) **PERPETUAL INVENTORY.**—Know the perpetual inventory system for prints stocked for custody and issuance to forces afloat.
 - (l) **OPTIONAL NAVAL DISTRICT MOTION PICTURE PLAN.**—Have a general knowledge of the optional naval district motion picture plan.
 - (m) **NAVY MOTION PICTURE EXCHANGES.**—Have a general knowledge of Navy motion picture exchanges.
- (2) **SPECIALIST (E) (PS), SECOND CLASS.**
- (A) **PRACTICAL FACTORS.**
 - (a) **BOOKING RECORDS.**—Demonstrate ability to maintain accurate and systematic film booking records and files.
 - (b) **ROUTING.**—Demonstrate ability to route prints over circuits and to guard against a breakdown of the circuit at any point.
 - (c) **CORRESPONDENCE.**—Demonstrate ability to handle correspondence relative to film booking.
 - (d) **PERPETUAL INVENTORY.**—Demonstrate ability to operate a perpetual inventory of prints stocked for custody and issuance to forces afloat.
 - (e) D-5212.171 (1) (A).
 - (B) **EXAMINATION SUBJECTS.**
 - (a) **BOOKING.**—Know thoroughly the procedures for booking films.
 - (b) **DUTIES.**—Know in general the duties of the exchange booker and the district booker. Know their interrelationship.
 - (c) **TRANSPORTATION.**—Have a thorough knowledge of all suitable film transportation facilities within the district.
 - (d) **CORRESPONDENCE AND REPORTS.**—Know thoroughly the forms, reports, and correspondence common to Navy booking activities.
 - (e) **PICTURES.**—Know the types of pictures in which the various stars appear, in order to identify films from their title and cast.
 - (f) D-5212.171. (1) (B).
- (3) **SPECIALIST (E) (PS), FIRST CLASS.**
- (A) **PRACTICAL FACTORS.**
 - (a) **SUPERVISION.**—Demonstrate ability to train and supervise personnel engaged in naval booking activities.
 - (b) **RECORDS.**—Demonstrate ability to supervise the maintenance of required records.
 - (c) **BOOKING.**—Demonstrate ability to book all types of films for naval activities.
 - (d) **PROGRAM.**—Demonstrate ability to program motion pictures for naval activities.
 - (e) D-5212.171 (2) (A).
 - (B) **EXAMINATION SUBJECTS.**
 - (a) **PUBLICATIONS.**—Be familiar with publications pertaining to booking films.

- (b) DUTIES.—Know thoroughly the duties of the exchange booker and the district booker.
 - (c) FILM INSPECTION.—Know how to check work of film inspectors to promote faultless inspection.
 - (d) PROGRAM.—Know thoroughly the types of programs desired by the Navy for morale, entertainment, instruction, information, etc., and how to procure those most in demand.
 - (e) D-5212.171 (2) (B).
- (4) CHIEF SPECIALIST (E) (PS).
- (A) PRACTICAL FACTORS.
- (a) ADMINISTRATION.—Demonstrate ability to organize and administer a Navy film booking activity.
 - (b) SUPPLIES.—Demonstrate ability to supervise the stowage, preservation of, and accounting for supplies used in a booking office.
 - (c) D-5212.171 (3) (A).
- (B) EXAMINATION SUBJECTS.
- (a) ORGANIZATION.—Have a thorough knowledge of naval motion picture booking organization. Know in general the work of welfare and recreation ratings.
 - (b) RECORDS AND REPORTS.—Know thoroughly the records and reports required by naval film booking activities.
 - (c) D-5212.171 (3) (B).

D-5212.172. Specialists (E) (RW)—*Recreation and Welfare Assistants*.

(1) SPECIALIST (E) (RW), THIRD CLASS.

(A) PRACTICAL FACTORS.

- (a) D-5204 (1).
- (b) PERSONALITY.—Have a marked degree of energy, resourcefulness, dependability, friendliness, and enthusiasm. Be able to inspire confidence and respect by good conduct and military bearing.
- (c) RECREATIONAL ACTIVITIES.—Demonstrate ability to assist in planning, developing, directing, and supervising such activities as picnics, smokers, dances, shows, games, sports, and hobby groups.
- (d) LEADERSHIP.—Demonstrate skill as a participating leader in at least one recreational activity.
- (e) RECREATIONAL EQUIPMENT.—Demonstrate ability to maintain and renovate recreational equipment.
- (f) RECORDS.—Demonstrate ability to assist in maintaining records and accounts of recreation and welfare programs.

(B) EXAMINATION SUBJECTS.

- (a) D-5203.
- (b) SAFETY PRECAUTIONS.—Know thoroughly all safety rules and regulations for recreation and welfare activities.
- (c) ORGANIZATION.—Have a general knowledge of the Navy's welfare program. Know welfare organization at own activity.
- (d) FUNDS.—Have an elementary knowledge of Navy policy regarding welfare and recreation funds and expenditures therefrom.
- (e) MOTION PICTURES.—Have an elementary knowledge of Navy motion picture theater management, film booking, and scheduling.
- (f) SPORTS AND GAMES.—Know the games, stunts, and sports suitable for organized recreation.
- (g) STATION LIBRARY.—Know the organization of the station library.

- (h) STATION NEWSPAPER.—Know in general how to publish a station newspaper.
 - (i) CRAFT AND HOBBY GROUPS.—Know how to organize craft and hobby groups.
 - (j) REPORTS.—Have an elementary knowledge of Navy reports regarding welfare and recreation.
 - (k) AGENCIES.—Have an elementary knowledge of Navy policy regarding USO, American Red Cross, and other agencies indirectly concerned with naval recreation and morale programs.
 - (l) RECREATIONAL FACILITIES.—Have a general knowledge of available Naval and local civilian recreational facilities.
- (2) SPECIALIST (E) (RW), SECOND CLASS.
- (A) PRACTICAL FACTORS.
- (a) PUBLIC RELATIONS.—Demonstrate ability to prepare welfare and recreation promotion material and to speak effectively before varied groups.
 - (b) WELFARE AND RECREATION.—Demonstrate ability to anticipate individual needs and desires regarding welfare and recreation.
 - (c) RECREATIONAL ACTIVITIES.—Demonstrate ability to plan, develop, direct, and supervise such activities as picnics, smokers, dances, shows, games, sports, and hobby groups.
 - (d) LEADERSHIP.—Demonstrate skill as a participating leader in at least two recreational activities.
 - (e) RECREATIONAL FACILITIES.—Demonstrate ability to assist in managing recreational facilities, such as theaters, auditoriums, and athletic areas.
 - (f) CLERICAL DUTIES.—Demonstrate ability to assist in preparing requisitions and reports, and in maintaining records.
 - (g) D-5212.172 (1) (A).
- (B) EXAMINATION SUBJECTS.
- (a) PLANNING.—Prepare plans for the accommodation of 500 people at each of the following:
 - (i) Picnic.
 - (ii) Dance.
 - (iii) Smoker.
 - (b) ORGANIZED SPORTS.—Know league and tournament organization, and the rules for suitable sports and games.
 - (c) COMMUNITY FACILITIES.—Know the community organizations, services, and facilities of interest to resident personnel.
 - (d) FUNDS.—Have a working knowledge of Navy policy regarding welfare and recreation funds and expenditures therefrom.
 - (e) MUSIC.—Know how to plan musical programs for various recreational events.
 - (f) REPORTS.—Have a working knowledge of Navy reports regarding welfare and recreation.
 - (g) AGENCIES.—Have a working knowledge of Navy policy regarding USO, American Red Cross, and other agencies indirectly concerned with Navy recreation and morale programs.
 - (h) D-5212.172 (1) (B).
- (3) SPECIALIST (E) (RW), FIRST CLASS.
- (A) PRACTICAL FACTORS.
- (a) SUPERVISION.—Demonstrate ability to train and supervise recreation and welfare personnel.

- (b) RECORDS.—Demonstrate ability to supervise the maintenance of records required in a welfare and recreation office.
 - (c) MAJOR RECREATION EVENTS.—Demonstrate ability to plan, organize, conduct, and report on such events as holiday celebrations, ships' parties, sports leagues, picnics, and dramatics.
 - (d) REPORTS.—Demonstrate ability to assist in establishing adequate report forms for own activity.
 - (e) PERSONAL SKILLS.—Demonstrate skill in three or more recreational activities and skill equivalent to performance of professionals in at least one activity.
 - (f) D-5212.172 (2) (A).
- (B) EXAMINATION SUBJECTS.
- (a) PLANNING.—Plan a three-month recreational program serving all station personnel.
 - (b) POLICY.—Have a thorough knowledge of current policies regarding the operation of welfare and recreation activities.
 - (c) EQUIPMENT.—Know thoroughly the procurement and maintenance of welfare and recreation equipment, supplies, and services.
 - (d) RULES AND REGULATIONS.—Know current rules, regulations, and instructions pertaining to welfare and recreation activities.
 - (e) D-5212.172 (2) (B).
- (4) CHIEF SPECIALIST (E) (RW).
- (A) PRACTICAL FACTORS.
- (a) ADMINISTRATION.—Demonstrate ability to plan, organize, schedule, conduct, and supervise functions performed by recreation and welfare specialists at own activity. Be able to operate a complete athletic gear renovating plant.
 - (b) SUPPLIES.—Demonstrate ability to supervise the stowage, preservation of, and accounting for recreational equipment, and to obtain replacements.
 - (c) REPORTS.—Demonstrate ability to revise and establish adequate report forms for own activity.
 - (d) D-5212.172 (3) (A).
- (B) EXAMINATION SUBJECTS.
- (a) ORGANIZATION.—Have a thorough knowledge of the Navy's welfare program. Know in general the work of other welfare and recreation ratings.
 - (b) RECORDS AND REPORTS.—Know the records to be kept and reports to be submitted by chief specialists (E) (RW).
 - (c) PLANNING.—Have a thorough knowledge of the planning and organization necessary to insure recreational opportunities for all station personnel.
 - (d) D-5212.172 (3) (B). (Ch. No. 8)
- D-5213. CONSTRUCTION BATTALION RATINGS.
- (1) CB ratings have been established for technical construction and installation duties which are not covered by general service or specialist ratings. Construction Battalion ratings are open to USNR (except Fleet Reserves) and USN (I) personnel *only*. Regular Navy personnel are not eligible.
 - (2) The fact that a man holds a CB rating does not imply that his qualifications and responsibilities are limited to those of his specialty. A petty officer must be first a leader, and second, a specialist. The two-fold nature of duty in the Navy, military and technical (*See* D-5202, D-5203, and D-5204 (1)), applies to all branches.

(3) Construction Battalion ratings, together with skill designations are as follows:

- D-5213.011—Cox (CB) (Boatswain) and BM (CB) (Boatswains)
- D-5213.012—Cox (CB) (Stevedore) and BM (CB) (Stevedores)
- D-5213.021—GM (CB) (Powdermen)
- D-5213.022—GM (CB) (Armorers)
- D-5213.031—CM (CB) (Builders)
- D-5213.032—CM (CB) (Draftsmen)
- D-5213.033—CM (CB) (Surveyors)
- D-5213.034—CCM (CB) (Excavation Foremen)
- D-5213.041—SF (CB) (Pipefitters and Plumbers)
- D-5213.042—SF (CB) (Steelworkers)
- D-5213.043—SF (CB) (Welders)
- D-5213.044—SF (CB) (Blacksmiths)
- D-5213.045—SF (CB) (Riggers)
- D-5213.046—SF (CB) (Mechanical Draftsmen)
- D-5213.051—MM (CB) (Equipment Operators)
- D-5213.061—EM (CB) (General)
- D-5213.062—EM (CB) (Line and Station)
- D-5213.063—EM (CB) (Communications)
- D-5213.064—EM (CB) (Draftsmen)
- D-5213.07—WT (CB)
- D-5213.081—SK (CB) (Stevedores)

D-5213.011. COXSWAIN (CB) (BOATSWAIN) AND BOATSWAIN'S MATES (CB) (BOATSWAINS).

(1) COXSWAIN (CB) (BOATSWAIN).

(A) PRACTICAL FACTORS.

- (a) D-5204(1) and (2) except those requirements which can be fulfilled only by men serving afloat.
- (b) POWER BOATS.—Demonstrate ability as coxswain of small power boats.
- (c) CANVAS.—Demonstrate ability to patch canvas and to use flat seam, round seam, and herringbone stitch.
- (d) MARLINSPIKE SEAMANSHIP.—Demonstrate ability to splice and serve rope, and to make a boat fender.
- (e) TACKLE.—Demonstrate ability to rig luff tackle, twofold purchase, and threefold purchase, and know the mechanical advantage of each form of tackle.
- (f) D-5205.01 (2) (A), except those requirements which can be fulfilled only by men serving afloat.

(B) EXAMINATION SUBJECTS.

- (a) D-5203.
- (b) RULES OF THE ROAD.—Know the rules of the road with regard to lights, fog signals, and right of way for small craft.
- (c) COMPASSES.—Know the causes of compass errors. Be able to set up and read a boat compass and lay out a course on a harbor chart.
- (d) ROPE.—Know the working strength of rope.
- (e) TIDES.—Know the laws of tides.
- (f) SIGNALS.—Know signals to indicate distress, boat recall, storm warning and other special signals.
- (g) D-5205.01 (2) (B), except those requirements which can be fulfilled only by men serving afloat.

(2) BOATSWAIN'S MATE, SECOND CLASS, (CB) (BOATSWAIN).

(A) PRACTICAL FACTORS.

- (a) CANVAS.—Demonstrate ability to patch, cut, assemble, and sew ship and boat canvas parts, such as sails, awnings, boat and gun covers.
- (b) WIRE ROPE.—Demonstrate ability to splice and serve wire rope. Know the working strength of wire and be able to rig block and tackle and assist in heavy lifts.
- (c) PONTOON BARGES.—Demonstrate ability as a pontoon barge operator.
- (d) DECK MACHINERY.—Demonstrate ability to operate deck winches and auxiliary equipment.
- (e) SIGNALING.—Demonstrate ability to send and receive by semaphore and flashing light at the rate of six (6) words per minute.
- (f) SEAMANSHIP.—Demonstrate ability to handle power boats and pontoon barges through the surf, and to carry out an anchor.
- (g) D-5213.011 (1) (A).

(B) EXAMINATION SUBJECTS.

- (a) WEATHER.—Know storm indications.
- (b) SIGNALS.—Know all standard signals used for operating deck winches.
- (c) SAFETY PRECAUTIONS.—Know all safety precautions for operating power boats, deck winches, and pontoon barges.
- (d) NOMENCLATURE.—Know the nomenclature of ship's gear.
- (e) D-5213.011 (1) (B).

(3) BOATSWAIN'S MATE, FIRST CLASS, (CB) (BOATSWAIN).

(A) PRACTICAL FACTORS.

- (a) TOWING.—Demonstrate ability to rig a heavy barge for towing or being towed.