

RADIOMAN 3 & 2

NAVEDTRA 10228-G

Prepared by the Naval Education and Training Program Development Center, Pensacola, Florida

Your NRCC contains a set of assignments and self-scoring answer sheets (packaged separately). The Rate Training Manual, Radioman 3&2, NAVEDTRA 10228-G, is your textbook for the NRCC. If an errata sheet comes with the NRCC, make all indicated changes or corrections. Do not change or correct the textbook or assignments in any other way.

HOW TO COMPLETE THIS COURSE SUCCESSFULLY

Study the textbook pages given at the beginning of each assignment before trying to answer the items. Pay attention to tables and illustrations as they contain a lot of information. Making your own drawings can help you understand the subject matter. Also, read the learning objectives that precede the sets of items. The learning objectives and items are based on the subject matter or study material in the textbook. The objectives tell you what you should be able to do by studying assigned textual material and answering the items.

At this point you should be ready to answer the items in the assignment. Read each item carefully. Select the BEST ANSWER for each item, consulting your textbook when necessary. Be sure to select the BEST ANSWER from the subject matter in the textbook. You may discuss difficult points in the course with others. However, the answer you select must be your own. Use only the self-scoring answer sheet designated for your assignment. Follow the scoring directions given on the answer sheet itself and elsewhere in this course.

Your NRCC will be administered by your command or, in the case of small commands, by the Naval Education and Training Program Development Center. No matter who administers your course you can complete it successfully by earning grades that average 3.2 or

higher. If you are on active duty, the average of your grades in all assignments must be at least 3.2. If you are NOT on active duty, the average of your grades in all assignments of each creditable unit must be at least 3.2. The unit breakdown of the course, if any, is shown later under Naval Reserve Retirement Credit.

WHEN YOUR COURSE IS ADMINISTERED BY LOCAL COMMAND

As soon as you have finished an assignment, submit the completed self-scoring answer sheet to the officer designated to administer it. He will check the accuracy of your score and discuss with you the items that you do not understand. You may wish to record your score on the assignment itself since the self-scoring answer sheet is not returned.

If you are completing this NRCC to become eligible to take the fleetwide advancement examination, follow a schedule that will enable you to complete all assignments in time. Your schedule should call for the completion of at least one assignment per month.

Although you complete the course successfully, the Naval Education and Training Program Development Center will not issue you a letter of satisfactory completion. Your command will make a note in your service record, giving you credit for your work.

WHEN YOUR COURSE IS ADMINISTERED BY THE NAVAL EDUCATION AND TRAINING PROGRAM DEVELOPMENT CENTER

After finishing an assignment, go on to the next. Retain each completed self-scoring answer sheet until you finish all the assignments in a unit (or in the course if it is not divided into units). Using the envelopes provided,

mail your self-scored answer sheets to the Naval Education and Training Program Development Center where the scores will be verified and recorded. Make sure all blanks at the top of each answer sheet are filled in. Unless you furnish all the information required, it will be impossible to give you credit for your work. You may wish to record your scores on the assignments since the self-scoring answer sheets are not returned.

The Naval Education and Training Program Development Center will issue a letter of satisfactory completion to certify successful completion of the course (or a creditable unit of the course). To receive a course-completion letter, follow the directions given on the course-completion form in the back of this NRCC.

You may keep the textbook and assignments for this course. Return them only in the event you disenroll from the course or otherwise fail to complete the course. Directions for returning the textbook and assignments are given on the book-return form in the back of this NRCC.

PREPARING FOR YOUR ADVANCEMENT EXAMINATION

Your examination for advancement is based on the Manual of Navy Enlisted Manpower and Personnel Classification and Occupational Standards (NAVPERS 18068-D). The sources of questions in this examination are given in the Bibliography for Advancement Study (NAVEDTRA 10052). Since your NRCC and textbook are among the sources listed in this bibliography, be sure to study both in preparing to take your advancement examination. The standards for your rating may have changed since your course and textbook were printed, so refer to the latest editions of NAVPERS 18068-D and NAVEDTRA 10052.

NAVAL RESERVE RETIREMENT CREDIT

This course is evaluated at 23 Naval Reserve retirement points and will be credited in units as follows: Unit 1: 12 points upon completion of Assignments 1 through 8; Unit 2: 11 points upon completion of Assignments 9 through 15. These points are creditable to personnel eligible to receive them under current directives governing the retirement of Naval Reserve personnel. Naval Reserve retirement credit will not be given if the student has previously received credit for any Radioman 3 & 2, NRCC or ECC.

COURSE OBJECTIVE

While completing this NRCC, you will demonstrate a knowledge of course material by correctly answering items on the following: organization of the enlisted rating structure and career opportunities available to enlisted personnel; basic electricity and electronics; basic transmitter and receiver theory; basic principles and common configurations of communications antennas; types and theory of radio wave propagation; basic test equipment; systems of diagnosis and quality assurance; communication organization; procedures involved in the security and handling of classified information; basic message format, fleet communications, and automated systems; theory and operation of basic teletypewriter circuits and associated radio communications equipment; radio-telephone procedures and distress communications; and classes, types, and handling of commercial traffic.

While working on this nonresident career course, you may refer freely to the text. You may seek advice and instruction from others on problems arising in the course, but the solutions submitted must be the result of your own work and decisions. You are prohibited from referring to or copying the solutions of others, or giving completed solutions to anyone else taking the same course.

Naval correspondence courses may include a variety of items -- multiple-choice, true-false, matching, etc. The items are not grouped by type; regardless of type, they are presented in the same general sequence as the textbook material upon which they are based. This presentation is designed to preserve continuity of thought, permitting step-by-step development of ideas. Some courses use many types of items, others only a few. The student can readily identify the type of each item (and the action required of him) through inspection of the samples given below.

MULTIPLE-CHOICE ITEMS

Each item contains several alternatives, one of which provides the best answer to the item. Select the best alternative and erase the appropriate box on the answer sheet.

SAMPLE

- s-1. The first person to be appointed Secretary of Defense under the National Security Act of 1947 was
1. George Marshall
 2. James Forrestal
 3. Chester Nimitz
 4. William Halsey

The erasure of a correct answer is indicated in this way on the answer sheet:

	1	2	3	4
	T	F		
s-1		C		

TRUE-FALSE ITEMS

Determine if the statement is true or false. If any part of the statement is false the statement is to be considered false. Erase the appropriate box on the answer sheet as indicated below.

SAMPLE

- s-2. Any naval officer is authorized to correspond officially with a bureau of the Navy Department without his commanding officer's endorsement.

The erasure of a correct answer is also indicated in this way on the answer sheet:

	1	2	3	4
	T	F		
s-2		CC		

MATCHING ITEMS

Each set of items consists of two columns, each listing words, phrases or sentences. The task is to select the item in column B which is the best match for the item in column A that is being considered. Specific instructions are given with each set of items. Select the numbers identifying the answers and erase the appropriate boxes on the answer sheet.

SAMPLE

In items s-3 through s-6, match the name of the shipboard officer in column A by selecting from column B the name of the department in which the officer functions.

A. Officers

B. Departments

- | | |
|-------------------------------|---------------------------|
| s-3. Damage Control Assistant | 1. Operations Department |
| s-4. CIC Officer | 2. Engineering Department |
| s-5. Assistant for Disbursing | 3. Supply Department |
| s-6. Communications Officer | |

The erasure of a correct answer is indicated in this way on the answer sheet:

	1	2	3	4
	T	F		
s-3		C		
s-4	C			
s-5			C	
s-6	C			

How To Score Your Immediate Knowledge of Results (IKOR) Answer Sheets

	1	2	3	4
	T	F		
1		C	6	
2	C	9		9
3			C	
4	CC	12		

Total the number of incorrect erasures (those that show page numbers) for each item and place in the blank space at the end of each item.

Sample only

Number of boxes erased incorrectly	0-2	3-7	8-
Your score	4.0	3.9	3.8

Now TOTAL the column(s) of incorrect erasures and find your score in the Table at the bottom of EACH answer sheet.

NOTICE: If, on erasing, a page number appears, review text (starting on that page) and erase again until "C", "CC", or "CCC" appears. For courses administered by the Center, the maximum number of points (or incorrect erasures) will be deducted from each item which does NOT have a "C", "CC", or "CCC" uncovered (i.e., 3 pts. for four choice items, 2 pts. for three choice items, and 1 pt. for T/F items).

Assignment 1

Training and Advancement; Basic Electricity

Textbook Assignment: Pages 1 - 59

In this course you will demonstrate that learning has taken place by correctly answering training questions. The mere physical act of indicating a choice on an answer sheet is not in itself important; it is the mental achievement, in whatever form it may take, prior to the physical act that is important and toward which nonresident career course learning objectives are directed. The selection of the correct choice for a course training question indicates that you have fulfilled, at least in part, the stated objective(s).

The accomplishment of certain objectives, for example, a physical act such as drafting a memo, cannot readily be determined by means of objective type course questions; however, you can demonstrate by means of answers to training questions that you have acquired the requisite knowledge to perform the physical act. The accomplishment of certain other learning objectives, for example, the mental acts of comparing, recognizing, evaluating, choosing, selecting, etc., may be readily demonstrated in a course by indicating the correct answers to training questions.

The comprehensive objective for this course has already been given. It states the purpose of the course in terms of what you will be able to do as you complete the course.

The detailed objectives in each assignment state what you should accomplish as you progress through the course. They may appear singly or in clusters of closely related objectives, as appropriate; they are followed by questions which will enable you to indicate your accomplishment.

All objectives in this course are learning objectives and questions are teaching questions. They point out important things, they assist in learning, and they should enable you to do a better job for the Navy.

This self-study course is only one part of the total Navy training program; by its very nature it can take you only part of the way to a training goal. Practical experience, schools, selected reading, and the desire to accomplish are also necessary to round out a fully meaningful training program.

Learning Objective: Identify the publications containing specified information which relates to training and advancement, state ways in which personnel may prepare for advancement, and briefly explain the method of selection for advancement.

- 1-1. What document contains a list of the basic occupational skills required by your rating?
1. The Occupational Standards Manual, NAVPERS 18068
 2. Personnel Qualifications Standards Manual
 3. Occupational Analysis List
 4. Manual for Advancement

- 1-2. If you are an E-4 preparing to advance to E-5, you should expect your advancement exam to question the minimum skills for
1. E-5 only
 2. E-4 and E-5 only
 3. E-3, E-4, and E-5
 4. E-4, E-5, and E-6

- 1-3. In what publication(s) can you find the list of reading material you should study for advancement?
1. NAVEDTRA 10052
 2. Occupational Standards and Bibliography Sheet
 3. Both 1 and 2 above
 4. NAVEDTRA 10054

- | |
|---------------------------------------|
| A. PERFORMANCE MARKS |
| B. TIME IN PAYGRADE/LENGTH OF SERVICE |
| C. PERFORMANCE TEST |
| D. MILITARY LEADERSHIP EXAM SCORE |
| E. ADVANCEMENT EXAM SCORE |
| F. REQUIRED COURSES/SCHOOLS |
| G. PARS |
| H. AWARDS |
| I. PNA POINTS |

List 1A

- In answering question 1-4, refer to list 1A.

- 1-4. Which entries are reflected in the final multiple?
1. A, B, D, E, G, and H
 2. B, D, E, H, and I
 3. A, B, E, H, and I
 4. A, B, C, E, F, and I
- 1-5. What is the purpose of the PQS program?
1. To replace rate training manuals and nonresident career courses
 2. To provide a checkoff list of task statements pertaining to the trainee's military ability
 3. To replace the Personnel Advancement Requirement program
 4. To assist in qualifying the trainee to perform assigned duties
- 1-6. Some rate training manuals listed in NAVEDTRA 10052 are marked with an asterisk (*). In the advancement system they are
1. obsolete
 2. mandatory
 3. not required
 4. new
- 1-7. What publication lists the latest editions of the rate training manuals and correspondence courses for your rating?
1. Bibliography for Advancement Study, NAVEDTRA 10052
 2. List of Training Manuals and Correspondence Courses, NAVEDTRA 10061
 3. Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards, NAVPERS 18068D
 4. Personnel Advancement Requirement (PAR), NAVPERS 1414/4
- 1-8. How often is the NAVEDTRA 10061 revised and issued?
1. Semiannually
 2. Quarterly
 3. Annually
 4. Monthly
- 1-9. Which of the following are rate training manuals (RTMs) and nonresident career courses (NRCCs) intended to be?
1. Technical manuals
 2. Trainee guides
 3. Instructor guides
 4. Self-study packages
- 1-10. Which of the following study habits should you follow while studying a rate training manual?
1. Try to cover a complete unit
 2. Write down questions that occur to you
 3. Relate information in the manual to knowledge you already have
 4. All of the above
- 1-11. Who writes the examination for advancement to PO3, PO2, or PO1?
1. An education specialist holding a college degree in testing
 2. A training specialist who is a licensed craftsman
 3. A subject matter expert enrolled in the graduate school of a major university
 4. A senior CPO who is an expert in the particular rating
- 1-12. What should you do with the Recommendation Sheet that the Educational Services Officer gives you before the day of your advancement examination?
1. Examine the sheet to make sure that the information on it is correct
 2. See that it becomes a part of your jacket
 3. Get your commanding officer to initial the sheet
 4. Mail it to NETPDC
- 1-13. You can use the Subject Matter Section Identification Sheet from your examination booklet to help analyze your performance on the examination itself. To do so, you must compare the
1. examination score with the minimum multiple required for advancement
 2. examination status with your final multiple as given on the profile analysis form
 3. results of the examination with the information given in sections 1 through 12 of the profile analysis form

- 1-14. The information shown in sections 1 through 12 of the profile analysis form enables you to
1. compare your final multiple with the multiples of those who passed the same examination
 2. compare your examination performance with that of others who took the same examination
 3. determine the number of points given for passing the examination but not being advanced

- 1-15. Although information concerning your career and advancement may be obtained from many sources, the best source is your
1. Educational Services Officer
 2. leading chief petty officer
 3. supervisor
 4. Navy buddies

Learning Objective: Explain why it is important for a Radioman to increase his knowledge of electricity.

- 1-16. Why is it important for you to expand your knowledge of the basic fundamentals of electricity as you work to advance in rate?
1. The Radioman rating encompasses a very broad area, and requires more diversified knowledge than many other ratings
 2. As you advance, not only will a higher degree of leadership be expected of you, but also a higher level of professional knowledge and skill
 3. As you expand the circle of equipments with which you have physical contact, a growing knowledge of basic equipment is increasingly important to the physical safety of yourself, others, and your equipment
 4. All of the above

Learning Objective: Determine the electrical characteristics of subatomic particles.

- 1-17. What type electrical charge, if any, do the following subatomic particles have: (a) proton, (b) neutron, and (c) electron?
1. (a) None, (b) positive, (c) negative
 2. (a) Negative, (b) none, (c) positive
 3. (a) Positive, (b) none, (c) negative
 4. (a) Positive, (b) negative, (c) none
- 1-18. What is the polarity of travel of a directed flow of electrons?
1. From positive to negative only
 2. From negative to positive only
 3. The entire circuit may be toward positive or negative, depending upon the hook-up of leads at the battery terminals
 4. Various parts of the circuitry may be toward positive or toward negative, depending upon internal circuit wiring

Learning Objective: Define the basic electrical properties of current, power, resistance, and voltage.

To answer questions 1-19 through 1-22, select from column B the electrical property defined in column A.

A. <u>Definitions</u>	B. <u>Electrical Properties</u>
1-19. A flow of electrons (by displacement)	1. Current
1-20. That property of a substance which impedes the flow of electrons	2. Power
1-21. Electromotive force (emf) or electrical potential	3. Resistance
1-22. The rate at which work is done	4. Voltage

Learning Objective: Identify, name, and give the properties of materials of different conductance levels.

- 1-23. What are the most important characteristics of atoms comprising (a) good conductors and (b) good insulators?
- (a) The ability to release free electrons easily;
(b) the ability to store an electric charge and release it upon demand
 - (a) The ability to release electrons easily;
(b) the ability to retain their electrons unless large amounts of energy or force are applied
 - (a) The ability to store an electric charge and release it upon demand;
(b) the ability to retain their electrons unless large amounts of energy or force are applied
 - (a) The ability to block the flow of current effectively;
(b) the ability to transmit current effectively
- 1-24. Some materials, such as germanium and silicon, are neither good conductors nor good insulators, but, rather, are in a category between. What is the name of this category?
- Semiconductors
 - Parasitic conductors
 - Conduction simulators
 - Degenerate conductors
- 1-25. Other factors being equal, how does the resistance of a conductor vary in relation to (a) its length, and (b) its cross-sectional area?
- (a) Directly, (b) inversely
 - (a) Inversely, (b) directly
 - (a) Directly, (b) directly
 - (a) Inversely, (b) inversely

Learning Objective: Compute the values of voltage, current, resistance, and power in a simple series circuit having a source of voltage and one resistor.

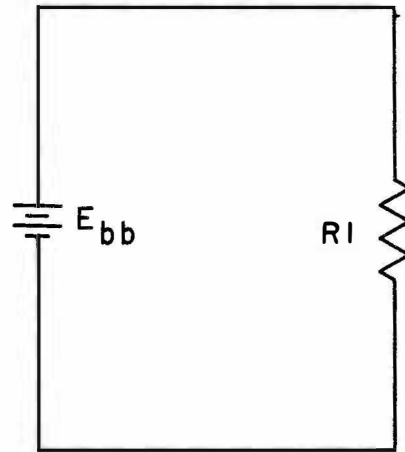


Figure 1A. - Simple series circuit.

- Refer to figure 1A in answering questions 1-26 through 1-30.

- 1-26. Assume resistance of 20 ohms and current of 3 amperes. Compute the voltage.
- 0.15 V
 - 6.67 V
 - 23.0 V
 - 60.0 V
- 1-27. Assume resistance of 15 ohms and voltage of 60 volts. Compute the current.
- 0.25 A
 - 4.0 A
 - 75.0 A
 - 900.0 A
- 1-28. Assume current of 5 amps and voltage of 30 volts. Compute the resistance.
- 0.167 ohm
 - 6.0 ohms
 - 35.0 ohms
 - 150.0 ohms
- 1-29. Assume current of 3 amps and source voltage of 80 volts. Compute the power.
- 0.004 W
 - 0.038 W
 - 26.667 W
 - 240.0 W
- 1-30. Assume source voltage of 60 volts and resistance of 5 ohms. Compute the power.
- 0.2 W
 - 5.0 W
 - 300.0 W
 - 720.0 W

Learning Objective: Compute values of voltage, current, resistance, and power in a series circuit having a source of voltage and multiple resistors.

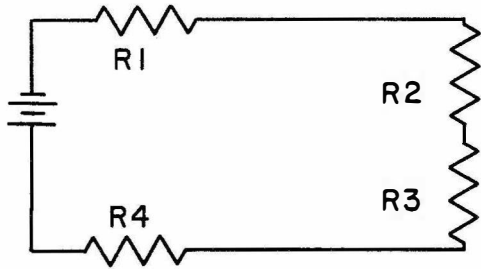


Figure 1B. - Series circuit.

● In answering questions 1-31 through 1-35, refer to figure 1B. Assume the following values: current = 2 amps, R1 = 3 ohms, R2 = 6 ohms, R3 = 6 ohms, and R4 = 3 ohms.

1-31. Compute the total resistance.

1. $R_T = \frac{1}{\frac{1}{3} + \frac{1}{6} + \frac{1}{6} + \frac{1}{3}} = 1 \text{ ohm}$

2. $R_T = \frac{1}{\frac{1}{3} + \frac{1}{3}} + \frac{1}{\frac{1}{6} + \frac{1}{6}} = 4.5 \text{ ohms}$

3. $R_T = 6 + \frac{1}{\frac{1}{3} + \frac{1}{3}} + 6 = 13.5 \text{ ohms}$

4. $R_T = 3 + 6 + 6 + 3 = 18 \text{ ohms}$

1-32. Compute the voltage drop in R2.

1. 0.33 V
2. 3.0 V
3. 12.0 V
4. 36.0 V

● In questions 1-33 and 1-34, judge each statement as True or False.

1-33. The voltage drop across R2 is equal to the sum of the voltage drops across R1 and R4.

1-34. The value of the current changes as it passes each resistor, changing twice as much upon passing R2 as it does upon passing R1.

1-35. What is the value of the power drop at R1?

1. 6 W
2. 12 W
3. 24 W
4. 36 W

Learning Objective: Define various common electrical terms.

1-36. In a circuit, the term "ground" refers to

1. an area of fluctuating magnetic flux surrounding a conductor
2. the total source voltage of a direct-current-powered circuit
3. a common reference point whose potential is usually at or near zero volts
4. a conductor, such as a wire, which is attached to both ends of a resistor to provide a low-resistance path for current

1-37. "Short circuit" is the term applied to

1. an unintentional path of low resistance by which a high value of current can bypass its intended path
2. a circuit which is totally in series and which has only one source of power
3. a circuit which is nonconducting because of an open switch, broken wire, etc.
4. a circuit in which there is a sudden drop in current flow because of excessively high resistance

Learning Objective: Compute values of voltage, current, resistance, and power in a parallel circuit.

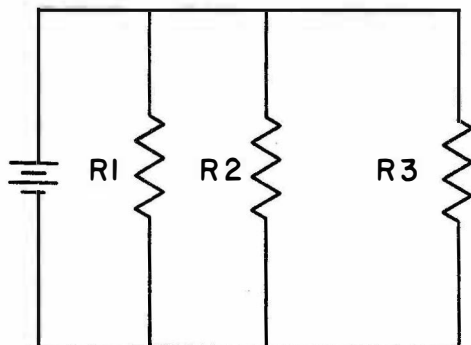


Figure 1C. - Parallel circuit.

- Refer to figure 1C in answering questions 1-38 through 1-42.
- 1-38. Assume the source voltage to be 60 volts and the total resistance to be 10 ohms. Compute the total power.
1. 6 W
 2. 60 W
 3. 360 W
 4. 600 W
- 1-39. What is the source voltage if $I = 4$ amps and $R_T = 16$ ohms?
1. 0.25 V
 2. 4.0 V
 3. 20.0 V
 4. 64.0 V
- 1-40. If source voltage = 30 volts, $R_1 = 5$ ohms, $R_2 = 10$ ohms, and $R_3 = 15$ ohms, what is the voltage drop impressed across R_2 ?
1. 0.909 V
 2. 2.727 V
 3. 10.0 V
 4. 30.0 V

● Judge whether the statements in questions 1-41 and 1-42 regarding circuit values are True or False, assuming the following values: source voltage = 30 volts, $R_1 = 5$ ohms, $R_2 = 10$ ohms, and $R_3 = 15$ ohms.

1-41. The voltage drop across R_1 is one-half the value of that across R_2 .

1-42. R_1 draws three times the amount of current that R_3 does.

Learning Objective: Compute values of voltage, current, resistance, and power in a series-parallel circuit.

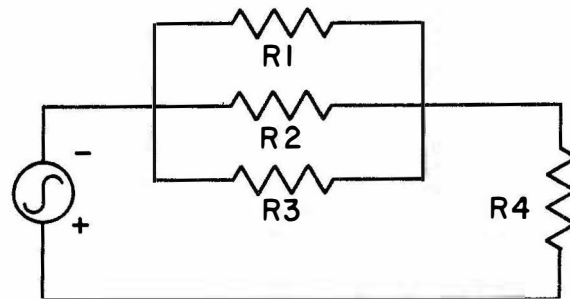


Figure 1D. - Series-parallel circuit.

- Refer to figure 1D in answering questions 1-43 through 1-45.
- 1-43. What is the total resistance if $R_1 = 2$ ohms, $R_2 = 4$ ohms, $R_3 = 2$ ohms, and $R_4 = 4$ ohms?
1. 1.5 ohms
 2. 4.8 ohms
 3. 8.25 ohms
 4. 12.0 ohms
- 1-44. If the source voltage is 60 volts, and the resistors are as follows: $R_1 = 2$ ohms, $R_2 = 2$ ohms, $R_3 = 2$ ohms, and $R_4 = 4$ ohms, approximately what is the circuit current?
1. 4.67 A
 2. 10.91 A
 3. 12.85 A
 4. 105.08 A
- 1-45. What is the source voltage if the circuit is 3 amps, the total (or equivalent) resistance of R_1 , R_2 , and R_3 is 2.5 ohms, and $R_4 = 10$ ohms?
1. 0.24 V
 2. 6.0 V
 3. 31.2 V
 4. 37.5 V

Learning Objective: Define direct and alternating current.

- 1-46. Which, if any, of the following definitions correctly defines direct current?
1. Current characterized by intermittent, rather than continuous, flow
 2. Current which flows in one direction only
 3. Current which can flow only through the single, direct conductance path of a series circuit
 4. None of the above
- 1-47. Which, if any, of the following definitions correctly defines alternating current?
1. Current derived, alternately, from two power sources; i.e., two batteries
 2. Current which repeatedly reverses direction of flow
 3. Current which alternates among the conductance paths of a parallel circuit
 4. None of the above

Learning Objective: Explain the function of an a.c. generator, and determine the frequency of a generated a.c. current when the number of poles in the generator and the rotation rate of the loop are known.

- 1-48. (a) What is the function of the a.c. generator, and (b) by what means does it accomplish this function?
1. (a) Converting mechanical energy into electrical energy,
(b) by electromagnetic induction
 2. (a) Converting electrical energy into rotating mechanical energy,
(b) by electromagnetic induction
 3. (a) Converting a low direct voltage to a low alternating voltage and applying it to a power transformer,
(b) by the use of power packs
 4. (a) Adjusting the phase of the output current or voltage relative to the phase at the input,
(b) by the use of a phase shifter

● Use the following information in answering questions 1-49 and 1-50: A certain a.c. generator has a rotating loop, or armature, that makes a complete rotation every one-twentieth of a second within a stator which has one pair of poles.

- 1-49. What is the frequency of the current generated?
1. 1/20 Hz
 2. 1/10 Hz
 3. 20 Hz
 4. 40 Hz
- 1-50. If we were to plot this a.c. current for one minute, how many sine waves would be plotted?
1. 10
 2. 20
 3. 600
 4. 1200
- 1-51. What is the output frequency of an a.c. generator which has three north and three south poles, and which is rotating at 2400 rpm?
1. 60 Hz
 2. 120 Hz
 3. 60 kHz
 4. 120 kHz

Learning Objective: Name various sine wave amplitude measurements and relate them properly to a sine wave.

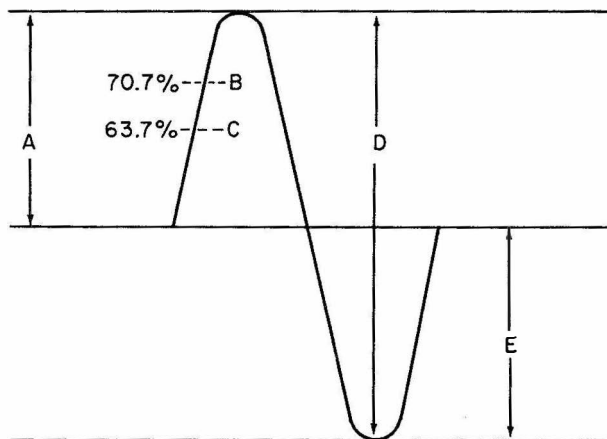


Figure 1E. - Sine wave values.

- Refer to figure 1E in answering question 1-52.

- 1-52. What wave amplitude measurement values are represented by A, B, C, D, and E respectively?
1. Peak-to-peak, average, effective, positive peak, negative peak
 2. Negative peak, effective, average, peak-to-peak, positive peak
 3. Positive peak, effective, average, peak-to-peak, negative peak
 4. Positive peak, average, effective, peak-to-peak, negative peak

To answer questions 1-53 through 1-56, select from column B the electrical property defined in column A.

A. Definitions	B. Electrical Properties
1-53. Measure of the number of cycles of current per second	1. Capacitance 2. Frequency
1-54. The property of an electrical circuit that opposes any change of current	3. Inductance 4. Phase relationship
1-55. A term used to describe the relative positions of the sine waves of two or more currents or voltages existing at the same time	
1-56. The property of an electrical circuit that opposes any change of voltage	

Learning Objective: Determine why self-inductance is greater in a.c. than d.c. circuits, distinguish the relative inductivity of listed conductors, and compute inductance in series and parallel circuits.

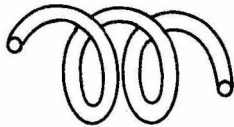
- 1-57. Self-inductance is more pronounced in a.c. than d.c. circuits. What is the explanation for this fact?
1. The occurrence of flux change (flux expanding or collapsing) is much more pronounced in a.c. than in d.c. circuits
 2. After current reaches its peak in d.c. circuits, the magnetic field around the conductor collapses and becomes nonexistent
 3. The peak value of a.c. current in a circuit is usually greater than the peak value of d.c. current
 4. Because the effective value of a.c. current is less than its peak value, the measure of its self-inductance is greater than that of d.c. current

- 1-58. What is the total inductance in a series circuit having well-shielded inductors of 5 mH and 10 mH?
1. 0.07 mH
 2. 0.3 mH
 3. 3.33 mH
 4. 15.0 mH

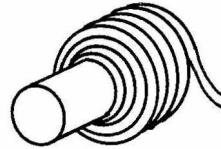
- 1-59. What is the total inductance in a parallel circuit having well-shielded inductors of 3 mH, 3 mH, and 6 mH?
1. 0.083 mH
 2. 0.833 mH
 3. 1.2 mH
 4. 12.0 mH

- Refer to figure 1F in answering question 1-60.

- 1-60. Other factors (length, diameter, etc.) being equal, what would be the relative degree of inductivity of the illustrated conductors, listed from highest to lowest?
1. C, D, B, A
 2. B, C, A, D
 3. C, B, A, D
 4. C, B, D, A



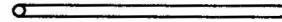
A. Loosely-coiled air-core conductor



C. Tightly-coiled iron-core conductor



B. Tightly-coiled air-core conductor



D. Straight length of wire

Figure 1F. - Conductors of various inductances.

Learning Objective: Identify the phase relationship of current, applied voltage, and induced voltage in an inductive circuit.

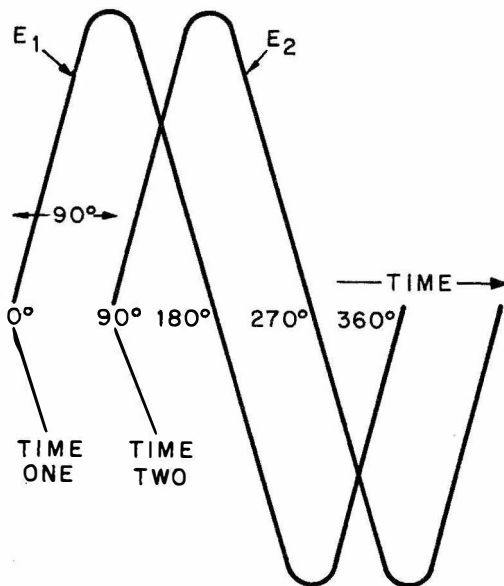


Figure 1G. - Phase relationship of sine waves.

● Refer to figure 1G in answering question 1-61.

1-61. What is the phase relationship between voltages E1 and E2?

1. E1 leads E2 by 90°
2. E2 leads E1 by 90°
3. E1 lags E2 by 180°
4. E2 lags E1 by 180°

1-62. Which of the following phase relationships exists in an inductive circuit?

1. The current lags the applied voltage by 90° and is in phase with the induced voltage
2. The current lags the applied voltage by 90° and lags the induced voltage by 45°
3. The current lags the applied voltage by 45° and leads the induced voltage by 45°
4. The current lags the applied voltage by 90° and leads the induced voltage by 90°

Learning Objective: Explain how to increase the capacitance of a capacitor, recognize possible results of dielectric leakage and of exceeding the voltage rating of a capacitor, and compute capacitance in series and parallel circuits.

- 1-63. Which of the following groups of actions lists three ways to increase the capacitance of a capacitor?
1. Increasing the area of the plates; decreasing the distance between the plates; increasing the dielectric constant
 2. Decreasing the area of the plates; increasing the distance between the plates; increasing the dielectric constant
 3. Increasing the area of the plates; decreasing the distance between the plates; decreasing the dielectric constant
 4. Decreasing the area of the plates; increasing the distance between the plates; decreasing the dielectric constant
- 1-64. A high degree of dielectric leakage in a capacitor could quite possibly cause the capacitor to
1. overcharge and crack or break
 2. discharge and become overheated
 3. discharge and reverse the flow of current through the circuit
 4. overcharge and catch on fire
- 1-65. If a capacitor is subjected to a level of voltage which exceeds its voltage rating, which of the following conditions is most likely to occur?
1. Dielectric breakdown, arcing between the plates, and the passage of direct current through the capacitor
 2. A sharp upswing in the level of capacitance, resulting in rapid, erratic reversals of polarity of the capacitor
 3. An instantaneous change in the working voltage of every capacitor in the circuit
 4. An outbreak of fire at the capacitor

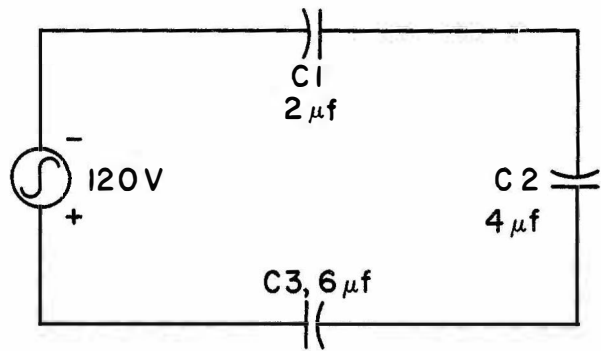


Figure 1H. - Capacitors in a series circuit.

- Refer to figure 1H in answering question 1-66.

- 1-66. What is the total capacitance in farads (f) of the circuit shown?
1. 0.001 f
 2. 0.01 f
 3. 100.0 f
 4. 1,000.0 f

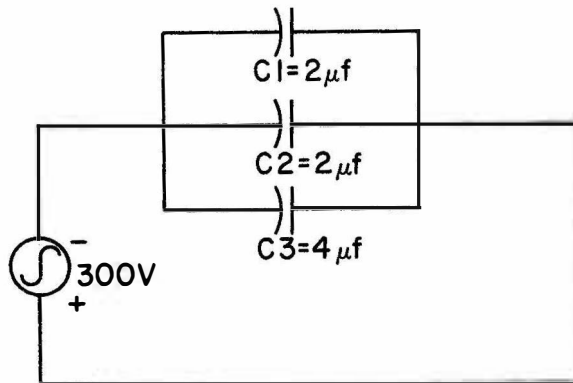


Figure 1J. - Capacitors in a parallel circuit.

- Refer to figure 1J in answering question 1-67.

- 1-67. What is the total capacitance of the circuit shown?
1. 0.0008 f
 2. 0.008 f
 3. 125.0 f
 4. 1250.0 f

Learning Objective: Identify the schematic symbols for several electrical terms.

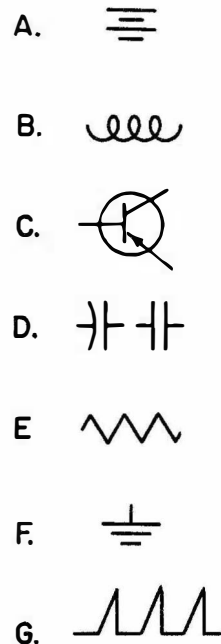


Figure 1K.

● Refer to figure 1K in answering questions 1-68 through 1-72. In each of these questions, select the symbol from figure 1K to match the term given.

- 1-68. Capacitor
 1. B
 2. C
 3. D
 4. E

- 1-69. Ground
 1. A
 2. B
 3. E
 4. F

- 1-70. Inductor
 1. A
 2. B
 3. C
 4. G

- 1-71. Resistor
 1. B
 2. D
 3. E
 4. G

- 1-72. Battery
 1. A
 2. D
 3. E
 4. F

Learning Objective: Determine what properties combine to form impedance; compute inductive reactance; and compute capacitive reactance.

- 1-73. Impedance is the cumulative effect of which of the following electrical properties?
 1. Resistance, capacitance, reactance
 2. Capacitance, voltage, current
 3. Resistance, inductive reactance, capacitive reactance
 4. Inductive reactance, capacitive reactance, capacitance

- 1-74. If the inductance of a circuit is .65 henrys and it is utilizing a 60-Hz a.c. current, what is the approximate value of its inductive reactance?
 1. 0.004 ohm
 2. 39.0 ohms
 3. 244.92 ohms
 4. 489.84 ohms

- 1-75. If the capacitance of a circuit is .004 farad and it is utilizing a 60-Hz current, what is the approximate value of its capacitive reactance?
 1. 0.332 ohm
 2. 0.663 ohm
 3. 1.507 ohms
 4. 3.014 ohms

Assignment 2

Basic Electricity (Continued); Basic Transmitter and Receiver Theory

Textbook Assignment: Pages 20 - 84

Learning Objective: Identify the units of measurement associated with several common electrical properties.

- | |
|------------|
| A. Ampere |
| B. Coulomb |
| C. Farad |
| D. Henry |
| E. Hertz |
| F. Mho |
| G. Ohm |
| H. Volt |
| I. Watt |

List 2A.

● In answering questions 2-1 through 2-8, select from list 2A the unit of measurement used to measure the electrical property given as the question.

- 2-1. E
1. A
2. B
3. H
4. I
- 2-2. I
1. A
2. C
3. H
4. I
- 2-3. R
1. B
2. E
3. F
4. G

- 2-4. X_C
1. B
2. D
3. F
4. G

- 2-5. X_L
1. B
2. D
3. F
4. G

- 2-6. f
1. A
2. D
3. E
4. I

- 2-7. L
1. C
2. D
3. E
4. F

- 2-8. C
1. C
2. D
3. E
4. F

Learning Objective: Distinguish among the names, characteristics, and uses of the various bands of frequencies used in radio communications.

- A. Relatively long distances can be covered. This is one of the two bands in which most shipboard transmitters and receivers operate. Used extensively by commercial facilities. The international distress signal is in this band.
- B. The signal can travel long distances and can go through magnetic storms. This band is used primarily for fleet broadcasts, radio navigation, and transmission of time standards.
- C. This band is used for aeronautical radio navigation and communications, radar, and amateur radio.
- D. This band is used for long-range direction-finding, medium-, and long-range communications, and aeronautical navigation.
- E. This band is used for short-range communications.
- F. This band is used primarily by mobile and maritime communication units. This is one of the two bands in which most shipboard transmitters and receivers operate.

List 2B.

● In answering questions 2-9 through 2-14, select from list 2B the description of the frequency band given as the question.

- 2-9. VLF (3-30 kHz)
 - 1. A
 - 2. B
 - 3. C
 - 4. E
- 2-10. LF (30-300 kHz)
 - 1. C
 - 2. D
 - 3. E
 - 4. F

- 2-11. MF (300-3000 kHz)
 - 1. A
 - 2. B
 - 3. C
 - 4. E

- 2-12. HF (3-30 MHz)
 - 1. A
 - 2. B
 - 3. D
 - 4. F

- 2-13. VHF (30-300 MHz)
 - 1. B
 - 2. C
 - 3. D
 - 4. F

- 2-14. UHF (300 MHz - 3 GHz)
 - 1. A
 - 2. D
 - 3. E
 - 4. F

Learning Objective: Identify, from a block diagram, the basic components of a typical transmitter.

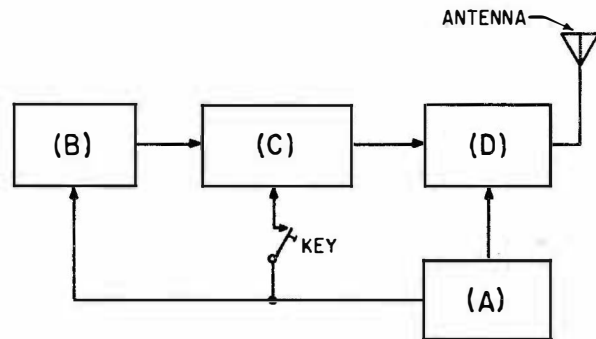


Figure 2A. - Stages of a typical transmitter.

- Refer to figure 2A in answering question 2-15.
- 2-15. Identify the components of the illustrated transmitter.
1. (A) Oscillator, (B) power supply, (C) buffer-frequency multiplier, (D) power amplifier
 2. (A) Oscillator, (B) power supply, (C) power amplifier, (D) buffer-frequency multiplier
 3. (A) Power supply, (B) oscillator, (C) buffer-frequency multiplier, (D) power amplifier
 4. (A) Power supply, (B) buffer-frequency multiplier, (C) oscillator, (D) power amplifier
-
- Learning Objective: Explain the primary functions of the basic components of a CW transmitter.
-
- 2-16. What is the purpose of the keying device of a CW transmitter?
1. To start and stop the amplitude modulation process
 2. To start and stop the frequency modulation process
 3. To turn the internal IF on and off
 4. To turn the RF output on and off
- 2-17. What is the function of an oscillator in a CW transmitter?
1. To produce an a.c. signal which is consistently at the desired frequency and amplitude
 2. To produce an a.c. signal which is consistently at the desired frequency, amplify that signal, and maintain the stability of its amplified form
 3. To produce and amplify an a.c. signal, filter it, and then maintain frequency and amplitude stability
 4. To produce an a.c. signal which is consistently at the desired frequency, and, for reinforcement, vary its amplitude in phase with the current
- 2-18. What is the purpose of the feedback circuit in a transmitter?
1. To feed the output of the transmitter back through the oscillator to give the signal an additional pulse of voltage
 2. To feed the output of the transmitter back through a filter circuit for purification
 3. To feed a low-amplitude output signal back to the oscillator to help maintain stable oscillations
 4. To feed a low-amplitude output signal back to the amplification circuit to be strengthened
- 2-19. What is the usual function of the buffer?
1. To measure the amplitude and frequency of the signal from the oscillator and compensate for any variation
 2. To provide the final amplification to the signal before it is radiated
 3. To measure the amplitude (only) of the signal from the oscillator and compensate for any variation
 4. To amplify the signal from the oscillator sufficiently to drive the power amplifier
- 2-20. One reason for having one or more power amplifiers between the oscillator and the antenna is to increase the strength of the signal. What is another reason for having the amplifier stage in its position in the transmitter?
1. To help maintain frequency stability by blocking the reflection of the antenna impedance to the oscillator
 2. To help assure uniform shapes of the waves just prior to their radiation by feeding them through an internal waveshape standardization circuit
 3. To help avoid the radiation of overmodulated signals by clipping all parts of the signal beyond certain limitations
 4. To help assure a continuous, smooth output (rather than intermittent or broken pulses) from the transmitter
- 2-21. What voltages/energy are provided to the various circuits by the power supply in a transmitter?
1. Alternating and direct voltages and RF energy
 2. Alternating voltages only
 3. Direct voltages only
 4. Alternating and direct voltages only

- 2-22. What processes occur in a power supply during (a) rectification and (b) filtering?
- (a) The sine waves are smoothed (amplitude made more nearly constant),
(b) the a.c. is changed to pulsating d.c.
 - (a) The sine waves are smoothed (amplitude made more nearly constant),
(b) the signal is further flattened and smoothed out
 - (a) The a.c. voltage is changed to pulsating d.c.,
(b) alternate pulses of the d.c. voltage are eliminated
 - (a) The a.c. voltage is changed to pulsating d.c.,
(b) the pulsating d.c. is smoothed (made more nearly constant)

Learning Objective: Identify the major components of the crystal microphone.

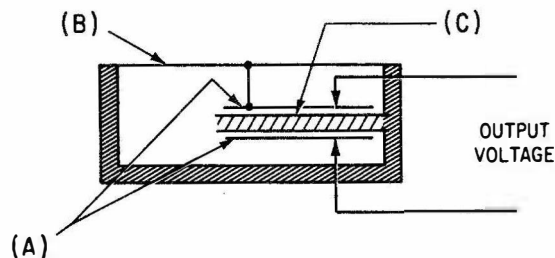


Figure 2B. - Crystal microphone.

- Refer to figure 2B in answering question 2-23.

- 2-23. Identify, in alphabetical sequence, the lettered items related to the composition or use of a diaphragm-type crystal microphone.
- (A) Diaphragm, (B) crystal, (C) electrodes
 - (A) Electrodes, (B) diaphragm, (C) crystal
 - (A) Crystal, (B) electrodes, (C) diaphragm
 - (A) Electrodes, (B) crystal, (C) diaphragm

Learning Objective: Explain functions of the basic components of an amplitude-modulated (AM) transmitter.

- 2-24. What is the function of the driver stage of an AM transmitter?
- To direct the received signal to a specified path in the circuit
 - To alternately add to and subtract from the plate voltage of the power amplifier
 - To increase the signal to a very large voltage
 - To rectify the incoming a.c. signal
- 2-25. The modulator emits a relatively high-voltage amplified signal which corresponds in shape to the voice waves received by the microphone. (a) What path is then traveled by this signal, and (b) for what purpose is it directed there?
- (a) Through one of a pair of twin in-phase connectors directly to the antenna,
(b) to be transmitted at the same time as the RF carrier
 - (a) To the final power amplifier,
(b) to modulate the RF carrier
 - (a) Through the wave synchronization stage, a network of filters and oscillators,
(b) to be merged with the RF carrier
 - (a) To the buffer amplifier for amplification, then through the other intermediate amplifiers (if any), and into the power amplifier,
(b) to modulate the RF carrier

Learning Objective: Describe amplitude modulation and the resultant amplitude-modulated wave.

- 2-26. If an RF carrier of 2750 kHz is amplitude-modulated by an audio frequency of 1 kHz, what would be the frequency of the resultant (a) upper sideband, and (b) lower sideband?
- (a) 2750.1 kHz, (b) 2749.9 kHz
 - (a) 2750.5 kHz, (b) 2749.5 kHz
 - (a) 2751 kHz, (b) 2749 kHz
 - (a) 2760 kHz, (b) 2740 kHz

- 2-27. When an RF carrier is modulated by a single AM frequency, what percent of the amplitude of the modulating wave is the amplitude of the upper or lower sideband, as can be displayed on a spectrum analyzer?
1. 25%
 2. 50%
 3. 75%
 4. 100%

● In answering questions 2-28 and 2-29, assume that there is a double sideband wave which resulted from the amplitude modulation of a carrier of 10 kHz by signals with frequencies at .3, .5, and 1.2 kHz.

- 2-28. Select the response that lists all the resultant side frequencies in the modulated wave.
1. .3, .6, .5, 1.0, 1.2, 2.4 kHz
 2. 9.7, 10.3, 9.5, 10.5, 8.8, 11.2 kHz
 3. 10.3, 10.5, 11.2 kHz
 4. 10.3, 10.6, 10.5, 11.0, 11.2, 12.4 kHz
- 2-29. What is the bandwidth of the modulated wave, measured in kHz?
1. 1.2 kHz
 2. 2.4 kHz
 3. 11.2 kHz
 4. 12.4 kHz
- 2-30. In the amplitude modulation mode, if the peak voltage of the modulating signal is equal to the supply voltage to the final power amplifier, what will be the degree of modulation?
1. 0%
 2. 25%
 3. 50%
 4. 100%
- 2-31. If the degree of amplitude modulation is 100%, what will be (a) the RF output voltage on the negative peak of the modulating signal, and (b) the relationship of the maximum RF output voltage on the positive peak of the modulating signal to the amplitude of the unmodulated carrier voltage?
1. (a) One-half that on the positive peak; (b) quadruple
 2. (a) One-half that on the positive peak; (b) twice
 3. (a) Zero; (b) half
 4. (a) Zero; (b) twice

- 2-32. What is the modulation factor if a carrier wave with a peak amplitude of 300 volts is amplitude-modulated by a 2-kHz wave having a peak amplitude of 180 volts?
1. 0.007
 2. 0.011
 3. 0.6
 4. 1.67

- 2-33. At 100% amplitude modulation, the sidebands (together) contain one-half as much power as the unmodulated carrier. If the degree of modulation is reduced to 50%, what then is the relationship of the power of the sidebands (together) to that of the unmodulated carrier?
1. One-eighth
 2. One-fourth
 3. Three-fourths
 4. The same

Learning Objective: Explain functions of the basic components of a single sideband (SSB) transmitter.

- 2-34. What type of signal does the SSB generator of a typical SSB transmitter actually produce at the generator stage?
1. Double sideband
 2. Single sideband reduced carrier
 3. Single sideband suppressed carrier
 4. Independent or double single sideband
- 2-35. The generated signal from the SSB generator of a SSB transmitter passes through a highly selective filter. What is the purpose of the filter?
1. To reject one of the sidebands
 2. To trim off all amplitude crests which exceed modulation limits
 3. To separate the sidebands and pass them on for separate transmission
 4. To reject the carrier and pass the remaining part of its input to the next stage

- 2-36. After the signal passes through the filter, what action occurs as the signal goes through various mixers and amplifiers?
1. It is mixed with a modulating audio frequency signal
 2. It is mixed with the lower-frequency output of a local oscillator to become an intermediate frequency of somewhat lower frequency
 3. It is converted to a radio frequency to be transmitted
 4. It is checked against the frequency standard circuit, automatically returned to its original frequency, filtered to remove modulation, and amplified for transmission
- 2-37. What signal does the carrier generator provide and where is this signal directed?
1. It provides the conversion frequencies necessary to produce the RF SSB signal, which is directed to the mixer-amplifier stage
 2. It provides the RF carrier, which is directed straight to the antenna to be merged with the outgoing signal
 3. It provides the IF carrier used to produce the IF SSB signal, which is directed to the SSB generator
 4. It provides the conversion frequencies necessary to produce the RF SSB signal, which is directed to the SSB generator

Learning Objective: Distinguish among the various types of single sideband transmission.

To answer questions 2-38 through 2-41, select from column B the mode of transmission described in column A.

- | A. Definitions | B. Modes Of Transmission |
|--|---|
| 2-38. The mode of transmission in which a carrier and two sidebands carrying different information are transmitted together | 1. Single sideband full carrier
2. Single sideband reduced carrier |
| 2-39. The mode of transmission in which one sideband is eliminated and the power of the carrier diminished prior to transmission of the signal, and the other sideband and the weakened carrier are transmitted together | 3. Single sideband suppressed carrier
4. Independent or double single sideband |
| 2-40. The mode of transmission in which one sideband and the carrier are eliminated prior to transmission of the signal, and then a signal of the same frequency as the carrier is later reinserted by the receiver | |
| 2-41. The mode of transmission in which one sideband is eliminated prior to transmission of the signal, and the other sideband and the carrier (without alteration) are transmitted together | |

Learning Objective: State the advantages of transmission by the CW mode as compared to the AM mode, and by the single sideband mode as compared to the AM double sideband mode.

- 2-42. What advantages has CW transmission, as compared to amplitude-modulated signal transmission?
1. High fidelity of vocal tone reproduction; good penetration of heavy noise conditions by the signal; long-range capability
 2. High fidelity of vocal tone reproduction; good penetration of heavy noise conditions by the signal; narrow bandwidth
 3. Long-range capability; good penetration of heavy noise conditions by the signal; narrow bandwidth
 4. Long-range capability; narrow bandwidth; strengthened signal because of its reinforcement and amplification by phase relationship between the RF and IF segments of the wave
- 2-43. Two of the advantages of single sideband transmission (disregarding independent sideband) over double sideband transmission are reduced bandwidth and increased effective power, therefore, increased range. What are two other advantages?
1. Less distortion and less interference
 2. Less distortion and much higher rate of travel of signal through space
 3. Less interference and much higher rate of travel of signal through space
 4. Lower distortion and reduced size of the antenna required

Learning Objective: Define amplitude modulation and frequency modulation, and explain some of the principles involved in FM.

- Judge whether questions 2-44 through 2-48 are True or False.
- 2-44. Intelligence can be superimposed on a carrier in the form of changes in the amplitude of the carrier. This is known as amplitude modulation (AM).
- 2-45. Intelligence can be superimposed on a carrier in the form of changes in the frequency of the carrier. This is known as frequency modulation (FM).
- 2-46. In FM, the amount the carrier is varied depends on the frequency of the modulating signal.
- 2-47. In FM, the rate at which the carrier is varied depends on the amplitude of the modulating signal.
- 2-48. In FM, the amplitude of the RF remains constant, both during and between periods of modulation.
- 2-49. If a carrier with a frequency of 29,500 kHz is frequency modulated by a signal with a frequency of 2 kHz, the first set of sideband frequencies is 29,498 and 29,502 kHz. What are the frequencies of the second and third sets?
1. 29,497 and 29,503 kHz;
29,496 and 29,504 kHz
 2. 29,496 and 29,504 kHz;
29,494 and 29,506 kHz
 3. 29,496 and 29,504 kHz;
29,492 and 29,508 kHz
 4. 29,494 and 29,506 kHz;
29,488 and 29,512 kHz
- 2-50. The number of sideband frequencies of a frequency-modulated wave is theoretically infinite. The bandwidth of an AM wave, however, has been set by definition to be the frequency range between the extreme upper and extreme lower sidebands having amplitudes that are at least what percent of the amplitude of the unmodulated carrier?
1. 1%
 2. 2%
 3. 5%
 4. 10%

- 2-51. What are the frequency and distortion characteristics of wideband FM, relative to narrowband FM?
1. High frequency, low distortion
 2. High frequency, high distortion
 3. Low frequency, low distortion
 4. Low frequency, high distortion
- 2-52. What is the formula for finding the modulation index in FM if you are given the frequency deviation of the carrier (Fd) and the frequency of the highest modulating signal (Fm)?
1. $M = Fd \times Fm$
 2. $M = \frac{1}{Fd \times Fm}$
 3. $M = \frac{Fd}{Fm}$
 4. $M = \frac{Fm}{Fd}$
- 2-53. What is meant by 100% modulation, as related to the description of a frequency-modulated signal?
1. The amplitude of the envelope varies between zero and twice its normal unmodulated value
 2. The carrier is deviated in frequency by the full permissible amount
 3. Deviation of the carrier occurs 100% of the time
 4. The power output varies from a null (zero) to a point twice that required for unmodulated transmission

Learning Objective: Explain the purposes of some of the safety equipment and safety practices associated with the handling of transmitters.

- 2-54. What is the purpose of the interlocks in a transmitter?
1. To lock the access doors securely to prevent their being opened by unauthorized personnel
 2. To provide a secondary fastener for access doors to prevent them from opening accidentally when the equipment is in a moving ship or aircraft
 3. To provide safe, well-insulated connectors by which other equipment may be linked and "interlocked" to the transmitter safely
 4. To turn off the power to the transmitter automatically when an access door is opened

- 2-55. Before touching any of the inner components of a transmitter with your hand, it is important that you first probe about inside with a metal rod with a wooden handle. (a) What do you call this rod, and (b) what is the primary purpose of your probing about?
1. (a) Breakage-detector rod;
(b) to tap the components to see if any of them appear to be cracked or broken
 2. (a) Component-security rod;
(b) to tap the components to see if all of them are tightly seated and securely connected
 3. (a) Shorting bar;
(b) to touch each part of the circuitry that may carry a charge stored by a capacitor, causing it to discharge by means of a ground connection from the shorting bar
 4. (a) Power-detection rod;
(b) to assure, by means of spark detection, that the power to the transmitter has been turned off

Learning Objective: Identify characteristics, define terms, and explain procedures associated with the use of the superheterodyne AM receiver.

- 2-56. What is the form and composition of the radio signal to be received by an AM superheterodyne receiver?
1. A modulated RF signal, composed of an RF signal upon which an AF signal has been impressed
 2. An unmodulated RF signal (carrier), composed of an intermittent RF signal which does not vary in amplitude, but does vary in frequency according to the information it carries
 3. A modulated RF signal, composed of an RF signal upon which a second RF signal of higher frequency has been impressed
 4. A modulated IF signal, composed of an RF signal which has been modified and modulated by an IF signal

- 2-57. Relative to receivers, what is meant by the term "sensitivity"?
1. The ability of a receiver to reproduce a weak signal
 2. The susceptibility of a receiver to misalignment or drift
 3. The degree of physical fragility of a receiver
 4. The ability of a receiver to differentiate among closely-spaced signals and reproduce the desired signal

- 2-58. Relative to receivers, what is meant by the term "selectivity"?
1. The ability of a receiver to reproduce a weak signal
 2. The ability of a receiver to select either CW, AM, or FM signals at its antenna and RF amplifier stages
 3. A measure of the ease with which a receiver selects the carrier or a specified sideband from the full signal
 4. The ability of a receiver to differentiate among closely-spaced signals and reproduce the signal desired

- 2-59. Which of the following is a term which means the combining of two or more frequencies to produce new frequencies?
1. Squelching
 2. Heterodyning
 3. Demodulating (or detecting)
 4. Oscillating

- 2-60. What function of a receiver takes place when a transmitted electromagnetic wave cuts across the receiver antenna in such a way as to induce a voltage in the antenna circuit?
1. Detection
 2. Reception
 3. Modulation
 4. Mixing

- 2-61. The cutting of electromagnetic waves across the antenna induces very small a.c. voltages which are then fed to one or more frequency-selection circuits located at the input to the receiver. Which of the following is a function of these frequency-selection circuits?
1. To select the desired frequency and reject all others
 2. To synchronize the carrier and sidebands so that they will be in phase
 3. To remove the carrier and one sideband from the signal
 4. To amplify the signal to the level necessary to drive the next stage

- 2-62. What is the next thing that happens to the RF signal from the antenna after it goes through the input tank?
1. It is heterodyned
 2. It is amplified by an RF amplifier
 3. It is detected or demodulated
 4. It is processed through the beat frequency oscillator

- 2-63. What two signals go to the mixer of a superheterodyne receiver?
1. A locally-produced intermediate-frequency signal and a signal, the frequency of which is the difference between the incoming RF and the IF
 2. The incoming RF signal and an IF signal which is usually 455 kHz
 3. The incoming RF signal which has been amplified, and a constant-amplitude RF signal from a local oscillator
 4. The incoming RF signal and a signal, the frequency of which is the difference between that of the carrier and the outer side frequency of either the upper or lower sideband

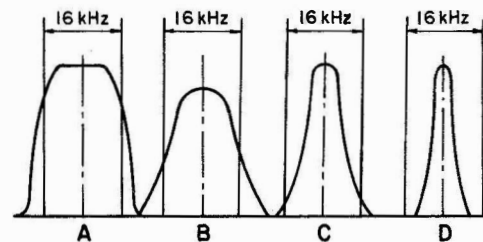


Figure 2C.

● Refer to figure 2C in answering questions 2-64 through 2-67. Sharper tuning is desired in the RF amplifier stages of some receivers than of others, depending upon the purpose of the reception. In each question, select the tuning curve (indicating sharpness of tuning) associated with the type of receiver named.

- 2-64. CW
1. A
 2. B
 3. C
 4. D

- 2-65. FM (commercial)
1. A
 2. B
 3. C
 4. D
- 2-66. AM (commercial)
1. A
 2. B
 3. C
 4. D
- 2-67. AM voice communication (military)
1. A
 2. B
 3. C
 4. D
- 2-68. What will be the frequency of the local oscillator of a superheterodyne receiver if the IF is 455 kHz and the incoming RF is 1655 kHz?
1. 455 kHz
 2. 1200 kHz only
 3. 2110 kHz only
 4. Either 1200 kHz or 2110 kHz
- 2-69. If the RF input to a superheterodyne receiver is 1655 kHz and the IF is 455 kHz, what are the major frequency outputs of the mixer?
1. 1655, 455, 1200, and 2110 only
 2. 1655, 455, 1200, 2110, 2855, and 3765
 3. 455, 1200, and 2855 only or 455, 2110, and 3765 only
 4. 1655, 455, 1200, and 2855 only or 1655, 455, 2110, and 3765 only

Learning Objective: Describe the various stages of a receiver. (This objective is continued in Assignment 3.)

- A. Among other functions performed, components in this stage isolate the oscillator from the antenna-ground systems.
- B. From this final stage of the superheterodyne receiver the signals go to a speaker, headphone, or other such device.
- C. Practically all the selectivity of a superheterodyne receiver is determined by this stage, supplemented by some selectivity provided by another amplifier stage.
- D. The sensitivity of a receiver is accomplished primarily in this stage.
- E. It is especially important at this stage to output an adequate signal with a high signal-to-noise ratio so that it can be picked up in the noisy stage ahead.
- F. This stage is called the preselector.

List 2C.

● In questions 2-70 through 2-72, select from list 2C the description or characteristic that matches the receiver stage named.

- 2-70. AF amplifier
1. A
 2. B only
 3. E only
 4. B and E
- 2-71. IF amplifier
1. C
 2. D
 3. E
 4. F
- 2-72. RF amplifier
1. A, D, and F only
 2. B and C only
 3. B, C, and E
 4. A, D, E, and F

- A. Small voltages developed in this stage by the RF signal are sent to frequency-selection circuits for acceptance or rejection.
- B. From this final stage of the super-heterodyne receiver the signals go to a speaker, headphone, or other such device.
- C. This stage generates the majority of the receiver noise because of the input of voltages that differ in frequency and phase from existing voltages.
- D. The function of this stage is frequency conversion by heterodyne action.
- E. A signal, the frequency of which is a specified frequency deviation from the incoming RF signal, is generated here.
- F. At this stage a reproduction of the original AF modulation is recreated from the IF signal.

● In questions 2-73 through 2-75, select from list 2D the description or characteristic that matches the receiver stage named.

- 2-73. Detector
 - 1. B
 - 2. D
 - 3. E
 - 4. F
- 2-74. Local oscillator
 - 1. A
 - 2. C only
 - 3. E only
 - 4. C and E
- 2-75. Mixer
 - 1. A and C
 - 2. A and D
 - 3. C and D
 - 4. F

List 2D.

Assignment 3

Basic Receiver Theory (Continued); Basic Antenna Theory; Radio Wave Propagation

Textbook Assignment: Pages 83 - 115

Learning Objective: (Continued)
Describe the various stages of a receiver.

- 3-1. If you change the setting of the receiver to receive RF of a different frequency, how is the frequency of the local oscillator adjusted so there will still be the same amount of difference in frequency between them?
1. The tuned circuits of the RF stage and the local oscillator are connected to the same tuning shaft
 2. When the RF signal changes frequency, a red frequency synchronization light comes on, and remains on until the "Osc Tune Knob" on the front panel is properly adjusted (manually)
 3. There is a feed-back circuit from the RF tuned tanks to the local oscillator circuit. Any change in frequency causes an electronic adjustment to be made
 4. The operator should press the black button on the panel and hold it in for five seconds. This will initiate an electronic adjustment
- 3-2. Why can the tuned circuits in the IF amplifier stage be permanently adjusted for optimum gain and bandwidth characteristics, but those in the RF amplifier stage can NOT?
1. Because the signals present in the IF amplifier stage are of lower frequency than those in the RF amplifier stage
 2. Because the signals present in the IF amplifier stage are of higher frequency than those in the RF amplifier stage
 3. Because the IF amplifier operates at only one frequency, and the tuned circuits of the RF amplifier stage are variable
 4. Because the RF amplifier operates at only one frequency, and the tuned circuits of the IF amplifier stage are variable

- 3-3. What types of signals are (a) the input to and (b) the output from the detector or demodulator stage?
1. (a) An amplified IF signal,
(b) a small AF signal
 2. (a) A small IF signal,
(b) an amplified AF signal
 3. (a) An amplified RF signal,
(b) a small IF signal
 4. (a) A small IF signal,
(b) a small RF signal
- 3-4. To what stage of the receiver does the signal go from the detector or demodulator?
1. The IF amplifier
 2. The AF amplifier
 3. The RF amplifier
 4. The final tuning circuit

Learning Objective: Distinguish among various control circuits in a receiver, and give a general description of their operation.

● If a receiver had NO control to compensate for the variation in strengths of signals it receives, there would be a corresponding wide variation of volume in receiver output. In addition, very strong signals would overdrive the RF stage, and the output would be distorted and difficult to understand.

- 3-5. One way the problems connected with the varied strength of incoming signals could be overcome is by adjusting the manual gain control (MGC), labeled "MANUAL," "MGC," or "MANUAL-GAIN" on the panel. What normally happens internally when this knob is turned?
1. The amplification factor of the AF stage is varied
 2. The strength of the signal from the local oscillator to the mixer is varied
 3. The amplification factor of the RF stage is varied
 4. The strength of the IF signal from the mixer is varied

- 3-6. The automatic gain control (AGC) works somewhat differently from the MGC. How does the AGC work?
1. A proportional amount of the incoming RF signal is sent to the IF amplification stage where it attenuates (weakens) the signals in direct proportion to their strengths
 2. A capacitive/inductive filter, inserted at the output of the RF amplification stage, attenuates, in proportion to their strengths, all signals with amplitudes exceeding a set amount
 3. It filters and feeds a proportional part of the d.c. component of the output of the detector stage, which varies as the strength of the signals received, to each of the preceding stages to attenuate the signals in proportion to their strengths
 4. A capacitive/inductive filter, inserted at the output of the AF amplification stage, attenuates, in proportion to their strengths, all signals with amplitudes exceeding a set amount
- 3-7. How does the action of the delayed gain control differ from that of the AGC?
1. The primary difference is that in delayed gain control there is a slight delay (measured in nanoseconds) after the initiating signal triggers a response
 2. When delayed gain control is used, attenuation occurs one stage later than when AGC is used
 3. When delayed gain control is used, attenuation occurs two stages later than when AGC is used
 4. When delayed gain control is used, no degenerative feedback is developed if the signal strength is less than a certain value
- 3-8. What is the purpose of the beat frequency oscillator (BFO)?
1. To make it possible to have an AF output from a received CW signal
 2. To attenuate very strong signals to prevent their overdriving later stages of the receiver
 3. To perform an important step in the process of separating one sideband from the rest of the signal
 4. To provide regenerative feedback in order to increase the sensitivity of the receiver
- 3-9. What is the purpose of the squelch, also called the noise-silencer, noise-suppressor, and noise-limiter?
1. To attenuate very strong signals in order to prevent their overdriving the remaining stages in the receiver
 2. To suppress receiver noise output when no input signal is being received
 3. To suppress the electronic "whine" of the RF amplification stage
 4. To reject signals of other than the desired frequency should the receiver drift off frequency
- 3-10. How is the purpose of the squelch accomplished?
1. By proportional blocking of the RF amplifier stage output
 2. By blocking the detector or audio amplifier when there is no signal
 3. By the insertion of an inductive/capacitive filter at the output of the last RF amplifier
 4. By inserting a matched-frequency stage which passes matching frequencies and rejects all others
- 3-11. What is the purpose of the automatic frequency control (AFC)?
1. To cause the frequency of the local oscillator to change in proportion to that of the incoming RF signal when the operator changes receiving frequencies
 2. To notify the operator of a variance in the IF signal
 3. To notify the operator if the frequency selected is outside the range of those designated for use by the Navy
 4. To maintain a constant frequency separation between the carrier and local oscillator despite drift of either or both

- 3-12. What is the method by which the purpose of the AFC is accomplished?
1. A discriminator circuit senses any change in IF, produces a d.c. voltage equivalent to the frequency shift, and feeds this voltage to a reactance circuit, which then causes the local oscillator to change frequency
 2. When a new frequency is selected on the panel, a small voltage is fed from the amplifiers in the preselector stage to both the detector stage and the local oscillator, thus causing a realignment of local oscillator frequency
 3. If the IF varies, a small voltage is induced in an auxiliary circuit, which then causes a red signal light on the panel to come on
 4. If the frequency is outside authorized limits, a small voltage is induced in an auxiliary circuit, which then causes a red signal light on the panel to come on

Learning Objective: Explain some of the principles, procedures, and terms associated with the tuning of antennas.

- 3-13. Varying operating frequencies require varying antenna lengths for optimum radiation. As it would NOT be practical to try to have a separate antenna for each operating frequency, how is this requirement usually met?
1. A stock of about six antennas of different lengths is maintained for each piece of communication equipment, and the one that most nearly matches the operating frequency is used
 2. An antenna coupler changes the electrical length of the antenna in order to tune it to the operating frequency
 3. Each piece of communication equipment is locked to one operating frequency and is equipped with an antenna specifically selected for that frequency
 4. Antennas with telescoping arms are used, and their lengths are physically changed as the operating frequencies are changed

- 3-14. What term, when used to describe an antenna, means that the antenna is matched to the operating frequency?
1. Harmonized
 2. Synchronized
 3. Resonant
 4. Polarized

- 3-15. When the length of an antenna is optimum for the operating frequency, what is the relationship between capacitive and inductive reactance?
1. They equal each other
 2. The value of X_L is twice that of X_C
 3. The difference in value between capacitive and inductive reactance is at its maximum, with capacitive reactance being the stronger
 4. The difference in value between capacitive and inductive reactance is at its maximum, with inductive reactance being the stronger

- 3-16. If four standing-wave ratio (SWR) readings are 2:1, 3:1, 7:1, and 9:1, which of the readings indicates the best SWR?
1. 2:1
 2. 3:1
 3. 7:1
 4. 9:1

Learning Objective: Define or state terms associated with the signal input point and the characteristic impedance of an antenna, and state the relationship between frequency and impedance.

- 3-17. The RF cable from the transmitter may be connected to the end or center of the antenna. What is the term for the point of connection?
1. Signal point
 2. Point of characteristic impedance
 3. Point of resonance
 4. Feed point

- 3-18. What is meant by the characteristic impedance of an antenna?
1. The ratio of the inductive reactance to the capacitive reactance when the antenna is properly tuned
 2. The ratio of the capacitive reactance to the inductive reactance when the antenna is properly tuned
 3. The ratio of the overall resistance of a particular antenna to the resistance of a standard antenna of pure copper of specified dimensions
 4. The amount of resistance the antenna is designed to offer when it is properly tuned

- 3-19. As the frequency in a circuit increases, in which direction do (a) capacitive reactance and (b) inductive reactance vary?
1. (a) Increases, (b) decreases
 2. (a) Increases, (b) increases
 3. (a) Decreases, (b) decreases
 4. (a) Decreases, (b) increases

Learning Objective: Demonstrate the relationship among frequency, wavelength, and antenna length.

- 3-20. If the operating frequency is 146 MHz, what is the approximate wavelength in feet?
1. 2.05 ft
 2. 6.74 ft
 3. 2,054,794.52 ft
 4. 6,739,726.03 ft
- 3-21. What should be the physical length, in feet, of a half-wave antenna transmitting at a frequency of 500 MHz?
1. 0.935 ft
 2. 0.984 ft
 3. 1.870 ft
 4. 1.968 ft

Learning Objective: Point out some of the basic principles concerning wave polarization, directivity, and field intensity of antennas.

● Judge whether questions 3-22 through 3-25 regarding polarization of antennas are True or False.

- 3-22. A vertical antenna radiates a vertically-polarized radio wave.
- 3-23. The electric field around a vertical antenna is vertical.

- 3-24. When antennas are less than one wavelength from the ground, horizontally-polarized waves yield a stronger signal close to the earth than do vertically-polarized waves.
- 3-25. Horizontally-polarized antennas should be used for reception of vertically-polarized waves, whenever possible.
- 3-26. Of what characteristic is the sharpness or narrowness of the radiation pattern of an antenna a measure?
1. Sensitivity
 2. Selectivity
 3. Directivity
 4. Polarity

● Use the following as the alternatives for questions 3-27 through 3-29. Select the response that correctly states the number of directions in which the specified type of antenna radiates or receives efficiently.

1. One direction only
2. Two directions only
3. All directions except off of the ends
4. All directions

- 3-27. Omnidirectional
- 3-28. Unidirectional
- 3-29. Bidirectional
- 3-30. Describe the standard antenna used as a reference when field intensity is being measured.
1. Parabolic antenna, exactly one meter in diameter
 2. Parabolic antenna, the radial of which is exactly one meter
 3. Standard wire antenna, exactly one meter long
 4. Standard center-fed wire antenna, exactly two meters long (one meter from center connection to antenna end)

Learning Objective: Point out relationships among current, resistance, and radiated power, and among incident waves, reflected waves, and SWR.

- 3-31. If the current fed into an antenna is 5 amperes and the radiation resistance is 4 ohms, what is the value of the power being radiated?
1. 20 W
 2. 80 W
 3. 100 W
 4. 400 W
- 3-32. When the antenna is in resonance, what is the relationship among incident waves, reflected waves, and standing wave ratio (SWR)?
1. The incident waves and reflected waves, being in phase, reinforce each other and cause the SWR to be better
 2. The incident waves and reflected waves, being out of phase, tend to cancel each other out and cause the SWR to be poorer
 3. At resonance, the incident waves disappear; therefore, the reflected waves are neither reinforced nor canceled, and the SWR is unaffected
 4. At resonance, the reflected waves disappear; therefore, the incident waves are neither reinforced nor canceled, and the SWR is unaffected

Learning Objective: Explain some general principles of half-wave antenna theory.

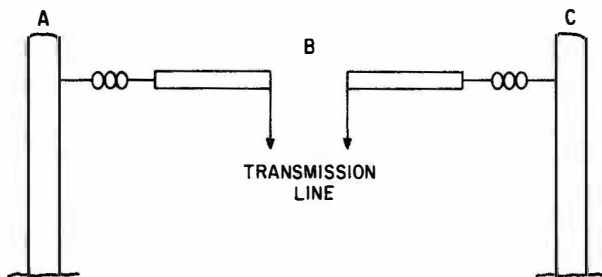


Figure 3A.

● Refer to figure 3A, a resonant half-wave antenna, when answering questions 3-33 through 3-35.

- 3-33. Which, if any, of the following is the electrical length of the antenna from point A to point C, relative to wavelength?
1. One-quarter wavelength (a.c. must travel this distance twice each half-wave)
 2. One-half wavelength
 3. One wavelength (one-half wavelength from the center to each end)
 4. None of the above
- 3-34. In what direction(s) does the current flow?
1. Alternating C to A, A to C, etc.
 2. Alternating center to ends, ends to center, etc.
 3. Center to ends (no reversal)
 4. Pulsing current from the center to the ends alternating with periods of no current
- 3-35. At point B, what is the degree of current, voltage, and impedance?
1. Current minimum, voltage maximum, impedance minimum
 2. Current maximum, voltage minimum, impedance minimum
 3. Current maximum, voltage minimum, impedance maximum
 4. Current minimum, voltage maximum, impedance maximum
- 3-36. Which of the following statements relating to the radiation pattern of a dipole antenna is correct?
1. The degree of radiation is the same in all directions with no exceptions
 2. Radiation occurs only in a plane perpendicular to the axis of the antenna
 3. Maximum radiation is in a plane perpendicular to the axis of the antenna; minimum radiation is from the ends of the antenna
 4. Minimum radiation is in a plane perpendicular to the axis of the antenna; maximum radiation is from the ends of the antenna

Learning Objective: Explain some general principles of quarter-wave antenna theory.

- 3-37. You were told in half-wave theory that a half-wave antenna is the shortest practical length for the propagation of radio waves. How, then, can a quarter-wave antenna be used?
1. A special capacitor/inductor circuit at the point of signal input to the antenna doubles the electrical length of the antenna
 2. The quarter-wave antenna has, within a fiberglass sleeve, an insulator wound with the amount of antenna wire required to cause the antenna to achieve half-wave characteristics
 3. A mirror-image of the same length as the antenna appears to reflect from the ground, causing the antenna to achieve half-wave characteristics
 4. A quarter-wave antenna has within it a layer of heat-sensitive oxide which responds to the input of current and causes the antenna to achieve half-wave characteristics
- 3-38. How much field strength variation, if any, is there at different points of the resultant field surrounding an operating quarter-wave antenna?
1. There is considerable variance because of wave reinforcement and cancellation
 2. There is considerable weakness directly above the antenna end, but very little variance elsewhere
 3. There is only a slight amount of variance
 4. There is no variance, as an electronic control compensates for any potential variance which might be caused by wave reinforcement and cancellation

Learning Objective: Define diffraction, reflection, and refraction.

In questions 3-39 through 3-41, select from column B the term best defined by the definition in column A.

- | A. <u>Definitions</u> | B. <u>Terms</u> |
|---|-----------------|
| 3-39. The bending of a wave around a solid object | 1. Diffraction |
| 3-40. The bending of a wave when it enters a medium of a different density | 2. Reflection |
| 3-41. The bouncing back of a wave from a relatively smooth surface which is larger than the wavelength of the incident wave | 3. Refraction |
| | 4. Retrocession |

Learning Objective: State the correct sequence of the three regions of the Earth's atmosphere, and identify some of the characteristics of the ionosphere and troposphere.

- 3-42. What is the correct sequence, from the Earth outward, of the three regions of the Earth's atmosphere?
1. Ionosphere, stratosphere, troposphere
 2. Troposphere, stratosphere, ionosphere
 3. Stratosphere, troposphere, ionosphere
 4. Troposphere, ionosphere, stratosphere
- 3-43. To what degree do variations in the properties of humidity, temperature, and pressure, respectively, cause refraction of the radio waves in the lower troposphere?
- A. To a negligible degree
 - B. To a moderate degree -- measurable, but of little real significance
 - C. To a significant degree

	<u>Humidity</u>	<u>Temperature</u>	<u>Pressure</u>
1.	A	C	C
2.	C	B	A
3.	C	C	C
4.	B	A	B

Learning Objective: State the terms used to designate the areas from the outer limit of the ground wave to the first returning sky wave and from the transmitter to the first returning sky wave.

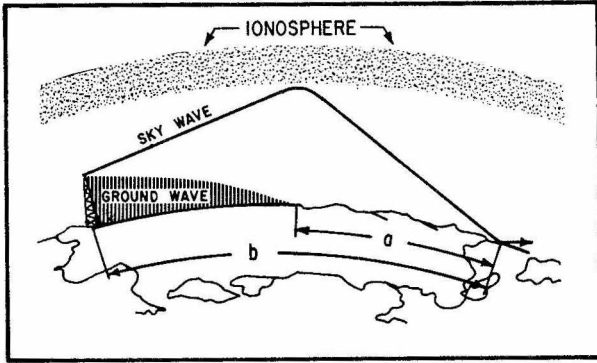


Figure 3B. - Ground waves/sky waves reaching Earth.

● In answering question 3-44, refer to figure 3B.

- 3-44. What terms are given to the areas labeled "A" and "B," respectively?
1. Skip zone, skip distance
 2. Skip interval, skip horizon
 3. Skip interval, skip distance
 4. Skip distance, skip zone

Learning Objective: Point out some of the causes of and procedures and equipment related to forward propagation tropospheric scatter.

- 3-45. Forward propagation tropospheric scatter communications is made possible because of the reflection and refraction (scattering) beyond the horizon. What conditions cause the scattering?
1. The rarefied air and partial vacuum present in the troposphere
 2. The characteristic quietness and extreme constancy of the troposphere
 3. The high number of ionized particles in the troposphere, more characteristic of this atmospheric layer than others
 4. The turbulence characteristic of this atmospheric layer
- 3-46. What type(s) of (a) transmitting and (b) receiving antennas, respectively, are used in the process of forward propagation tropospheric scatter communications?
1. Both (a) and (b), parabolic
 2. Both (a) and (b), horizontal dipole
 3. (a) Vertical dipole, (b) parabolic
 4. (a) Parabolic, (b) horizontal dipole

- A. The scatter angle increases.
- B. The scatter angle decreases.
- C. The amount of received energy increases.
- D. The amount of received energy decreases.
- E. The amount of turbulence around the signal increases.
- F. The amount of turbulence around the signal decreases.
- G. The amount of turbulence, being negligible in this layer, remains the same.

List 3A.

● Use list 3A in answering question 3-47.

- 3-47. Which of the preceding conditions occur as a result of an increase in the height of the scatter?
1. A, D, F
 2. A, D, G
 3. B, C, E
 4. B, C, F

3-48. What level of transmitter power and antenna sensitivity are generally used for the process of tropospheric scatter operation?

1. High-power transmitters, high-gain transmitting antennas, and very sensitive receiving antennas
2. Medium-power transmitters, medium-gain transmitting antennas, receiving antennas of moderate sensitivity
3. Low-power transmitters, medium-gain transmitting antennas, very sensitive receiving antennas
4. High-power transmitters, high-gain transmitting antennas, receiving antennas of low to moderate sensitivity

3-49. Which of the following is a problem encountered when tropo-scatter is employed?

1. Operation can be conducted effectively only from sunset until sunrise
2. In the northern hemisphere, operation can be conducted effectively only during winter months
3. The signal level is subject to rapid and continuous change because of changes in atmospheric conditions
4. Tropo-scatter is essentially short-range, and, because of phase reversals of the refracted waves, there is no way to add range by the use of signal amplifiers at additional relay stations

Learning Objective: Describe ionospheric layers D, E, sporadic E, and F.

To answer questions 3-50 through 3-53, select from column B the ionospheric layer to match the description shown in column A.

A. <u>Descriptions</u>	B. <u>Layers</u>
3-50. Composed of patches of ionized atmosphere that occur erratically and affect signals significantly	1. D layer 2. E layer 3. Sporadic E
3-51. Present only during the daytime. Ionization is relatively low. Affects signal little except for absorbing energy from the passing waves	4. F layer
3-52. During daylight hours this layer is divided into two layers; then shortly after sunset it again becomes one layer	
3-53. Present at night, but stronger during the day, and strongest at about mid-day. Of great importance to daytime transmissions up to 1,500 miles	

Learning Objective: Differentiate among various components of radio waves.

- 3-54. What are the two major components of a radio wave?
1. Sky wave and direct wave
 2. Sky wave and ground wave
 3. Space wave and ground wave
 4. Space wave and surface wave
- 3-55. What are the two components of a space wave?
1. Direct wave and ground-reflected wave
 2. Direct wave and surface wave
 3. Sky wave and surface wave
 4. Sky wave and ground-reflected wave
- 3-56. What are the two components of a ground wave?
1. Refracted wave and space wave
 2. Direct wave and surface wave
 3. Surface wave and sky wave
 4. Surface wave and space wave

- 3-57. What type of wave travels in a line-of-sight path and has a range limited to the distance to the horizon plus a small distance around the curvature of the earth added by atmospheric diffraction of the wave?
1. Ground-reflected wave
 2. Surface wave
 3. Direct wave
 4. Sky wave
- 3-58. What type of wave may be refracted from the ionosphere and returned to Earth far from the transmission point?
1. Ground wave
 2. Space wave
 3. Sky wave
 4. Surface wave
- 3-59. What type of wave undergoes a phase reversal and can cause an undesirable cancellation of signal by arriving at the receiving antenna approximately 180° out of phase with the direct wave?
1. Ground-reflected wave
 2. Surface wave
 3. Sky wave
 4. Ionospheric wave

Learning Objective: Define "FOT" and "MUF."

- 3-60. What does "FOT" mean, as defined in your textbook?
1. Fast overseas transmission, a term used to describe long-distance communications by ionospheric refraction
 2. Frequency of optimum transmission, the most reliable frequency to use for transmission at a specified time
 3. Flip-over transmission, descriptive of ground-reflected signals that undergo phase reversal as they are reflected
 4. Fade out trouble, a term used in connection with a standard system of reporting, on a scale of 1 to 5, the degree of trouble at a specified time due to fading caused by signals arriving out of phase

- 3-61. Frequency tables are compiled which contain predicted maximum usable frequencies (MUFs) for every locality from which transmissions will be made. What is an MUF?
1. The maximum frequency standard Navy receivers in that locality are designed to receive
 2. The maximum frequency that may be used at specified times at that locality because signals of a higher frequency are subject to penetrating the ionosphere and not returning to Earth
 3. The maximum frequency that is allocated by FCC for Navy use at that locality
 4. The maximum frequency that will produce a usable scatter pattern in the troposphere in that locality

Learning Objective: Explain the reason for multipath fading and the meaning of the term "selective fading."

- 3-62. Why does multipath fading occur?
1. Some of the signals are segmented when they penetrate the troposphere, refracted from the ionosphere, and then merged together, out of phase, as they return through the troposphere
 2. Two or more transmitters are located very closely together, causing the paths of their signals to converge and sometimes cross, partially canceling each other out
 3. Signals traveling from one atmospheric layer to another tend to change frequency slightly and are not heard well (if at all) at the receiver because they are off frequency
 4. Signals from the same site go to the receiver by different paths (e.g., direct, single hop, double hop), and arrive in varying phase relationships

- 3-63. What is selective fading?
1. The condition resulting when the various components of a wide-band wave, being at different frequencies, travel different paths to the receiver and arrive with different phase relationships and different relative amplitudes
 2. A term used in connection with the segments of time of day or night that fading is most likely to occur
 3. The inability to receive certain frequencies with a standard Navy receiver. This is a characteristic of the hardware, and the blocks of canceled frequencies will differ from receiver to receiver
 4. A flutter in the incoming signal caused by regular recurrent fading of alternate RF waves

Learning Objective: Name the types of periodic variations that occur in the ionosphere.

- A. Changes within an individual day
- B. Seasonal changes
- C. Sunspot cycle variations
- D. Variations due to phases of the moon

List 3B.

- Use list 3B in answering question 3-64.
- 3-64. Select from the preceding list the periodic variations that exist in the ionosphere.
1. A, B, C, and D
 2. A, B, and C only
 3. A and B only
 4. B only

Learning Objective: Describe characteristics of the MF, HF, UHF, and SHF/EHF bands.

To answer questions 3-65 through 3-68, select from column B the frequency band that matches the description given in column A.

- | <u>A. Descriptions</u> | <u>B. Bands</u> |
|--|--|
| 3-65. This is the principal band for ship-to-shore communications. It utilizes the ionospheric refraction for long-range communications | 1. MF
2. HF
3. UHF
4. SHF and EHF |
| 3-66. Diffuse reflection is quite prevalent. Much of the incident radiation is absorbed. Even raindrops can cause scattering and absorption. Satellite communication systems operate at this frequency | |
| 3-67. The Navy makes short- to moderate-range transmissions in the lower part of this band, and moderate-range transmissions in the upper part. Commercial broadcasts are transmitted at mid-band | |
| 3-68. Nearly all the energy transmitted point-to-point in this band travels in a curved path in the troposphere, extending beyond the horizon, and can go farther still by tropospheric scatter. There is some trouble with fading | |

Assignment 4

Basic Test Equipment; System Diagnosis and Quality Assurance

Textbook Assignment: Pages 116 - 153

Learning Objective: Describe the proper care, use, and handling of test equipment.

- Judge questions 4-1 through 4-4 as True or False, in respect to the care, use, and handling of test equipment.
- 4-1. Nearly all test equipment is rugged and durable and requires NO special care except to ensure that it is NOT left outside, exposed to elements of weather.
- 4-2. A common cause of meter damage is the selection of the improper meter range, and the subsequent attempt to measure a higher level than the meter was designed to measure.
- 4-3. Test sets should be stowed in a dry place, dust covers should be on, and, aboard ship, lockers containing test equipment should be padded to prevent damage which could occur when the ship rolls or pitches.
- 4-4. Careless stowage of cables and accessories may lead to inaccurate measurements because of resultant changes in cable characteristics, short circuits, etc.
- 4-5. Which of the following statements concerning the relationship between test equipment meters and magnets is correct?
 1. On a weekly schedule, each meter must be "zeroed" by holding a strong magnet close to it briefly if maximum meter accuracy is to be maintained
 2. On a monthly schedule, each meter must be "zeroed" by holding a strong magnet close to it briefly if maximum meter accuracy is to be maintained
 3. Test equipment meters should be kept away from strong magnets
 4. Magnets have no effect on test equipment magnets

Learning Objective: Identify the categories of maintenance associated with stated functions.

- 4-6. What is the name of the category of maintenance that includes the following actions: making routine checks to be sure the equipment is working properly; visually inspecting equipment components and wiring for damage and wear; performing periodic lubrication; and performing component adjustment?
 1. Passive
 2. Active
 3. Preventive
 4. Corrective
- 4-7. What is the name of the category of maintenance that includes the following actions: isolating equipment troubles; replacing defective parts; and realigning/readjusting equipment so that it will again perform properly?
 1. Passive
 2. Active
 3. Preventive
 4. Corrective

Learning Objective: Explain the reason for a difference in the amount of current before and after a cable is replaced; identify those characteristics for which a match is important between a test set and the equipment to be tested.

- 4-8. As RM3 Jernigan was beginning to measure the current at a certain point on a piece of radio equipment, he noticed that the insulation on the test set cable had a gash in it, exposing the bare wire. He then took a somewhat similar cable from his work drawer and replaced the defective one. The current reading he then obtained in a circuit differed from the reading shown in the technical manual, although it had checked out well the previous day. The facts given would indicate what probable reason for this deviation?
1. He has set the meter range marker incorrectly
 2. He has failed to position the replacement cable correctly or tighten it securely
 3. The substitution of the cable caused a mismatch of impedance between the test equipment and the equipment under test
 4. The defective cable allowed an excess of current to flow and be stored in a capacitor. This current is now gradually leaving the capacitor and flowing with the normal line current
- 4-9. In what basic areas must consideration be given to the compatibility of the test equipment and the equipment under test?
1. Impedance matching and frequency only
 2. Frequency and amplitude only
 3. Impedance matching, frequency, and amplitude only
 4. Impedance matching, frequency, amplitude, and polarity

Learning Objective: Identify the functions of specified meter control switches.

To answer questions 4-10 through 4-13, select from column B the meter control switch to match each of the functions in column A. (Alternatives may be selected once, more than once, or NOT at all.)

	<u>A. Functions</u>	<u>B. Switches</u>
4-10.	To select various voltage or resistance scale values to be measured	1. Function switch 2. Range switch 3. Min/Max Variation switch
4-11.	Normally to turn the meter on or off	4. Zero Adj switch
4-12.	To set the meter pointer at zero, mid-scale, full-scale, or at any other value desired	
4-13.	To select the type of meter operation desired	

Learning Objective: Identify test equipment familiarization procedures, if any, and distinguish among procedures for measuring capacitance, current, inductance, resistance, and voltage.

- 4-14. What type of instruction, if any, should you receive before taking measurements with a type of test set with which you are NOT familiar?
1. You should ask a nearby co-worker to tell you how to use it
 2. You should take time to familiarize yourself somewhat with the set by looking at the controls and meters and reading what they say. Then, using your past experience (if any) with other test equipment, you should go ahead with your measurement
 3. You should study the technical manual for this test set if it is available. If NOT, you should be instructed by your work center supervisor
 4. None. You are encouraged to go ahead on your own and learn by trial and error

To answer questions 4-15 through 4-18, select from column B the type of check that matches the corresponding description in column A.

	<u>A. Descriptions</u>	<u>B. Types of Check</u>
4-15.	Seldom taken in preventive or corrective maintenance. Can be taken by using a test set that is intended primarily for measuring a different property. Sometimes a conversion chart is required	<ol style="list-style-type: none"> 1. Capacitance check 2. Current check 3. Inductance check 4. Resistance check
4-16.	Very valuable in determining overall stage efficiency. Measures dielectric strength	
4-17.	Usually a valuable aid in locating trouble during corrective maintenance. Many maintenance handbooks contain charts which indicate the test points (usually tube sockets)	
4-18.	Rarely taken in preventive maintenance or testing, as unsoldering is usually required for test. Usually Ohm's Law is applied to determine the value of this property, which in most circuits is quite small	
	<hr/> <p>Learning Objective: Identify and explain the purpose and use of various test equipments.</p> <hr/>	
4-19.	Most meters are designed to be able to measure more than one electrical quantity. What are such meters called?	<ol style="list-style-type: none"> 1. Omnimeters 2. Diversimeters 3. Multimeters 4. Varimeters

- 4-20. When you are measuring current with an ammeter, should you connect the ammeter in series or in parallel, and what should its polarity be in relation to the direction of current flow?
1. In parallel, with the current flowing into the negative terminal
 2. In parallel, with the current flowing into the positive terminal
 3. In series, with the current flowing into the negative terminal
 4. In series, with the current flowing into the positive terminal
- 4-21. If the current to be measured with a meter exceeds a very small amount, it will be necessary to use a shunt with the meter. What is a shunt?
1. A larger, more rugged meter case and dial that snaps onto the outside of the smaller meter, thereby adding to its resistance and protecting it
 2. A high-value resistor (with leads) to be connected in series between the incoming current of the equipment under test and the ammeter
 3. A fuse (with leads) to be connected between one of the meter leads and the incoming current circuit. If the current is above a certain level, the fuse will blow and prevent meter damage
 4. A large low-resistance conductor to be connected in parallel with the meter terminals. This conductor will carry the majority of the load current
- 4-22. When you are measuring voltage with a voltmeter, should you connect the meter in series or in parallel, and what should its polarity be in relation to the direction of current flow?
1. In parallel, with the current flowing into the negative terminal
 2. In parallel, with the current flowing into the positive terminal
 3. In series, with the current flowing into the negative terminal
 4. In series, with the current flowing into the positive terminal
- 4-23. In reference to the circuit under test, what should be the relative resistance of (a) an ammeter and (b) a voltmeter to obtain readings of the highest accuracy?
1. Both (a) and (b), small
 2. (a) Small, (b) large
 3. (a) Large, (b) small
 4. Both (a) and (b), large

- 4-24. In reference to a voltmeter, what do the ratings of (a) ohms-per-volt, (b) value given as a percentage (e.g., one percent), and (c) 1V, 100V, 1000V indicate?
1. (a) Sensitivity, (b) selectivity, (c) range
 2. (a) Accuracy, (b) selectivity, (c) thermal state
 3. (a) Sensitivity, (b) accuracy, (c) range
 4. (a) Range, (b) thermal state, (c) accuracy

● Use the following as the alternatives for questions 4-25 through 4-27. Select the response that correctly states the location of the needle on the dial of an ohmmeter under the condition given.

1. Far right end
2. Far left end
3. Center

4-25. The reading is "0."

4-26. The test leads are shorted together.

4-27. The test leads are separated from each other and NOT touching anything else.

- 4-28. Before you measure resistance, it is important that you calibrate (zero) the ohmmeter. How do you do this?
1. By selecting the proper range scale, placing the test probes at the test points of the circuit to be tested, and adjusting the zero-adjust rheostat to zero
 2. By selecting the proper range scale, shorting the ends of the test probes together, and adjusting the zero-adjust to mid-scale so that the needle may safely go either way
 3. By selecting the proper range scale, shorting the ends of the test probes together, and adjusting the zero-adjust rheostat to zero
 4. By selecting the highest range scale, placing the test probes at the test points of the circuit to be tested, adjusting the zero-adjust dial to zero; then repeatedly turning to the next lower range scale and repeating the steps given, in sequence, until the calibration has been completed for all range scales

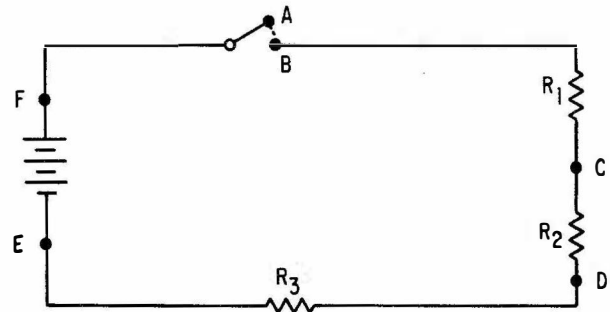


Figure 4A. - Circuit containing resistance (R_2) to be measured.

● Refer to figure 4A when answering question 4-29.

- 4-29. If the resistance of R_2 is to be measured with an ohmmeter, (a) in what position should the on/off switch be placed, and (b) where should the test probes be placed?

1. (a) Off, (b) at C and D
2. (a) Off, (b) at E and F
3. (a) On, (b) at C and D
4. (a) On, (b) at E and F

- 4-30. You have set the range scale of the ohmmeter at $R \times 100$ and are properly measuring the resistance of a load. The meter reads 250 ohms. What is the resistance of the load?

1. 2.5 ohms
2. 250 ohms
3. 2,500 ohms
4. 25,000 ohms

- 4-31. For what is a megger primarily used?

1. To measure the capacitance of a circuit, and by the use of an auxiliary switch, its inductance
2. To measure the insulation resistance of conductors and RF cables and the dielectric strength of capacitors
3. To measure the voltage of a circuit at its source and also at its return to the source in order to derive a voltage efficiency rating for the circuit
4. To measure the strength and polarity of the field set up around the electrical conductors of the circuit under test

4-32. When power is being measured with a wattmeter, why is it important to adhere strictly to the "safe rating" limits for current and voltage?

1. Because if current or voltage is excessive, the meter pointer will likely hit against the upper limit of the dial and be damaged
2. Because the pointer does not give an indication to alert the user when the internal coils are overloaded even though the insulation surrounding them may be burning
3. Because, even though no damage will be done because of a safety feature in the wattmeter, a false reading will be obtained
4. Because, although the pointer gives warning by deflecting sharply to the right, internal damage is done simultaneously

4-33. There are special wattmeters available for circuits involving the higher frequencies. Why are the electrodynamic wattmeters that are used for the lower frequencies NOT suitable for use at the higher frequencies also?

1. Electrodynamic wattmeter errors increase with frequency
2. The frequency selection dial on the wattmeter does not have a setting for the higher frequencies
3. At frequencies above a certain level, the meter pointer oscillates from one end of the dial to the other
4. Meter pointer vibration increases with frequency to the point that it becomes impossible to obtain a reading

4-34. RM3 Parker is preparing to measure an unknown frequency by using a heterodyne frequency meter. Parker will match the frequency of a calibrated, high-precision oscillator to that of the unknown frequency. What indication will there be when the two frequencies match?

1. One dot of light on the screen will be superimposed on the other
2. One vertical line on the screen will be superimposed on the other
3. The two tones in the headset will achieve the same pitch, at which time a series of clicks will begin
4. The tone in the headset will decrease in pitch, and be replaced by clicks, which will then become slow or non-existent

4-35. You should NOT be in too big a hurry when beginning to use a frequency meter. Which of the following is a major reason for this?

1. You should take time to short the leads together and be sure the pointer is on zero
2. You should allow for sufficient meter warm-up time
3. You need to always check the meter with a shorting probe before using it
4. It is easy to attach the meter upside down, thus causing false readings

4-36. From where does the National Bureau of Standards broadcast its standards?

1. WWV at Beltsville, MD and WWVH at Maui, Hawaii
2. WWV at Washington, DC and WWVH at Honolulu, Hawaii
3. WWV at Washington, DC and WWVH at Maui, Hawaii
4. WWV at Denver, CO and WWVH at Honolulu, Hawaii

- | |
|-------------------------------|
| A. Radio propagation notices |
| B. Standard audio frequencies |
| C. Standard musical pitch |
| D. Standard radio frequencies |
| E. Standard time intervals |
| F. Time signals |

List 4A

● Use list 4A in answering question 4-37.

4-37. Which of the technical radio services listed are provided by WWV and WWVH?

1. All except A
2. All except C
3. All except E
4. All

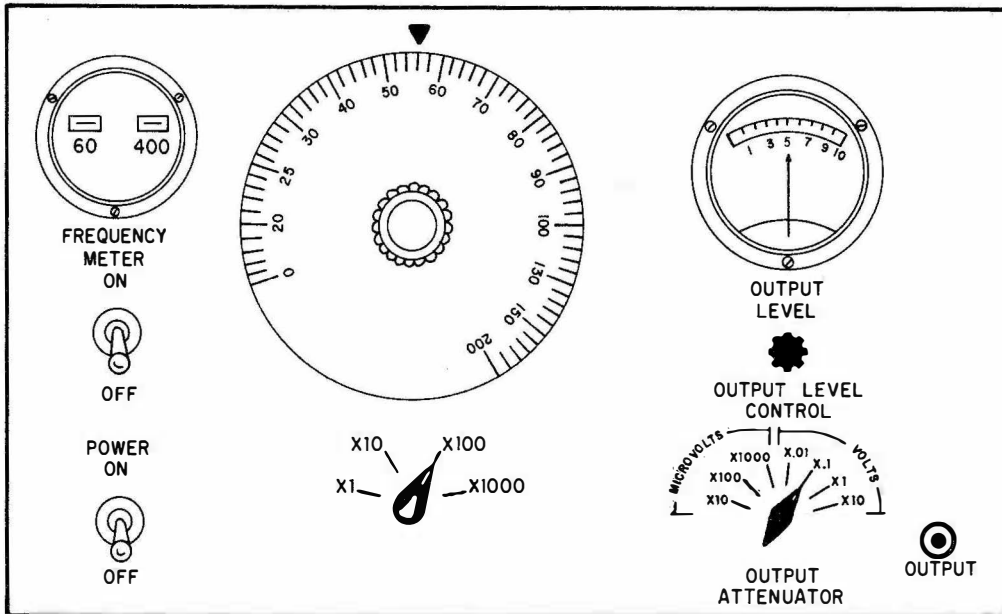


Figure 4B. - Panel of audio frequency generator.

- Use figure 4B to answer question 4-38.

- 4-38. What are the frequency and output voltage of the audio frequency generator shown?
1. 56 Hz, 5 volts
 2. 560 Hz, .5 volt
 3. 5600 Hz, .5 volt
 4. 5600 Hz, 5 volts
- 4-39. As part of checking the operation of the oscillator of an audio frequency generator at 60 Hertz, after you set the dials, you move the main tuning dial back and forth slightly while you are alert to notice when what occurs?
1. The 60-Hz reed vibrates with maximum amplitude
 2. An audible tone sounds
 3. A red indicator slides across the slot above "60" in the frequency meter
 4. The calibration light on the panel comes on
- 4-40. When an AF modulation signal is fed into an RF signal generator, where is it inserted?
1. At the X-MULT jack, at the bottom front of the panel, just right of center
 2. At the X200K jack, at the bottom front of the panel, about halfway between the center and right edge
 3. At the EXT MOD IN jack, at the bottom right-hand corner of the front panel
 4. At the X-Y jack around on the right side of the generator (not the front), near the bottom
- 4-41. What is the name of the very versatile piece of test equipment that gives a visual presentation of a signal on a screen, much like a television screen, showing frequency, shape, phase, amplitude, and other characteristics?
1. Oscilloscope
 2. Standing wave ratio meter
 3. Distortion analyzer
 4. Multimeter

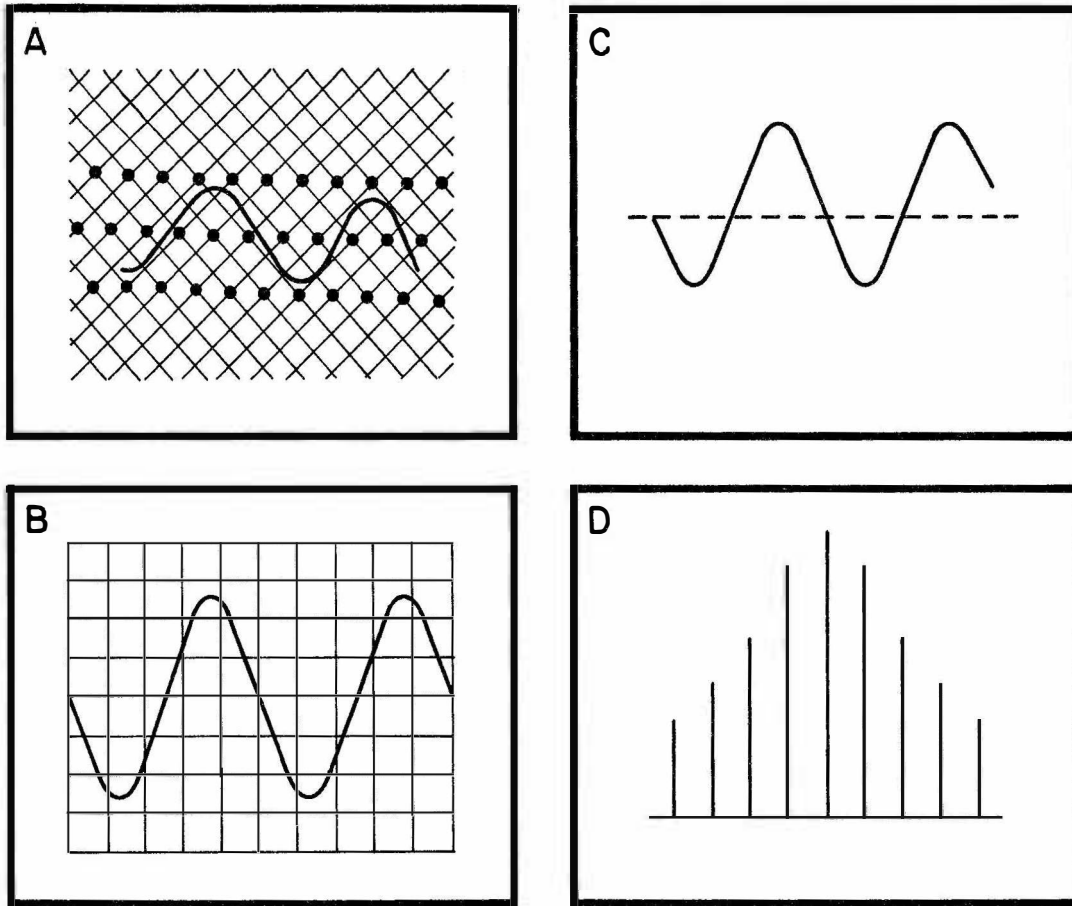


Figure 4C.

- Refer to figure 4C when answering question 4-42.

- 4-42. Which of the following representations is a typical spectrum analyzer CRT display?
1. A
 2. B
 3. C
 4. D

- 4-43. Which of the following conditions does the emission type tube testers check primarily?
1. The condition of the cathode
 2. The percentage of gas in the tube
 3. The degree of leakage, if any, around the base of the tube
 4. The condition of the anode

- 4-44. Which of the following is normally used as a means of obtaining accurate measurements of the circuit outputs when an oscilloscope is used?
1. A small, strong, lightweight nylon measuring tape which rolls tightly within its container and is kept behind a sliding door on the side of the O-scope
 2. Grids scored on plates of glass or plastic that can be mounted in front of the screen
 3. A pattern of four beams of light that cross the screen horizontally, vertically, and diagonally (both ways)
 4. A slow scan device coupled with a timer
- 4-45. The spectrum analyzer presents a display from an intermediate frequency which is produced by beating the signals from what two components?
1. A superheterodyne receiver and an amplitude-modulated AF signal generator
 2. A superheterodyne receiver and a frequency-modulated RF oscillator
 3. A superheterodyne receiver and a mixer circuit
 4. Two superheterodyne receivers, tuned to certain specifications
- 4-46. Which of the following conditions does the transconductance type tube tester check primarily?
1. The degree of "glow" of the tube
 2. The amount of heat present at the surface of the cathode when the tube is fully warmed up
 3. The ability of the tube to conduct when a series of varied inputs is applied
 4. The ability of the tube to amplify under simulated circuit conditions

Learning Objective: State, describe, and explain some safety measures important to those who work around electrical and electronic equipment.

● Safety is everybody's business -- and everybody's responsibility! If you see an unsafe condition or practice, speak up or take action. You may save a life! Questions 4-47 through 4-62 deal with safety.

- 4-47. You are assigned a maintenance job involving high-voltage equipment. You attempt to find a safety observer, but are NOT able to do so. Which of the following things should you do?
1. Find a safety observer before beginning the maintenance
 2. Immediately proceed cautiously with the maintenance
 3. Proceed cautiously with the maintenance after notifying the communications officer
 4. Proceed cautiously with the maintenance after notifying the duty officer
- 4-48. RM3 Suprono reported to duty; wiped the rain from his shoes and the shoulders of his shirt; unrolled the rubber mat he had bought at the mall; placed the mat on the floor in front of his rolling steel chair at his workbench; selected, among other things, the insulated molded flashlight from his toolbox; and announced that he was ready to work on the equipment. Which of the articles mentioned are electric shock hazards or unreliable articles of protection?
1. Steel chair only
 2. Wet clothing and flashlight only
 3. Wet clothing, nonapproved rubber mat, and steel chair
 4. Wet clothing, nonapproved rubber mat, steel chair, and flashlight
- 4-49. With what should you remove cartridge fuses?
1. The fingers of one hand
 2. The fingers of both hands
 3. A pair of insulated pliers
 4. A fuse puller
- 4-50. When maintenance is to be performed, what must be done to supply switches or cutout switches from which power could be fed to the circuit?
1. They must be secured in the OPEN position and tagged
 2. They must be tagged only
 3. They must be secured in the OPEN position only
 4. They must be secured in the OPEN position, tagged, and guarded at all times by a safety observer

- 4-51. Which of the following statements regarding grounding of equipment is correct?
1. Equipment to be tested must be grounded, but test equipment need not be grounded
 2. Both the equipment to be tested and the test equipment must be grounded
 3. The test equipment must be grounded, but the equipment to be tested need not be grounded
 4. When equipment is merely being tested, it is not required that either the equipment under test or the test equipment be grounded
- 4-52. When you are using test probes to check voltage in a live circuit, what is the main reason why you should use only one hand?
1. You need the other hand to hold the voltmeter level so that it will give an accurate reading
 2. If both hands are in contact with the circuit, the static electricity inherent in your body will cause an incorrect reading
 3. If both hands are in contact with the circuit, you make a path for current to flow from test point to test point through your body
 4. You need to use the other hand to turn the controls back and forth as you watch the voltmeter dial
- 4-53. What is the lowest current value at which a shock normally causes paralysis of the muscles?
1. 0.001 amp
 2. 0.01 amp
 3. 0.1 amp
 4. 1.0 amp
- 4-54. What is the lowest current value at which a shock is normally fatal if it lasts one second or more?
1. 0.001 amp
 2. 0.01 amp
 3. 0.1 amp
 4. 1.0 amp
- 4-55. Before you make a megger test, which of the following precautions should you observe?
1. Touch the leads together and turn the crank slowly to be sure the reading approximates infinity. Although you must leave the equipment energized to check it adequately, you must exercise extreme caution
 2. Touch the leads together and turn the crank slowly to be sure the reading approximates zero. Completely deenergize the equipment to be tested
 3. Touch the leads together, but do not turn the crank. Ensure that the reading approximates zero. Although you must leave the equipment energized to check it adequately, you must exercise extreme caution
 4. Touch the leads together, but do not turn the crank. Ensure that the reading approximates infinity. Completely deenergize the equipment to be tested
- 4-56. Which of the following is a safety precaution you must take if you are to conduct a megger test on components having high capacitance?
1. Discharge the components with an approved shorting probe before (but not necessarily after) making the megger test
 2. Discharge the components with an approved shorting probe both before and after making the megger test
 3. Discharge the components with an approved shorting probe after (but not necessarily before) making the megger test
 4. Measure the capacitance with a capacitance meter before and after the megger test, and discharge if the reading exceeds the numerical value specified in the technical manual

- 4-57. Which of the following sets of instructions should you follow when handling a cathode-ray tube?
1. Handle it very carefully, carry it only by the narrow neck, and, if you must put it down, stand it on its face on a thick piece of felt, if possible
 2. Handle it very carefully, carry it only by the narrow neck, and, if you must put it down, lay it on its side on a heavy piece of felt, if possible
 3. Handle it very carefully, being careful not to scratch or bump it because the glass envelope contains a high vacuum and will implode if punctured
 4. Handle it very carefully, being careful not to scratch or bump it because the glass envelope contains a high pressure and will explode if punctured
- 4-58. When you are discarding a cathode-ray tube, you should put it in an empty CRT carton and act in accordance with which of the following sets of precautions?
1. Be careful not to break off the locating pin or the tip of the glass vacuum seal; be careful not to get the toxic chemical phosphor coating on your hands or on any skin breaks
 2. Carefully break off the tip of the glass vacuum seal, but do not break off the locating pin; be careful not to get the toxic chemical phosphor coating on your hands or on any skin breaks
 3. Carefully break off the locating pin and the tip of the glass vacuum seal; be careful not to get the toxic chemical phosphor coating on your hands or on any skin breaks
 4. Carefully break off the locating pin and the tip of the glass vacuum seal; take normal precautions not to cut yourself, but the coated glass of the CRT is of no more potential danger to you than any other sharp glass
- 4-59. What should you do if you observe a shipmate suffer an electric shock, lose consciousness, and continue to hold to the live conductor? (In all cases, you will remain with the victim until help arrives.)
1. First, rush to him and try to pull him free from the conductor; then administer artificial respiration, give him a stimulant, and send for the doctor or corpsman
 2. First, turn off the voltage if possible. If you cannot, try to free him from the conductor, protecting yourself, meanwhile. Then see if he is breathing, loosen his clothing, keep him warm and still, administer artificial respiration if he is not breathing, and send for a doctor or corpsman
 3. Call for a medical doctor or corpsman; then turn off the voltage if possible. If you cannot, try to free him from the conductor, protecting yourself, meanwhile. Loosen his clothing, and keep him warm
 4. Call for two other shipmates to help you. One of you should immediately try to pull the victim free from the conductor, one should call the doctor or corpsman, and one should turn off the voltage if he can locate and gain access to the source. Then loosen the victim's clothing, cover him, see if he is breathing, and administer artificial respiration if necessary
- 4-60. How is it possible for a person who is conscious to sustain RF-energy burns which may result in serious consequences without realizing that this is occurring?
1. An RF-energy burn causes a cooling, rather than a heating, sensation, which the victim does not associate with an RF-energy burn
 2. Preceding an RF-energy burn there is always a jolt resulting in a short period of time that all conscious thought processes are absent. The victim will never recall this particular time
 3. This occurrence causes drowsiness, and the victim nearly always thinks he merely needs more sleep
 4. The RF-energy heating action penetrates through tissue to the bone where there are no nerves which can alert the victim that burning is taking place

- A. Get proper permission and authorization (from the CIC Officer and the OOD, for example)
- B. Wear a rubber chest-protector
- C. Ensure that the transmitter is NOT energized, and that RF energy from nearby transmitter antennas is NOT harmful
- D. Procure the assistance of a person qualified in rigging
- E. Ensure that a fire truck is standing by
- F. Wear a safety belt and secure tools to your person with carrier lines. Secure your safety belt as soon as you reach the work area
- G. Take a safety belt with you and secure tools to your person with carrier lines. Fasten the safety belt unless you can prop yourself securely, in which case you need NOT fasten it
- H. Ensure good footing and grasp and hold fast

List 4B.

● Use the preceding list of safety rules in answering question 4-61.

- 4-61. Which rules apply when you go aloft to work on an antenna?
- 1. A, B, C, E, F, H
 - 2. A, C, D, F, H
 - 3. A, C, E, G, H
 - 4. C, D, F, H only
- 4-62. Which of the following types of fire extinguishers is/are satisfactory for use on electrical fires?
- 1. CO₂ gas only
 - 2. Carbon tetrachloride and CO₂ gas only
 - 3. Carbon tetrachloride, CO₂ gas, and foam only
 - 4. Carbon tetrachloride, CO₂ gas, soda-acid, and foam

Learning Objective: Explain procedures associated with testing resistance and voltage, and interpreting an oscilloscope display.

- 4-63. How and with what should you make a resistance check, using point-to-point resistance charts in the equipment technical manual?
- 1. Using an ohmmeter, measure the d.c. resistance between specified points in the circuit and ground. The meter indicates the amount of resistance present
 - 2. Using a test line with a light bulb (load) in the center and a test probe on each end, touch specified points of the circuit with one probe and ground with the other. The brightness of the light indicates the amount of resistance present
 - 3. Flip the "test" switch on the panel to ON, then rotate panel adjustment knobs and record their position when the audio tone ceases (the null)
 - 4. Flip the "test" switch on the panel to ON, then rotate the panel adjustment knobs and record their position when the dial indicates exactly zero
- 4-64. When the operator is making resistance checks, should the power to the equipment under test be on or off, and what should be the condition of the capacitors in the circuit?
- 1. Power off; capacitors left precisely as they were when the power was turned off
 - 2. Power off; capacitors discharged
 - 3. Power on; capacitors operating normally
 - 4. Power on; by-pass conductors attached between large capacitors and ground

- 4-65. Why is it important to take voltage measurements in locating troubles or trouble symptoms?
1. Because a change in voltage causes a change in power, and power abnormality is always the basic key to troubleshooting
 2. Because if an abnormal voltage can be returned to normal by adjusting resistance, it can safely be assumed that the equipment is repaired and can be relied upon to be dependable
 3. Because knowledge of voltage abnormalities helps us find trouble spots, as most equipment and system troubles either result from abnormal voltages or produce abnormal voltages
 4. Because, although most equipment troubles do not affect voltage, those few that do affect it ordinarily are of serious nature and need to be repaired promptly to avoid equipment damage
- 4-66. To avoid damage to the voltmeter and to attain high accuracy of reading, what is the procedure recommended in your textbook for setting the range on the voltmeter?
1. First set it to the highest range, then to the range that will permit close, detailed comparison with the measurement shown in the voltage chart
 2. Set it only to the range that will permit close, detailed comparison with the measurement shown in the voltage chart
 3. First set it to the lowest range; then to the range that will permit close, detailed comparison with the measurement shown in the voltage chart
 4. Set it only to the highest range. Any other setting will permit damage to the meter
- 4-67. When the operator measures voltage of less than 300V, which of the following procedures should he follow before he reads the meter?
1. Turn the power on. With one hand, place the ground lead of the voltmeter to ground; with the other, touch the other lead of the voltmeter to the point to be measured
 2. Turn the power off. With one hand, place the ground lead of the voltmeter to ground; with the other, touch the other lead of the voltmeter to the point to be measured
 3. Turn the power on. Connect the ground lead of the voltmeter; then, using one hand (other in pocket or behind back), place the end of the test prod on the point to be measured
 4. Turn the power off. Connect the ground lead of the voltmeter; then, using one hand (other in pocket or behind back), place the end of the test prod on the point to be measured
- 4-68. During a routine preventive maintenance check, if the operator discovers that the display of a waveform on an oscilloscope resembles the reference waveform for that test point, but shows minor distortion, which of the following actions should he take?
1. He should deenergize the equipment under test immediately before it becomes damaged, and submit a priority request for corrective maintenance
 2. He should deenergize the equipment, but should submit a request for corrective maintenance
 3. He should not deenergize the equipment, but should conduct waveform comparison tests on it every hour for eight hours to see if anything else develops
 4. He should consider this display to be satisfactory, realizing that it is not unusual for differences in oscilloscopes, placement of the leads, etc. to cause slight variations in displays

Learning Objective: Explain how and with what to test receivers relative to noise and input and output voltages.

- 4-69. Noise present in a receiver can generally be attributed to what two sources?
1. Atmospheric disturbances; magnetic disturbances
 2. Atmospheric disturbances; electrical components in the receiver circuits
 3. Movement of the antenna during wind; vibration of the RF amplifier during operation
 4. Humming of tubes; random "popping" of transistors
- 4-70. You insert a signal of a specified voltage into the first RF amplifier of a receiver, measure the output of the signal from this amplifier, and divide the output signal voltage by the input signal voltage. Your answer will be a measure of what characteristic of the RF amplifier?
1. Gain
 2. Distortion
 3. Selectivity
 4. Fidelity
- 4-71. You inject a signal of a specified voltage from a signal generator into a dummy antenna, following prescribed steps. Then the signal goes to the receiver input stage, and you measure the receiver output signal with a voltmeter. You will have the necessary measurements to determine what characteristic of the receiver?
1. Selectivity
 2. Sensitivity
 3. Reliability
 4. Fidelity

Learning Objective: Explain how and with what to test output power (CW and modulated).

- 4-72. When output power measurements are made in modulated systems, the measurement is made for normal carrier output and for peak power at what percent modulation?
1. 40%
 2. 60%
 3. 75%
 4. 100%

- 4-73. What test equipment is normally used to let you know when you have the proper drive for the specified percent of modulation for output power measurement, and what will result if you exceed that drive level?
1. A voltmeter; arcing and possibly fire
 2. A voltmeter; an incorrect measurement and undesired heat build-up
 3. An oscilloscope; distortion and undesired shifting of the carrier
 4. A wattmeter; an incorrect measurement

Learning Objective: Discuss standing-wave ratio (SWR), identify test equipment used to perform specified tests, explain why massive tube replacement is a poor procedure. (This objective is continued in Assignment 5.)

- 4-74. (a) Should the standing-wave ratio (SWR) be high or low, and (b) what does it indicate?
1. (a) Low, (b) the degree of precision of the frequency of the equipment as compared to a standard
 2. (a) High, (b) the degree of precision of the frequency of the equipment as compared to a standard
 3. (a) Low, (b) the degree to which the load and source impedances are matched
 4. (a) High, (b) the degree to which the load and source impedances are matched
- 4-75. If the installation of a new antenna or the erection of a structure close to an antenna causes a change in antenna impedance with a resultant undesirably high SWR, what is normally done to correct this situation?
1. The transmission line is replaced
 2. The antenna matching network is varied to match the new antenna characteristics
 3. The antenna is replaced by an antenna with characteristics that reflect a better SWR
 4. The equipment impedance is varied until the SWR is better

Assignment 5

System Diagnosis and Quality Assurance (Continued); Communications Organization

Textbook Assignment: Pages 153 - 183

Learning Objective: (Continued)
Discuss standing-wave ratio (SWR), identify test equipment used to perform specified tests, and explain why massive tube replacement is a poor procedure.

Learning Objective: Convert ratio of power gain to gain in decibels and identify the type of equipment associated with certain sensitivity measuring processes.

- 5-1. If the SWR becomes high for NO accountable reason, usually an impedance test of transmission lines, control cables, and antennas is made. What test equipment is generally used for this test?
1. Variation analyzer
 2. Oscilloscope
 3. Impedance response meter
 4. Megohmmeter

- 5-4. If a receiver has a 1000-to-1 ratio of power gain, what is the gain in decibels?
1. 10 dB
 2. 30 dB
 3. 3 dB
 4. 10^3 dB

- 5-2. Which of the following are equipments used in communication checks to observe small segments of the RF spectrum or of RF oscillators?
1. Wave analyzers, distortion analyzers, or sound analyzers
 2. Spectrum analyzers or pulse analyzers
 3. Panoramic adapters or signal analyzers
 4. Variation analyzers or bandwidth analyzers

In questions 5-5 through 5-7, select from column B the type of equipment associated with the sensitivity measurement process (or a part thereof) given in column A.

- 5-3. When equipment having numerous electron tubes shows indications of a potential problem, why should a massive tube replacement effort NOT begin immediately?
1. Because misalignment would probably occur
 2. Because time and effort would probably be wasted, as the equipment would probably still indicate that it had a potential problem after tube replacement
 3. Because an undesirable accumulation of tubes of unknown age and condition would be built up
 4. All of the above

	<u>A. Sensitivity Measuring Processes</u>	<u>B. Types of Equipment</u>
5-5.	A carrier of 400 Hz at 30% modulation is applied, and the receiver output is adjusted for a +10 dB ratio of signal-to-noise	1. CW (A1) and facsimile (A4) receivers
5-6.	The input signal voltage is adjusted to produce a +20 dB output signal-to-noise ratio, which is maintained even though the reference level may change	2. Single sideband (SSB) receivers
5-7.	Inherent in this type of equipment is a strict requirement for a high degree of frequency stability, and the associated test equipment must be highly accurate	3. Voice-modulated (A3) receivers

- 5-8. What does your textbook suggest as the first step in checking the sensitivity of a frequency-shift keying (FSK) system (receiver, FSK circuitry, and teletypewriter)?
1. Check the receiver of the FSK system for CW operation and sensitivity
 2. With an electronic timer, measure the time interval from the initial signal input to the teletypewriter output
 3. Uncouple the teletypewriter, clean and lubricate it, and run it (separately) through the tests listed in a checklist in the technical manual
 4. In sequence, insert several signals of different frequencies, as specified in the technical manual, and note the corresponding outputs from the teletypewriter

Learning Objective: Describe procedures and test equipment utilized to determine the reserve gain of a receiver and to determine whether the operation of an amplifier is nonstandard.

- 5-9. By which, if any, of the following ways can the reserve gain of a receiver be determined?
1. By finding the ratio of an inserted signal of specified strength to the resultant output signal when the receiver is set for standard gain
 2. By measuring the ratio of noise output at standard gain to noise output at maximum gain (provided maximum gain does not cause an output overload)
 3. By measuring the ratio of noise output at minimum gain to noise output at maximum gain (provided maximum gain does not cause an output overload)
 4. None of the above

- 5-10. You suspect the amplification characteristics of one of the amplifiers in the receiver varies considerably from the others. Which of the following actions would best help you learn whether you are correct, and, if so, how it varies?
1. Insert signals from an FM signal generator, and display amplifier response curves from the different amplifiers
 2. Insert signals of various frequencies and measure the strength and frequency of each of the output signals with a voltmeter
 3. Measure the resistance across each amplifier when the circuit is operating normally
 4. Measure the voltage across each amplifier when the circuit is operating normally

Learning Objective: Determine what portion of the receiver system is included when the term "overall selectivity" is used.

- 5-11. The term "overall selectivity" usually refers to the frequency selectivity of a receiver from and to what points?
1. From the input to the first amplifier to the output from the speaker or earphones only
 2. From (and including) the antenna to the output from the speaker or earphones
 3. From the input to the first amplifier to the input of the final detector only
 4. From (and including) the antenna to the input to the final detector only

Learning Objective: Describe procedures for determining the squelch characteristic and for checking warm-up frequency drift.

- 5-12. In order to determine the squelch characteristic of a receiver, after coupling together the equipment, properly setting the degree of modulation, frequency, and RF output of the signal generator, and checking the receiver output, what should you do?
1. Gradually increase the percent of modulation until the squelch circuit operates. This percent of modulation is the squelch characteristic
 2. Gradually increase the RF output of the signal generator until the squelch circuit operates. This RF output is the squelch characteristic
 3. Gradually increase the frequency until the squelch circuit operates. This frequency is the squelch characteristic
 4. Gradually turn the gain control on the panel of the receiver, increasing the gain until the squelch circuit operates. The voltmeter reading upon activation of the squelch circuit is the squelch characteristic
- 5-13. According to your textbook, to perform a warm-up frequency drift check with a heterodyne frequency meter, what should you do after you turn on the receiver and set the frequency meter to produce a 1000-Hz beat tone (in the CW mode)?
1. As the receiver drifts, readjust the frequency meter to produce a 1000-Hz beat tone. The frequency drift is indicated by the difference between the original and final frequency meter setting after the receiver frequency stabilizes
 2. After the receiver frequency stabilizes, measure the difference in frequency between this receiver and a second receiver, set at the original frequency of the first receiver
 3. Compute the percentage and polarity of voltage change of the receiver before and after drift
 4. Compare readings of spectrum analyzer tests conducted before and after drift

Learning Objective: Identify a problem condition caused by dust on the conductors in a circuit.

- 5-14. A collection of dust on the insulation of the conductors in a circuit invites what condition(s)?
1. Decreased resistance in the insulation caused by the absorption of moisture by the dust; flashing of electrical energy from one component to another
 2. Increased resistance in the insulation resulting in increased current flow and heat build-up as the circuit attempts to normalize
 3. Increased resistance in the insulation caused by the increased diameter of insulation plus dust; flashing of electrical energy from one component to another
 4. Varying resistance in the insulation (increased in some areas, decreased in some areas, caused by varying degrees of moisture) resulting in fluctuating current

Learning Objective: Explain procedures for measuring transmitter frequency and transmitter output power.

- 5-15. In the MF to VHF range in communications, what is normally the way to find the power output of a transmitter?
1. Measuring the current and voltage and applying a formula
 2. Measuring the current and resistance and applying a formula
 3. Using the "lamp-load" method
 4. Reading the front panel meters of the equipment and applying a formula, if required

- 5-16. Identify an action to be taken in each of two methods of measuring transmitter frequency, as described in your textbook.
- (Method 1) Inserting the outputs of a standard frequency generator and a transmitter into a dummy antenna, and coupling this antenna output to an oscilloscope; (method 2) "beating" the transmitter frequency against the output signal of a heterodyne frequency meter
 - (Method 1) Inserting the output of a standard frequency generator into a transmitter; (method 2) "beating" the transmitter frequency against the output signal of a heterodyne frequency meter
 - (Method 1) Inserting the output from a transmitter into a standard frequency generator; (method 2) inserting the output of a transmitter into a spectrum analyzer
 - (Method 1) Inserting the output from a heterodyne frequency meter into a transmitter; (method 2) "beating" the output of the transmitter with a signal of preselected frequency set into a standard frequency generator

- 5-17. Which of the following are used in measuring transmitter power output by the lamp-load method?
- An incandescent lamp, an illumination meter, a variable power source, and an ohmmeter
 - A series of lamps, a rheostat, a steady power source, and an ohmmeter
 - A series of lamps, a mirror, an illumination meter, a steady power source, and a wattmeter
 - A series of lamps, an illumination meter, a variable power source, and a wattmeter

Learning Objective: Identify a problem existent in an RF amplifier and explain procedures taken to overcome the problem of degenerative feedback.

- 5-18. Every RF amplifier tube, including those in transmitters, has an inherent problem. What is it?
- Cathode glow
 - Plate saturation
 - Interelectrode capacitance
 - Grid locking

- 5-19. What is the name given to the procedure used to eliminate or reduce the effectiveness- and efficiency-robbing effects of degenerative feedback in an RF amplifier?
- Debilitation
 - Negation
 - Neutralization
 - Tubular suppression

Learning Objective: State the names of the type impulses associated with the perforation on paper tape, and name and explain the distinctions between the types of wire teletypewriter circuits.

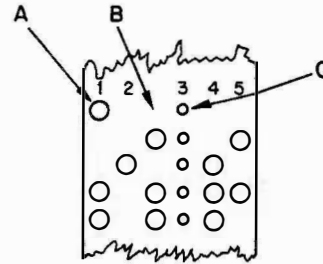


Figure 5A.

- Use figure 5A in answering question 5-20.
- 5-20. Identify the type impulse, if any, associated with the hole or lack of a hole in the top row of perforations in the perforated tape shown.
- A, Spacing impulse; B, marking impulse; C, none (sprocket hole)
 - A, Marking impulse; B, spacing impulse; C, none (sprocket hole)
 - A, Excitation impulse; B, dormant impulse; C, spacing impulse
 - A, Active impulse; B, passive impulse; C, check bit impulse

- 5-21. What are the two general types of wire teletypewriter circuits, and what distinguishes the usage of one from the other?
1. Manned, used for circuits actively manned by personnel; phantom, used for circuits that are completely automated
 2. Direct, used for direct operator-to-operator transmissions; phase-delay, used in transmissions utilizing reperforators
 3. Limited signal, used for shorter distances; scatter, used for long and medium distances on landlines
 4. D.c., used for shorter distances; carrier, used for long and medium distances on landlines

Learning Objective: Explain the reason for multiple antennas at sites receiving HF communications, and state the name of the device used to extend a circuit by receiving signals and sending them out again with increased power.

- 5-22. At stations receiving HF communications transmitted by sky waves, there may be two or more receiving locations separated by several wavelengths or there may be more than one antenna, either one vertical and one horizontal or differently oriented horizontal antennas. What is the usual reason for this?
1. To enable them to receive information from more than one transmitting station at the same time
 2. To enable them to send replies, as well as receive transmissions
 3. To compensate for transmission impairment
 4. To enable them to receive both the high and low end of the HF band simultaneously

- 5-23. Usually, circuits are extended by inserting receiving and retransmitting equipment prior to the limiting length of a teletypewriter circuit to give the signals additional range. What is the name of this receiving and retransmitting device?
1. Super-echo
 2. Repeater
 3. Retransmitter
 4. Piggyback transmitter

Learning Objective: Describe how to insert test signals into the teletypewriter equipment, identify the two letters used for testing teletypewriters, and describe the method of determining the high and low range extremes of a teletypewriter.

- 5-24. You are beginning to test the performance of the teletypewriter equipment and you want to observe its operation for test purposes. How should the signals to activate the equipment for this test be inserted?
1. You should insert the signals by means of the keyboard
 2. Someone else should insert the signals by means of the keyboard while you observe
 3. The signals should be inserted by means of a test tape patched into the test channel
 4. You should conduct all of your test while the equipment is transmitting actual data in its normal way
- 5-25. The range-finder of the teletypewriter is set to the midpoint of the determined high and low range extremes of the individual equipment. How should you determine these extremes?
1. Press the "lower range" button, read the meter; press the "upper range" button, read the meter
 2. Turn the "lower range" knob lower until the light under the knob flickers, read the meter; turn the "upper range" knob higher until the light under the knob flickers, read the meter
 3. While alternately inserting the test letters, turn the range selector down (for low end) or up (for high end) until the "out of range" light comes on; read the meter
 4. While alternately inserting the test letters, turn the range selector down, (for low end) or up (for high end) until printing errors occur; read the meter

- 5-26. What two letters are frequently typed alternately on a teletypewriter to test it?
1. W and Z
 2. R and Y
 3. H and V
 4. F and S

Learning Objective: Distinguish among various types of teletypewriter signal distortion; state the normal way of calculating the degree of bias.

- Refer to figure 5B in answering questions 5-27 through 5-29.

- 5-27. What type of teletypewriter signal distortion is represented in waveform A?
1. End distortion
 2. Bias distortion
 3. Characteristic distortion
 4. Fortuitous distortion

- 5-28. What type of teletypewriter signal distortion is represented in waveform B?
1. Characteristic distortion
 2. Bias distortion
 3. End distortion
 4. Fortuitous distortion

- 5-29. What type of teletypewriter signal distortion is represented in waveform C?
1. Characteristic distortion
 2. Bias distortion
 3. End distortion
 4. Fortuitous distortion

- 5-30. What is the usual method of calculating the percentage of bias distortion?
1. The ratio of the normal length of the mark or space to its present length
 2. The ratio of the normal length of the mark or space to the amount it has been lengthened or shortened
 3. The ratio of mark element to space element
 4. The ratio of space element to mark element

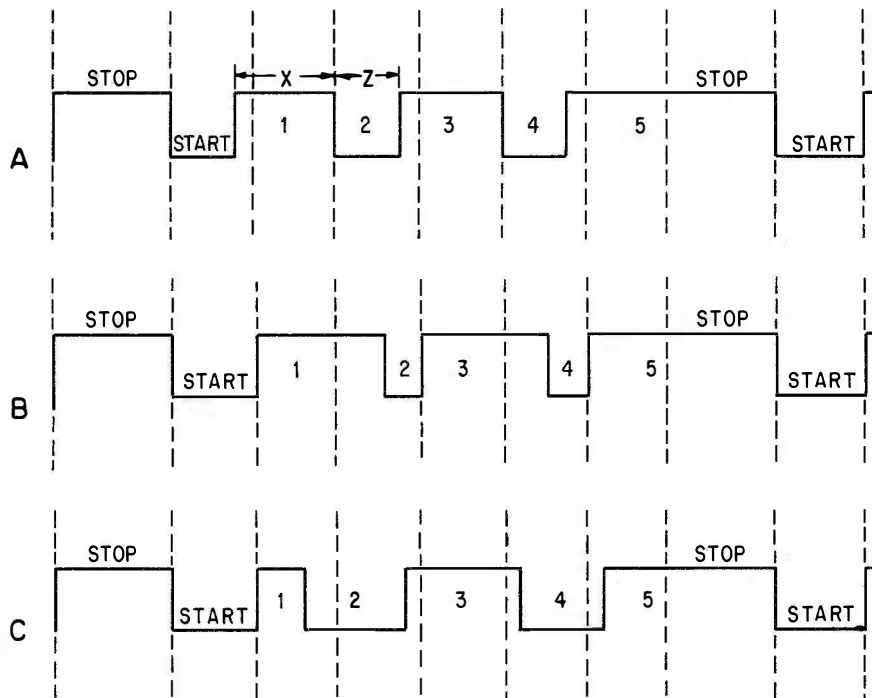


Figure 5B.

In questions 5-31 through 5-34, select from column B the type of distortion associated with the causes given in column A.

A. Causes of <u>Distortion</u>	B. Types of <u>Distortion</u>
5-31. May be caused by fading, multipath transmissions, atmospheric noise, lightning, and many other random disturbances	1. Bias 2. Equipment characteristic 3. Fortuitous
5-32. Caused by a detuned receiver or a drifting transmitter or receiver	4. Line characteristic
5-33. Caused by changing current when the interval between the mark and space is too short to allow for the change of the current	
5-34. Usually caused by maladjusted or dirty contacts	

- 5-35. Which of the following descriptions correctly points out the difference between bias and speed distortion?
1. The mark is the same length as the space in speed distortion, but not in bias. The total length of mark and space is standard in bias distortion, but not in speed
 2. The mark is the same length as the space in bias distortion, but not in speed. The total length of mark and space is standard in speed distortion, but not in bias
 3. The mark is the same length as the space in both bias and speed. The total length is longer than standard in bias, and shorter than standard in speed
 4. The mark is longer than the space in bias, but shorter than the space in speed. The total length, however, is standard in both bias and speed

Learning Objective: Identify terms connected with, and give general, basic descriptions of some of the elements of signal propagation.

- 5-36. What is the term used for the process in which several signals are combined into one signal, transmitted from one terminal to another, and then broken down into the original signals?
1. Varsityping
 2. Diversi-typing
 3. Multiplexing
 4. Simplexing
- 5-37. The use of a frequency at which of the following locations on the band will sometimes offset the effects of scattered reflections of multipath propagation on MUX signals?
1. Near the minimum usable frequency
 2. Near the maximum usable frequency
 3. Near the midpoint of the band
 4. Two-thirds of the distance up the band

- 5-38. In nonsynchronous cryptographic operation, what verification check helps ensure that the entire message is received or alerts personnel if it is NOT?
1. The same number of teletypewriter characters must be received as sent in order for the equipment to remain in the set or operable condition
 2. The same number of teletypewriter characters must be received as sent or red lights flash at both the transmitting and receiving equipment
 3. The same number of teletypewriter characters must be received as sent or buzzers sound at both the transmitting and receiving equipment
 4. Each of the nonsynchronous equipments is kept in phase by its own frequency standard, rather than by character receipt count. Equipment tests are conducted to verify satisfactory operation
- 5-39. In synchronous cryptographic operation, what verification check helps ensure that the entire message is received, or alerts personnel if it is NOT?
1. The same number of teletypewriter characters must be received as sent in order for the equipment to remain in the set or operable condition
 2. The same number of teletypewriter characters must be received as sent or red lights flash at both the transmitting and receiving equipment
 3. The same number of teletypewriter characters must be received as sent or buzzers sound at both the transmitting and receiving equipment
 4. Each of the synchronous equipments is kept in phase by its own frequency standard, rather than by character receipt count. Equipment tests are conducted to verify satisfactory operation
- 5-40. On which of the following frequencies may the signal of an HF transmitter located close to several other transmitters and receivers cause interference?
1. At the frequency of its carrier only
 2. At the frequency of its carrier and at twice that frequency only
 3. At various frequencies within the HF range only
 4. At various frequencies inside and outside of the HF range
- 5-41. Which of the following statements correctly states the effect, if any, that separating receiving and transmitting antennas normally has on the problem of interference?
1. Much of the interference disappears
 2. There is about the same amount of interference, but it occurs at different frequencies
 3. The interference at frequencies higher than double that of the signal is eliminated, but other interference remains as before
 4. There is no change to the interference pattern
- 5-42. One way to partially isolate antennas from each other aboard ship or ashore is by making use of the structures or natural contours of the area. What is the term for this type of radiation blocking?
1. Radiation shielding
 2. Terrain shielding
 3. Contour blocking
 4. Configuration blocking
- 5-43. In order to prevent the reradiation of spurious harmonics from guy wires which support antennas, what precautions should be taken with guy wires?
1. They should be insulated at the ends and should be exactly the length associated with one wavelength at the normal operating frequency of the associated transmitter only
 2. They should be grounded and should be exactly the length associated with one wavelength at the normal operating frequency
 3. They should be insulated at the ends and should be exactly the length or twice the length associated with one wavelength at the normal operating frequency
 4. They should be in insulated sections, in lengths not related to the harmonics of the normal operating frequency

Learning Objective: Briefly describe and explain the problem of mutual interference in a unit containing multiple transmitters and receivers and methods of decreasing the effects of the problem.

- 5-44. Your textbook lists some ways in which cross modulation can be reduced. What are they?
1. Using only vertical antennas, and separating transmitting antennas from receiving antennas and from each other
 2. Using only horizontal antennas, separating transmitting antennas from each other, and separating receiving antennas from each other
 3. Reorienting transmitting antennas to take advantage of their directional characteristics, separating transmitting antennas from each other and from receiving antennas, and separating receiving antennas from each other
 4. Reorienting transmitting antennas to take advantage of their directional characteristics, separating transmitting antennas from receiving antennas, and grouping receiving and transmitting antennas together, using the same antenna for multiple receivers or transmitters whenever possible

- 5-45. Which of the following is a device that is often used to reduce the effect of local oscillator radiation?
1. An isolation pack
 2. A multicoupler
 3. An ordinary metal box
 4. A bandpass duo-filter

- 5-46. What test instrument, used for checking for transmitter radiation, gives a visual indication of existing sidebands or interference around a carrier?
1. A wave analyzer
 2. A panoramic adapter
 3. A distortion analyzer
 4. A pulse analyzer

● Questions 5-47 and 5-48, on the subject of shielding, are to be judged True or False.

- 5-47. If a metal box, used within a transmitter to shield components, has even a few 3/16"-diameter ventilation holes in it, there is so much RF energy leakage that the shield is virtually useless.

- 5-48. Although shielded wires (wires with a braid inside the outer jacket) are sometimes found in older transmitters, it is now recommended that they NOT be used in transmitters because they create excess radiation.

Learning Objective: Describe the method of determining the overall field strength estimate.

- 5-49. At how many and what points on the antenna should you take the field strength measurements to be averaged for estimated overall field strength?
1. Four -- front, back, and two sides
 2. Two -- front and back at exactly the antenna midpoint
 3. Six -- front and back at the following locations: adjacent to transmitter, midpoint, and at the extreme end of the antenna
 4. Four -- front side adjacent to the transmitter, front side at the farthest point from the transmitter, and front and back at the midpoint

Learning Objective: Describe and explain some of the minor maintenance procedures relative to single-sideband equipment.

- 5-50. Why is it so important that the frequency adjustment of single sideband suppressed carrier (SSSC) equipment be extremely accurate?
1. Because tolerances set by FCC are stricter for SSSC than other types of equipment
 2. Because if the frequency of the received carrier does not exactly match that of the local oscillator of the receiver, the system goes into "reset" condition and remains inoperable until an adjustment is made
 3. Because the carrier, having been suppressed (not transmitted) and then reinserted at the receiver, must be at precisely the original frequency for the demodulation process to work properly
 4. Because of the high number of SSSC equipments in use by the Navy and the consequent small allotment of the frequency spectrum assigned to each

- 5-51. When checks show that the carrier oscillator is out of tolerance, what should the first step be in seeking to correct the problem?
1. Inspection and testing of the vacuum tubes
 2. Adjustment of the oscillator frequency
 3. Checking and adjustment of the regulated voltage applied to the circuit
 4. Checking and adjustment of the output signal voltage
- 5-52. In the adjustment of a balanced modulator, after some other checks are made, a test tone is inserted into the SSB exciter circuit, the output of which goes to an AM receiver. What should you do then, following step-by-step procedures contained in the equipment technical manual?
1. Adjust the balance control for minimum tone output from the receiver
 2. Adjust the balance control for maximum tone output from the receiver
 3. Adjust the balance control to achieve a certain meter reading as designated in the technical manual
 4. Adjust the balance control until a series of clicks is heard from the receiver
- 5-53. What is normally the right action for an operator to take if he has reason to believe that the sideband filters of an SSB transmitter are NOT achieving their purpose?
1. If they are mechanical filters, report them; if crystal filters, adjust them
 2. If they are mechanical filters, replace them; if crystal filters, adjust them
 3. Whether they are mechanical or crystal filters, adjust them
 4. Whether they are mechanical or crystal filters, replace them

Learning Objective: Describe and explain procedures involved in the "two-tone" test, equipment used for the measurement of peak envelope power and peak sideband power, and the function of a transmitter monitor panel.

- 5-54. What should be the frequency and amplitude relationship of the two tones applied to the input of the SSB transmitter for the "two-tone" test?
1. Equality in amplitude, difference in frequency of about 1 Hz
 2. Equality in amplitude, difference in frequency of about 1000 Hz
 3. Difference in amplitude of 25%, difference in frequency of about 100 Hz
 4. Difference in amplitude of 50%, difference in frequency of about 100 Hz
- 5-55. The measurements of peak envelope power (PEP) and peak sideband power (PSP) are both made using the two-tone system, and are quite similar. What testing equipment usually gives the results of these tests?
1. Spectrum analyzer or voltmeter
 2. Oscilloscope or voltmeter
 3. Spectrum analyzer or oscilloscope
 4. Panoramic adapter or voltmeter
- 5-56. What is the function of a transmitter monitor panel or unit?
1. To serve as a receiver for the transmitter in use so that operators can hear and quality-control the output of the transmitter
 2. To display a light and ring a bell any time the transmitter fails or misfunctions
 3. To switch the transmitter to d.c. power in case the a.c. power fails
 4. To sample voltages or current at various places in the transmitter as a quality check on the proper operation of particular circuits

Learning Objective: State the basic capability of an analog computer, the names of the basic sections of a digital computer, and the function of a "marginal checking" circuit.

- 5-57. What are the basic sections of a digital computer?
1. Input, control, memory, arithmetic, storage
 2. Input/output, control, memory, add/subtract, multiply/divide
 3. Input/output, control, memory, arithmetic, verification
 4. Input, control, memory, arithmetic, output

- 5-58. What is the basic capability of the analog computer which enables it to perform the various functions for which it is utilized?
1. Converting voltage and current values into digital form and converting digital data into voltages or currents to operate controls and indications
 2. Converting voltage (but not current) into digital form and converting digital data into voltages to be used as input to control and indication circuits
 3. Converting current (but not voltage) into digital form and converting digital data into currents to operate controls and indications
 4. Performing the process known as "repeated addition."

- 5-59. What function does a "marginal checking" circuit in a digital computer perform?
1. To check voltage input to and output from individual circuits to ensure that they are within tolerance
 2. To check current and voltage at various specific checkpoints to ensure that they are within tolerance
 3. To detect frequency drift, and display a warning if any output signal frequency drifts near the limit set by FCC
 4. To detect aging of parts before failure occurs

Learning Objective: State the names of various types of trouble source checks, and distinguish among three classes of maintenance programs.

- 5-60. What are the names of the various diagnostic program area checks used in locating sources of equipment trouble?
1. Increasing area, decreasing area, overlapping area, square search
 2. Increasing area, decreasing area, overlapping area, large area
 3. Increasing area, decreasing area, Venn intersect search, vector search
 4. Increasing area, decreasing area, Venn intersect search, spiral search

In questions 5-61 through 5-63, select from column B the class of maintenance program associated with the purpose for which it is used, as listed in column A.

	<u>A. Purposes</u>	<u>B. Classes of Program</u>
5-61.	To detect the existence of errors	1. Diagnostic
5-62.	To locate the circuits in which malfunctions originate	2. Reliability
5-63.	To serve as an aid for operational and maintenance programming procedures, to print out information from storage, and to transfer maintenance programs into memory	3. Utility

Learning Objective: Determine the contents of a memory location by analyzing the input of the computer.

- 5-64. The memory of a computer has been cleared, and the computer has been instructed to read a group of cards and perform a cumulative add function, storing and adding to the subtotal in memory. It inputs cards containing the following data/instructions: 1, 2, HALT, 3, 4, 5, 6, CLEAR MEMORY. What value will then be in the memory?
1. 21
 2. 18
 3. 3
 4. 0

Learning Objective: Explain the importance of correct usage of panel controls; state practices which will help you benefit from making tests at various control settings.

- 5-65. For which of the following reasons should you be knowledgeable of the correct usage of front panel controls and attentive as you operate them?
1. Because if you use and observe them correctly, you may discover potential trouble in its early stages
 2. Because if you operate them incorrectly, your deductions about the cause or location of the problem are less likely to be accurate
 3. Because if you operate them incorrectly, you may damage the equipment
 4. All of the above
- 5-66. What should you do to help you retain and compare the results of tests taken at various control settings?
1. Notice exactly how the controls were set each time and make a special effort to remember the settings, results, and other pertinent facts
 2. Record carefully the settings, results, and other pertinent facts
 3. Make marks on the equipment to show what the settings were, and remember the results and other pertinent facts
 4. Have an assistant observe the test and help you remember the settings, results, and other pertinent facts

Learning Objective: State the basic requirements of a good telecommunications system.

- 5-67. What are three basic requirements of a good telecommunications system?
1. It must be reliable, secure, and rapid
 2. It must be reliable, simple, and rapid
 3. It must be controlled, secure, and dependable
 4. It must be easy, secure, and rapid

Learning Objective: Identify the source of direction and management of the Naval Telecommunications System (NTS) and the basic scope of the NTS and the Defense Communications System (DCS) relative to the Navy.

- 5-68. Who is responsible for directing the operations and controlling the management of the elements of the NTS?
1. Commander, Naval Support Force
 2. Commander, Naval Telecommunications Command Headquarters
 3. Director, Federal Communications Commission
 4. Director, Command and Control Support
- 5-69. What is the primary distinction, insofar as area of coverage is concerned, between the Naval Telecommunications System and the Defense Communications System relative to the Navy?
1. The NTS facilities are fleet-associated, and the Navy DCS units are primarily shore facilities
 2. The Navy DCS units are fleet-associated, and the NTS facilities are primarily shore facilities
 3. Navy teletypewriter communications is within the realm of the NTS; Navy communications by any other means is under the cognizance of the DCS
 4. Navy teletypewriter communications is within the realm of the DCS; Navy communications by any other means is under the cognizance of the NTS

Learning Objective: Demonstrate a basic familiarity with OPORDERS.

Learning Objective: Match the names and functions of elements of NTS.

- 5-70. Which of the following statements concerning OPORDERS is correct?
1. The commanding officer of a ship receives OPORDERS from the applicable fleet commander in chief, and must always take action on them in their entirety
 2. The commanding officer of a ship receives OPORDERS from the applicable fleet commander in chief, and must select and take action on those parts of the OPORDER that apply to him
 3. The commanding officer of a ship does not receive OPORDERS, as these are handled at a higher echelon, and any necessary orders are excerpted and transmitted to him
 4. OPORDERS are originated by individual ship commanders, and publicized to the staff and crew of his ship for compliance

In questions 5-71 through 5-74, match the elements in column B with their descriptions or characteristics in column A.

	<u>A. Charac- teristics</u>	<u>B. Elements</u>
5-71.	Classified as either a transmitting or a receiving station, and suffixed, therefore, by "T," or "R." May be located a great distance from the larger element of which it is a component	<ol style="list-style-type: none">1. Naval Communications Stations (NAVCOMMSTAs)2. Naval Communication Units (NAVCOMMUs)3. Naval Radio Stations (NAVRADSTAs)4. Naval Communications Technical Groups (NAVCOMMTECHGRUs)
5-72.	NOT a part of the basic communication structure, but, rather, usually created to satisfy a special need in support of a particular mission or function	
5-73.	A telecommunications facility that is assigned a limited or specialized mission. Its personnel and facilities are somewhat limited	
5-74.	Has a primary responsibility for communication facilities and equipment to provide fleet support and fixed communication service, and to interface with other communication units	

Assignment 6

Communications Organization (Continued); Communications Security

Textbook Assignment: Pages 183 - 204

Learning Objective: Give brief, general descriptions of some of the facilities, functions, and organization of the Defense Communications Agency (DCA).

● Judge whether questions 6-1 through 6-4, relative to the DCS and the Defense Communications Agency (DCA), are True or False.

- 6-1. DCS circuits are government-owned or leased and are point-to-point circuits that are long-haul and world-wide.
- 6-2. The DCS exists to support the Navy, Army, Air Force, and other Department of Defense activities, and it combines elements from the three military services into a single communications system.
- 6-3. It is important that each message remains within the same system (NTS or DCS) in which it originated until it reaches its destination.
- 6-4. The DCA, under the management of a general or flag rank officer, exercises operational control over the DCS.

Learning Objective: Identify the locations of operational centers and organization of Area Communications Operations Centers (ACOCs).

- 6-5. Where is the focal point for world-wide operational centers of the DCA?
1. DCA Operations Center, Naples, Italy
 2. DCA Operations Center, Guam
 3. DCA Operations Center, Washington, D.C.
 4. DCA Operations Center, Norfolk, Va.

- 6-6. What is the name of the centers which are subordinate to the ACOCs?
1. Field Communications Operations Centers (FCOCs)
 2. Limited Communications Operations Centers (LCOCs)
 3. District Communications Operations Centers (DCOCs)
 4. Regional Communications Operations Centers (RCOCs)

Learning Objective: Briefly and generally describe the organization of Naval Communications Areas (NAVCOMMAREAs).

- 6-7. Into how many Naval Communications Areas is the world divided?
1. Five
 2. Six
 3. Three
 4. Four
- 6-8. What is the name of the organization within each Naval Communications Area that exercises coordination and control of all naval communications system fleet broadcasts, ship-to-ship, air-ground, and other tactical circuits?
1. Naval Communication Area Master Station
 2. Naval Telecommunications Center/Message Center
 3. Technical Control Facility
 4. Naval Liaison and Control Facility

Learning Objective: Match organizational segments of NAVCOMMSTAs/NAVCOMMUS with their descriptions or characteristics.

- | |
|---|
| <ul style="list-style-type: none"> A. Naval Telecommunications Center/ Message Center (NTCC) B. Fleet Center C. Technical Control Facility D. Cryptographic Center E. Navy Commercial Refile Facility F. Receiver Site G. Transmitter Site |
|---|

List 6A.

● In answering questions 6-9 through 6-15, use the preceding list of organizational segments which are included at various NAVCOMMSTAs/NAVCOMMUs, according to the existing need. (In this group of questions, use each organizational segment once.)

- 6-9. Which organizational segment receives radio frequency energy and converts it to signals which are routed to the Technical Control Facility for further processing, and is responsible for receiver tuning, DC/Audio patch manipulation, quality monitoring of received signals, and antenna control?
1. D
 2. E
 3. F
 4. G

- 6-10. Which organizational segment is NOT a physical part of a NAVCOMMSTA or NAVCOMMU, but serves a need by providing a message service, either ashore or afloat, where there is a need for such service because of a heavy volume of messages?
1. A
 2. B
 3. C
 4. D

- 6-11. Which organizational segment provides interface between U.S. Government telecommunications systems and commercial systems (domestic, foreign, or international)?
1. A
 2. C
 3. E
 4. G

- 6-12. Which organizational segment is responsible for message processing and accountability for Top Secret message traffic, provides an off-line crypto service, and assigns routing of encrypted traffic within the command?
1. A
 2. C
 3. D
 4. F

- 6-13. Which organizational segment receives analog or digital data from the Technical Control Facility and radiates it in the form of radio frequency energy; and is responsible for transmitter tuning, DC/Audio patch panel manipulation, quality monitoring of transmitted signals, and antenna switching?
1. C
 2. E
 3. F
 4. G

- 6-14. Which organizational segment provides interface between shore and afloat communication systems, utilizing ship-shore, air-ground, and electronic courier circuits, among others?
1. A
 2. B
 3. C
 4. D

- 6-15. Which organizational segment is the core or focal point of the communications department ashore, from which all inter-patching among the various divisions takes place?
1. A
 2. B
 3. C
 4. E

Learning Objective: Briefly and generally describe shipboard organization and functions relative to communications.

- 6-16. In ships that do NOT have a communications department, to what department are communications personnel assigned?
1. Administration
 2. Security
 3. Operations
 4. Supply

In questions 6-17 through 6-20, select from column B the shipboard operational organization billets that are described in column A.

A. Descriptions	B. Billets
6-17. Responsible to the communications officer for maintaining optimum utilization of a good, effective communication system. Responsible for compliance with directives and for accurate and rapid handling of traffic within the communication organization of the ship	1. Communication watch officer (CWO) 2. Senior watch supervisor (SWS) 3. Main communication supervisor 4. Technical control supervisor
6-18. Responsible to the CWO and SWS for supervising message processing and circuit operation. Directly supervises all Radiomen on watch in the message processing area	
6-19. Responsible to the CWO for all communications. Examines operational logs and monitors equipment alignment and operation. Endeavors to prevent or eliminate backlogs of messages	
6-20. Ensures the use of monitoring and quality control on all operating communications systems. Also maintains the status board which displays information relative to all equipment, nets, and circuits in use	

- | |
|---|
| <ul style="list-style-type: none"> A. Administration officer B. Commanding officer C. Executive officer D. Communication officer E. Radio officer F. Security officer |
|---|

List 6B

● Use list 6B in answering questions 6-21 through 6-23. These questions relate to responsibilities/duties on a ship which has a separate officer assigned to each of the billets shown. Select the officer who has the responsibility or duty described in the question.

- 6-21. Full responsibility for the internal handling of message traffic within the ship.
1. A
 2. B
 3. C
 4. E
- 6-22. Responsibility for being cognizant of all communication annexes to Operation Plans affecting the mission of the ship in order to advise the commanding officer in respect to them.
1. A
 2. D
 3. E
 4. F
- 6-23. Preparation and maintenance of the watch, quarter, and station bill.
1. A
 2. D
 3. E
 4. F

Learning Objective: State which portion of an OPORDER or related attachment or publication is of particular benefit to Radiomen.

- 6-24. If you, as a Radioman, want to familiarize yourself with the identification of the circuits, equipment, frequencies, etc. of direct concern to a particular operation, where should you look?
1. In the body of the applicable operation order, in the paragraph dealing with communications
 2. In the communication annex to the applicable operation order, or in a separately-promulgated communication operation plan (ComOpPlan)
 3. In addendum 23-C of the applicable operations order (OpOrder, Add. 23-C)
 4. In supplement C of the applicable operations order (OpOrder, Supp. C)

Learning Objective: Describe, in general, the organization, functions, operation, and tools of the Standard Navy Maintenance and Material Management (3-M) System.

- 6-25. What is the name of the area of the 3-M system that deals with planning, scheduling, and controlling preventive maintenance in order to sustain the performance capability of the equipment?
1. The Planned Maintenance System (PMS)
 2. The Preventive Maintenance Quality Control System (PMQCS)
 3. The Preventive Maintenance Inspection System (PMIS)
 4. The Scheduled Preventive Maintenance System (SPMS)
- 6-26. What are the basic tools of the 3-M system?
1. The Quarterly Schedule, the Monthly Schedule, the Weekly Schedule, Maintenance Requirement Cards (MRCs)
 2. The Cycle Schedule, the Quarterly Schedule, the Monthly Schedule, the Weekly Schedule
 3. The Semiannual Schedule, the Monthly Schedule, the Weekly Schedule, Maintenance Requirement Cards (MRCs)
 4. The Cycle Schedule, the Quarterly Schedule, the Weekly Schedule, Maintenance Requirement Cards (MRCs)
- 6-27. What are Maintenance Requirement Cards?
1. Cards used to assign preventive maintenance tasks to specific individuals by date, and to record signatures, completion dates, and annotations as to any peculiarities found while performing the work
 2. Cards on which are listed the enlisted rate, time, tools, parts, and materials required to perform each applicable preventive maintenance task, as well as procedures and safety precautions to take
 3. Cards on which are listed the preventive maintenance tasks for the current week and the following week. These cards are inserted in the Maintenance Control Board, and kept up to date by the department head
 4. Cards on which are listed any required maintenance tasks that are outside the scope of assigned personnel. These cards will be used as source documents for requesting outside assistance
- 6-28. What is the Maintenance Data Collection System (MDCS)?
1. A system of documenting results of daily equipment inspections and of estimated and actual expenditures of man-hours and material relative to preventive and corrective maintenance
 2. A system of recording results of equipment inventories, condition of each piece of equipment, and amount of maintenance-related down time it has had, if any, during the current quarter
 3. A system of documenting man-hours expended, material expended, and equipment downtime in connection with corrective maintenance
 4. A system of documenting man-hours expended, material expended, and equipment downtime in connection with preventive maintenance
- 6-29. For what should a Work Request be used?
1. To request outside assistance when the maintenance action is outside the scope of assigned personnel
 2. To charge the maintenance officer with the responsibility for accomplishing specific maintenance tasks
 3. To serve as a source document for posting the task to the Maintenance Control Board, which will also display a deadline date by which time the ship's maintenance personnel must have accomplished the task
 4. To assign tasks to each of the maintenance personnel
- 6-30. Where are the spare parts allowance lists found?
1. In the Consolidated Shore Allowance List (COSAL) (shore activities), and the Electronics Repair Parts Allowance List (ERPAL) (shipboard)
 2. In the Consolidated Shore Allowance List (COSAL) (shore activities), and the Afloat Replacement Parts Allowance List (ARPAL) (shipboard)
 3. In the Consolidated Shipboard Allowance List (COSAL) (shipboard), and the Electronic Repair Parts Allowance List (ERPAL) (shore activities)
 4. In the Condensed Shipboard Allowance List (COSAL) (shipboard), and the Electromagnetic Replacement Parts Allowance List (ERPAL) (shore activities)

- 6-31. The allowance lists are adjusted according to usage rates. How are usage rates determined?
1. By the reporting of failures as prescribed by the 3-M system
 2. By applying the percentages shown on a standard probability chart to the record of equipments held
 3. By the use of a formula devised by a special study group on logistics
 4. By the study of quarterly reports of usage received from all applicable activities

Learning Objective: Explain the management of the Naval Warfare Publications Library (NWPL).

- 6-32. What are the titles of (a) the officer or senior petty officer responsible for the management of the NWPL, and (b) his assistant, who files, makes publication changes, etc?
1. (a) The Naval Warfare Publications Officer (NWPO),
(b) the NWPL Assistant
 2. (a) The Naval Warfare Publications Officer (NWPO),
(b) the NWPL Clerk
 3. (a) The Naval Warfare Publications Custodian (NWPC),
(b) the NWPL Clerk
 4. (a) The Naval Warfare Publications Custodian (NWPC),
(b) the Naval Warfare Publications Librarian
- 6-33. What are some of the files used in the maintenance of the NWPL?
1. Signature file (cards containing specimen signatures of all users of the NWPL), custody file (catalog card for each applicable publication on allowance or on board)
 2. Administrative file (catalog card for each applicable publication on allowance or on board), transaction file (record of dates and times of all publication check-out/check-in transactions)
 3. Signature file (cards containing specimen signatures of all users of the NWPL), administrative file (copies of correspondence pertaining to naval warfare publications)
 4. Custody file (catalog card for each applicable publication on allowance or on board), administrative file (copies of correspondence pertaining to naval warfare publications)

- 6-34. What colors are assigned to the binders for NATO and U.S. tactical warfare publications?
1. Secret - red, Confidential - yellow, Unclassified - blue, with no exceptions
 2. Secret - red, Confidential - yellow, Unclassified - blue, except that all of the FXP series, regardless of classification, are red with wide yellow stripes
 3. Secret - red, Confidential - yellow, Unclassified - blue, with the following exceptions: NATO classified (any degree) - red, NATO unclassified - white
 4. Secret - red, Confidential - yellow, Unclassified - blue, except that all NATO publications, regardless of classification, are white
- 6-35. It is important to follow proper procedures when changes to NWPL publications are made. Select a response in which all the procedures described are correct.
1. Before the change is made, check the effective date to ensure that the change is effective; make changes in red ink
 2. To make a lengthy pen-and-ink correction, carefully cut the affected sheet out of the publication, insert it in the typewriter, line out the superseded material, and type the new material on the top and bottom margins; then fasten the sheet back in the publication, using a good gummed tape
 3. To make a lengthy pen-and-ink correction, prepare a typed cutout; then, with a sharp knife or scissors, carefully cut all superseded material out and replace it with the typed cutout
 4. Attach flaps to the binder side of the page when there is room enough for a cutout; after pen-and-ink corrections are made, make notations in the margins adjacent to the entries, giving the source of the corrections
- 6-36. What would the designation "6/2" after "NMC" on a correction received by base-gram mean?
1. It is the 6th message correction and will be incorporated into the publication by printed change number 2
 2. It is the 2nd message correction and will be incorporated into the publication by printed change number 6
 3. It was sent in February 1976
 4. It was sent on the 2nd of June

6-37. When the relieving watchstander signs the watch-to-watch inventory of NWPL publications, to what is he attesting other than the fact that he is assuming responsibility?

1. That he will inventory the publications carefully, including page check if required, during his watch
2. That the off-going watchstander has personally declared the security of the publications
3. That a sight inventory of NWPL publications was conducted by the two watchstanders, and any required page checks were conducted
4. That he has carefully checked the communications log of the previous watch, and has sighted publications received and custody cards prepared during the preceding watch

6-38. In new or revised publications, (a) is the effective date always the same for U.S. and Allied usage, and (b) where is the effective date located?

1. (a) Yes, (b) in the foreword
2. (a) No, (b) in the foreword
3. (a) Yes, (b) in the U.S. Letter of Promulgation
4. (a) No, (b) for Allied usage, in the foreword; and for U.S. usage, in the U.S. Letter of Promulgation

Learning Objective: Describe the method of filing, and the method and time of destruction of some of the basic files.

6-39. (a) What should the communication center file contain, and (b) in what sequence should the contents be filed?

1. (a) A copy or filler of all messages sent or received by the command and processed by the communications center,
(b) insofar as possible, by DTG
2. (a) A copy or filler of all messages sent or received by the command and processed by the communications center,
(b) sequentially by date, but randomly within the same date
3. (a) A copy (no fillers allowed) of all messages sent or received by the command and processed by the communications center,
(b) insofar as possible, by DTG
4. (a) A copy or filler of all unclassified (but not classified) messages sent or received by the command and processed by the communications center,
(b) insofar as possible, by DTG

6-40. The cryptocenter file contains a copy of each Top Secret and SPECAT message and other messages designated by the command for special handling or privacy. What other messages, if any, does the file contain?

1. All Confidential and Secret
2. All Secret and only those Confidential that pertain directly to fleet operations
3. All Secret, but no Confidential
4. None

6-41. The general message file contains a copy of all general messages that require retention by the command. How are they filed?

1. By DTG. Each month's messages are filed in a separate folder, and the folders are filed chronologically
2. Subdivided according to title (ALNAV, ALCOM, etc.), and files are arranged in serial number order
3. Chronologically by subject
4. In one folder in strict chronological order

6-42. The broadcast file contains a copy or filler of every message received via the broadcast method. In this file, (a) in what sequence should messages be filed, and (b) what is the period of retention after which messages are destroyed?

1. (a) By broadcast number,
(b) 30 days
2. (a) By broadcast number,
(b) 10 days
3. (a) By DTG,
(b) 10 days
4. (a) By DTG,
(b) unclassified, 10 days; classified, 90 days

6-43. Normally, (a) what period of time is covered by the supervisor's log, and (b) how often are entries made in it?

1. (a) A radio day, beginning at 0001Z,
(b) at least once an hour
2. (a) A radio day, beginning at 0800Z,
(b) at least once an hour
3. (a) A radio day, beginning at 0001, local time,
(b) every four hours, beginning at 0400, local time
4. (a) One week, beginning at 0001Z each Sunday,
(b) at the close of each watch

- 6-44. According to regulations, what is the minimum time for which messages in the following categories must be held: (a) incident to distress or disaster; (b) incident to or involved in a claim or complaint of which the command has been notified; (c) historical or continuing interest?
1. (a) Three years, (b) two years, (c) permanently
 2. (a) Four years, (b) two years, (c) permanently
 3. (a) Two years, (b) three years, (c) seven years
 4. (a) Three years, (b) three years, (c) five years

Learning Objective: State a method or some methods employed to train personnel and enable them to perform their tasks more efficiently.

- 6-45. Which of the following methods is/are employed to foster and reinforce the knowledge, readiness, and operator proficiency of communications personnel?
1. Cross-training
 2. Scheduled checks and inspections
 3. Unscheduled checks and inspections
 4. All of the above

Learning Objective: Briefly describe espionage organization of today, and identify the publication dealing with the Navy Information Security Program Regulation.

- 6-46. Which of the following are the usual (a) composition, and (b) work assignments of information-gathering espionage working forces of a country today?
1. (a) A small isolated group of well-trained agents, (b) to talk secrets out of high-ranking governmental personnel
 2. (a) A small group of highly-trained agents, (b) to slip into offices at night and photograph material
 3. (a) A fairly large group of people, (b) to infiltrate military and political fields only and report those things that sound important to them
 4. (a) A large number of people, (b) to intermingle with citizens in all fields and gather and report even seemingly unimportant data

- 6-47. In what publication is the Navy Information Security Program Regulation found?
1. OPNAVINST 4790.4 (series)
 2. OPNAVINST 5510.1 (series)
 3. OPNAVINST C5510.93 (series)
 4. ACP 122

Learning Objective: Identify the administrator of the Navy communications security program.

- 6-48. To whom has CNO delegated the authority for administering the Navy communications security program?
1. The Commander, Naval Security Group Command
 2. The Vice Chief of Naval Operations
 3. The Deputy Chief of Naval Operations (Fleet Operations and Readiness)
 4. The Deputy Chief of Naval Operations (Plans and Policy)

Learning Objective: Identify the objectives of the recent change in the classification system, the types of material that should be classified, and the names and descriptions of the classification categories.

- 6-49. A change has recently taken place in the system of classifying and declassifying security information. One objective is to better protect classified material. What are two other objectives?
1. To classify more official information and to declassify less official information
 2. To classify less official information and to declassify more official information
 3. To classify less official information and to declassify less official information
 4. To classify more official information and to declassify more official information
- 6-50. What should be the security marking on security information, the unauthorized disclosure of which could be expected to cause serious damage to the national security?
1. Crypto
 2. Top Secret
 3. Secret
 4. Confidential

- 6-51. Information, the revealing of which would be detrimental to national security should bear a security classification. Which, if any, of the following categories of information should also be security-classified?
1. Information regarding the personal life of one or more U.S. citizens only
 2. Information that would reflect unfavorably upon officials in public office in the U.S. Government only
 3. Information regarding the personal life of one or more U.S. citizens, and information that would reflect unfavorably upon officials in public office in the U.S. Government
 4. None of the above
- 6-52. What should be the security marking on national security information or material, the unauthorized disclosure of which could reasonably be expected to cause damage to the national security?
1. Top Secret
 2. Secret
 3. Confidential
 4. Restricted
- 6-53. What should be the security marking on national security information or material, the unauthorized disclosure of which could reasonably be expected to cause exceptionally grave damage to the national security?
1. Crypto
 2. Top Secret
 3. Secret
 4. Confidential
-
- Learning Objective: Define various terms depicting special handling.
-
- 6-54. What special marking includes all data concerning the design, manufacture, and/or utilization of nuclear weapons and the special nuclear material used in the production of energy?
1. Crypto Data
 2. EFTO Data
 3. NOFORN Data
 4. Restricted Data
- 6-55. What special marking may be used only in messages and in automatic data processing of intelligence information, and indicates that the information is NOT releasable to foreign governments?
1. EFTO
 2. NOFORN
 3. LIMDIS
 4. FOUO
- 6-56. What special marking is used to confine the dissemination of copies of such messages to those personnel specifically authorized to have access to that information on a need-to-know basis?
1. EFTO
 2. FOUO
 3. LIMDIS
 4. Restricted Data
- 6-57. What special marking is affixed to certain unclassified messages to cause them to be given cryptographic protection during transmission?
1. Top Secret
 2. Secret
 3. EFTO
 4. FOUO
- 6-58. What is the marking assigned to information that is to be processed only by those personnel who have been authorized, in writing, by the commanding officer to view it and which requires special handling beyond that required by the security classification assigned?
1. Top Secret
 2. LIMDIS
 3. SPECAT
 4. Restricted Data
- 6-59. If a NATO-originated document marked "restricted" is to be in the U.S. in the custody of U.S. personnel for a time, what should be its marking, and like what U.S. classification should it be treated?
1. Restricted, Confidential
 2. NATO-Restricted, Confidential
 3. Restricted, Secret
 4. NATO-Restricted, Secret
-
- Learning Objective: Describe the process of downgrading and declassification of various classifications.
-

6-60. Normally, when will a document classified Top Secret on 30 Sep 1977 be (a) downgraded to Secret; (b) downgraded to Confidential; and (c) declassified?

1. (a) 30 Sep 1979, (b) 30 Sep 1981, (c) 30 Sep 1987
2. (a) 31 Dec 1979, (b) 31 Dec 1981, (c) 31 Dec 1987
3. (a) 30 Sep 1982, (b) 30 Sep 1987, (c) 30 Sep 1992
4. (a) 31 Dec 1982, (b) 31 Dec 1987, (c) 31 Dec 1992

6-61. Normally, when will a document classified Secret on 30 Sep 1977 be (a) downgraded to Confidential and (b) declassified?

1. (a) 30 Sep 1978, (b) 30 Sep 1982
2. (a) 31 Dec 1978, (b) 31 Dec 1982
3. (a) 30 Sep 1979, (b) 30 Sep 1985
4. (a) 31 Dec 1979, (b) 31 Dec 1985

6-62. Normally, when will a document classified Confidential on 30 Sep 1977 be declassified?

1. 30 Sep 1983
2. 31 Dec 1983
3. 30 Sep 1987
4. 31 Dec 1987

6-63. Exemptions from the General Classification Schedule are made only sparingly. What is the criterion for making such exemptions and when is specific permission from the Director of Naval Intelligence (DNI) required to make them?

1. It must fall into one of the four exemption categories listed in OPNAVINST 5510.1 (series); when broad categories of Top Secret information are placed in an exemption category
2. The judgment of the originator relative to the probable effects of declassification on the security of the country; when more than 1% of a command's Top Secret information is scheduled for exemption
3. It must fall into one of the four exemption categories listed in OPNAVINST 5510.1 (series); when more than 1% of a command's Top Secret information is scheduled for exemption
4. The judgment of the originator relative to the probable effects of declassification on the security of the country; when broad categories of Top Secret information are placed in an exemption category

6-64. Which of the following selections contains only approved markings, one of which normally appears in the last line or paragraph of a classified message?

1. ADS(), DDS(), XDDS(), XCL()
2. DDS(), GDS(), XXDS(), SGCL()
3. ADS(), GDS(), XGDS(), XCL()
4. ADDS(), DDS(), XGDS(), XXDS()

Learning Objective: Describe the process of marking and reproducing classified material and of classifying titles.

● Judge whether questions 6-65 through 6-68 pertaining to classification marking are True or False.

6-65. The security classification marking of classified material may properly be stamped, printed, or written in large letters, or typed in upper case (all preferably in red).

6-66. If a properly marked classified document is reproduced, the classification marking of the copy must be stamped or marked even when the original marking has reproduced clearly.

6-67. The correct location of paragraph markings, such as (TS), (S), (C), (U), (RD), (FRD), U.K.(C), etc., is immediately preceding and to the left of the part involved.

6-68. Titles and subjects should be classified as they stand alone, regardless of the classification of the related document.

Learning Objective: Distinguish among different categories of security areas.

- Use the following as the alternatives for questions 6-69 through 6-71:

1. Controlled area
2. Exclusion area
3. Isolated area
4. Limited area

- 6-69. What is the name of an area in which access to classified material can be gained by uncontrolled movement, but such access can NOT be gained if escorts and other controls are properly utilized?
- 6-70. What is the name of an area in which access to classified material can NOT be gained by uncontrolled movement, such area being used to provide administrative control, safety, or a security buffer function for other areas?
- 6-71. What is the name of an area in which mere access constitutes, for all practical purposes, access to classified information or material?

Learning Objective: State regulations governing admittance to security areas.

- In addition to your other work, you are assigned the responsibility of admitting without an escort, admitting with an escort, or refusing to admit personnel into the communications area. Using the discussion in your textbook as a criterion, decide which of these actions you should take, on the basis of information given, in the cases of the persons described in questions 6-72 through 6-75, and record your choices of the following alternates:

1. Admit without an escort
2. Admit with an escort
3. Do not admit

- 6-72. A person who has a proper clearance, says he has a "need to know," and is known to you, but is NOT on the access list.
- 6-73. A visiting dignitary from Washington D.C. who is interested in communication because he was formerly a Radioman.
- 6-74. A person who has a proper badge, has a "need to know," and is on the access list.
- 6-75. A person who is NOT on the access list, but has been specifically granted permission by the commanding officer to visit the communications area.

Assignment 7

Communications Security (Continued); Basic Message Format

Textbook Assignment: Pages 201 - 222

Learning Objective: Describe procedures for maintaining strict accountability of classified material.

- 7-1. Within each command, strict accountability for classified material must be maintained. What are the titles of the two persons normally designated to maintain accountability? (Sometimes the tasks of both are done by the same person.)
1. Classified Material Manager, Top Secret and Secret Control Officer
 2. Classified Material Manager, Classified Material Control Officer
 3. Command Security Manager, Top Secret Control Officer
 4. Command Security Manager, Classified Material Control Officer
- 7-2. What markings or method of accountability must be utilized with Top Secret
- (a) document covers or equipment,
 - (b) messages NOT containing a list of effective pages, and (c) document pages?
1. (a) Copy No. _____ of _____ copies;
(b) Page _____ of _____ pages;
(c) list of effective pages and page-check page
 2. (a) Copy No. _____ of _____ copies;
(b) Page _____ of _____ pages;
(c) Page _____ of _____ pages
 3. (a) Name of command having custody;
(b) Top Secret, page _____;
(c) list of effective pages and page-check page
 4. (a) Name of person accepting custody;
(b) Top Secret message: _____ pages;
(c) Top Secret document: _____ pages

- 7-3. Which of the following statements regarding the reproduction and accountability of Top Secret documents is correct?
1. Under no circumstances may they be reproduced
 2. With the permission of the originator or higher authority one copy (but not more than one) may be reproduced. It must be numbered and recorded with the TSCO
 3. They may be reproduced, with the permission of the originator or higher authority. Copies must be numbered serially and recorded with the TSCO
 4. They may be reproduced with, and only with, the permission of the commanding officer of the command wishing to reproduce them. Copies must be numbered serially and recorded with the TSCO

Learning Objective: Describe acceptable practices pertaining to safeguarding classified materials.

● Information for question 7-4: You have taken a classified document from storage to work on it at your desk, and now must go a few steps to a coworker's desk to discuss a problem with him.

- 7-4. What must you do to provide minimum authorized protection for the document while you are thus engaged?
1. Keep it under surveillance
 2. Turn it face down or cover it
 3. Both 1 and 2 above
 4. Replace it in storage

● Information for questions 7-5 and 7-6: You are given an assignment to derive some figures, use the figures to complete a worksheet, and then type a duplication of the worksheet as a smooth report (original and one copy), classified Confidential.

7-5. If your typewriter uses a carbon ribbon, which, if any, of the following items besides the carbon and the original and copy of the smooth report must be safeguarded in the manner required for Confidential material?

1. The worksheet and typewriter ribbon
2. The typewriter ribbon only
3. The worksheet only
4. None of the above

7-6. Your typewriter uses a fabric ribbon and this is the fourth time it is being recycled through the machine. Which, if any, of the following items besides the carbon and the original and copy of the smooth report must be safeguarded in the manner required for Confidential material?

1. The worksheet and typewriter ribbon
2. The typewriter ribbon only
3. The worksheet only
4. None of the above

7-7. Which of the following conditions for protecting classified material after working hours is NOT in accordance with security instructions?

1. Classified documents are in locked authorized safes
2. Shorthand notes were not burned, but are in locked authorized safes
3. The contents of wastebaskets containing classified material were not burned, but are in locked authorized safes
4. Burn bags, ready for burning the next day, are securely stapled and neatly lined up along the bulkhead

7-8. Dials on combination locks securing classified material safes must be rotated at least how many times in the same direction to conform to security regulations?

1. Five
2. Two
3. Three
4. Four

7-9. While on duty, an RM2 finds a classified safe open. Which of the following actions should he take?

1. He should lock the safe and inform the senior duty officer only
2. He should inform the senior duty officer and stand guard until he arrives
3. He should recall the responsible person and stand guard until he arrives
4. He should lock the safe, inform the responsible person, and report the incident to the senior duty officer

Learning Objective: Describe procedures for the disposal of classified material.

7-10. At the burn site, the burn supervisor must check each bag off the log as it is burned. What else should he and his crew do?

1. They should watch to see that the material is completely burned, and break and scatter the ashes
2. They should stir the fire, be sure that it is burning well, and leave when the last bag goes on the fire
3. They should empty the contents from each bag into the fire, fold the bags for return, watch to see that the material is completely burned
4. They should watch to see that material is completely burned, keep the ashes in a neat pile, and pour water on the ashes before leaving

7-11. Relative to destroying classified material aboard ships at sea by using shredders, what do regulations specify regarding (a) shred width and (b) intermixing of crypto with other material before shredding?

1. (a) Maximum shred width allowed is 1/32 inch, (b) under normal conditions, crypto material must not be intermixed with other material before shredding
2. (a) Maximum shred width allowed is 1/32 inch, (b) crypto material must be intermixed with at least an equal amount of other material before shredding
3. (a) Maximum shred width allowed is 1/16 inch, (b) under normal conditions, crypto material must not be intermixed with other material before shredding
4. (a) Maximum shred width allowed is 1/16 inch, (b) crypto material must be intermixed with at least an equal amount of other material before shredding

- 7-12. How many witnessing officials to destruction of classified material are required?
1. Five
 2. Two
 3. Three
 4. Four
- 7-13. To satisfy the requirements of directives, witnessing officials must have a security clearance of at least what level?
1. Confidential
 2. Secret
 3. Top Secret
 4. The level of the material being destroyed
- 7-14. For a minimum of how long must records of destruction of classified material be maintained?
1. 6 mo
 2. 1 yr
 3. 18 mo
 4. 2 yr
- 7-15. According to the Emergency Plan of material destruction, what material is of first priority to be destroyed?
1. Top Secret special access material and other Top Secret material
 2. Classified components of equipment and Top Secret special access material
 3. Communication Security (COMSEC) material and classified components of equipment
 4. Communication Security (COMSEC) material and Top Secret special access material
- 7-16. According to the Emergency Plan, what material should be destroyed immediately before Secret special access material?
1. Other Secret material
 2. Top Secret material (not special access)
 3. Top Secret special access material
 4. Classified components of equipment
- 7-17. What should normally be done with superseded classified material?
1. It should be retained indefinitely, as it is difficult to get another copy
 2. It should be retained for two years, then destroyed
 3. It should be retained for one year, then destroyed
 4. It should be destroyed immediately

Learning Objective: Define terms related to COMSEC and other classified material.

- 7-18. Communications security (COMSEC) is the overall effort to protect the integrity and validity of our communications community. Besides cryptosecurity and physical security, what does COMSEC include?
1. Transmission security and organizational security
 2. Emission security and reception security
 3. Transmission security and emission security
 4. Emission security and organizational security
- 7-19. What is the expression normally used to state that it has been discovered or is suspected that an unauthorized person has gained access to classified material?
1. The material has been compromised
 2. The material has been violated
 3. The material has been defiled
 4. The material has been wasted
- 7-20. What is an accountability legend?
1. A brief written account of the date and circumstances surrounding the acquisition of each classified item held
 2. A brief written description of the subject, number of pages, etc. of each classified item held
 3. A disclosure record, or list of signatures of all viewers of each classified item held
 4. A number assigned to COMSEC material to govern the handling procedure

- Use the following as the alternatives for questions 7-21 through 7-23:

1. CMS Holder
2. CMS Satellite Holder
3. CMS Local Holder
4. CMS Responsible User

7-21. What is the term used to specify a ship whose COMSEC material needs are met by drawing such materials from the squadron commander?

7-22. What is the term used to specify a command which has an account number and draws its COMSEC materials directly from national or Navy distribution sources?

7-23. What is the term used to specify an officer who draws CMS material from the CMS custodian of his command by signing and assuming responsibility for it?

Learning Objective: Define and indicate the scope and coverage of several terms connected with cryptosystems, and state qualifications required by a cryptographic operator.

7-24. Which of the following describes crypto-related information?

1. Always classified
2. Significantly descriptive of cryptomaterial
3. Normally associated with, but not significantly descriptive of cryptomaterial
4. Normally marked "CRYPTO"

7-25. It is vitally important that all items in a cryptosystem be given the strictest security. What is the term for a situation in which this security is NOT strictly maintained?

1. Crypto-exposure
2. Crypto-instability
3. Crypto-deficiency
4. Crypto-insecurity

7-26. Cryptographic operators must have proper security clearance, authorization from the commanding officer to perform crypto duties in his command, and familiarity with local crypto procedures. What other minimal qualifications, if any, are there?

1. Normal vision and manual dexterity
2. Achievement of E-4 or higher
3. Attainment of age 21 or higher
4. None

Learning Objective: State the priority order of the emergency destruction of keying materials.

7-27. In case of emergency destruction, keying material, as the most sensitive material, is destroyed first. What are the three types of keying material in the priority order of their destruction (within each security classification)?

1. Superseded, reserve, effective
2. Effective, superseded, reserve
3. Reserve, effective, superseded
4. Superseded, effective, reserve

Learning Objective: Identify the words for which EMCON stands, and define the terms meaconing, interference, jamming, and intrusion.

7-28. For what words does "EMCON" stand?

1. Emission control
2. Emission continuation
3. Emergency control
4. Emergency concealment

7-29. What is "meaconing"?

1. Intermittent power on/power off emission, five seconds on, five seconds off
2. Emission on a "sliding" frequency, a procedure of moving up in frequency a prescribed degree each three minutes to a prearranged maximum, then down in the same manner
3. Interception and rebroadcast of beacon signals on the same frequency
4. A category of communications interference that includes jamming and intrusion, among others

- 7-30. What is "interference," as used in the context of U.S. naval communications?
1. The deliberate use of electromagnetic signals with the object of impairing communication circuits
 2. Any attempt by the enemy to enter the U.S. or Allied communications system and simulate our traffic with intent to confuse or deceive
 3. A break in the electric line or any other equipment failure that impedes the process of communications
 4. A nondeliberate electrical disturbance which prevents the effective use of a frequency
-
- 7-31. What is "jamming"?
1. Distortion caused by transmitting with too much power for the existing circuits
 2. The deliberate use of electromagnetic signals with the object of impairing communication circuits
 3. Emission on a "sliding" frequency, a procedure of moving up in frequency a prescribed degree each three minutes to a prearranged maximum, then down in the same manner
 4. Interception and rebroadcast of beacon signals on the same frequency to confuse enemy navigation
- 7-32. What is "intrusion"?
1. The deliberate use of electromagnetic signals (such as by random noise) with the object of impairing communication circuits
 2. The inadvertent selection and use of a frequency by an operating unit when another unit in the area is already using that frequency for official traffic
 3. The unintentional splatter of an over-modulated signal into an adjacent in-use frequency
 4. An attempt by the enemy to enter the U.S. or Allied communication systems and simulate our traffic with intent to confuse and deceive
-
- Learning Objective: State who prescribes or approves the cryptographic systems and techniques used by military personnel, indicate the minimum frequency of COMSEC inspections, and identify the actual inspectors.
-
- 7-33. How often must a command have a COMSEC inspection, and what delegation actually visits?
1. Once a year; a delegation from the staff of the Naval Security Group Command
 2. Once every six months; a delegation from the staff of the Naval Security Group Command
 3. Once a year; a delegation from a local Naval Security Group
 4. Once every six months; a delegation from a local Naval Security Group
- 7-34. What organization, acting in behalf of the Secretary of Defense, prescribes or approves all cryptographic systems and techniques used by all branches of the military and approves or produces all cryptomaterial used by the departments and agencies of the U.S.?
1. The Joint Army-Navy Information Center (JANIC)
 2. The National Security Agency (NSA)
 3. The Naval Security Group Command (NAVSECGRU)
 4. The Naval Intelligence Command (NIC)
-
- Learning Objective: Describe the contents of a communication center visitor's log.
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- 7-35. For the communication center visitor's log, what column headings besides date, visitor's signature, rank or grade, organization represented, and time in and time out are recommended by KAG 1?
1. Social Security number, signature of authority authorizing visit
 2. Date of birth, local address and telephone number, name of authority authorizing visit
 3. Purpose of visit, signature of authority authorizing visit
 4. Place and date of birth, signature of authority authorizing visit

Learning Objective: Identify the location of specific information pertaining to communications operations.

- | |
|------------------------------|
| A. ACP 122 |
| B. CMS 4 |
| C. KAG 1 |
| D. NTP 4 |
| E. NWP 4 |
| F. NWP 33 |
| G. OPNAVINST 5510.1 (series) |

List 7A.

● Refer to list 7A in answering questions 7-36 through 7-45.

- 7-36. What publication contains equivalent U.S. security markings for material marked with foreign security classifications?
1. B
 2. C
 3. E
 4. G
- 7-37. What publication outlines the duties of the Command Security Manager?
1. B
 2. C
 3. E
 4. G
- 7-38. What publications contain complete terms, areas, items, and sub-categories relative to COMSEC material?
1. A and D
 2. B, C, and E
 3. D and F
 4. F and G
- 7-39. In what publication(s) is/are complete information on the security marking and re-marking of classified messages located?
1. A only
 2. A and B
 3. E and F
 4. G

- 7-40. What publications contain the priorities and methods of destruction of COMSEC material (in addition to those requirements discussed in OPNAV 5510.1 (series)?
1. B and C
 2. B and E
 3. C and D
 4. D and F

- 7-41. What publications contain effective methods of dealing with the occurrence of any component of "MIJI"?
1. A, B, and D
 2. B and C
 3. D and F
 4. E and F

- 7-42. What publication contains procedures governing the COMSEC Material Control System?
1. A
 2. B
 3. D
 4. F

- 7-43. In what publication(s) is/are the responsibilities of the NSA listed?
1. A and B
 2. B and C
 3. E
 4. F

- 7-44. What publication lists situations in which authentication is either mandatory or merely advisable?
1. A
 2. C
 3. D
 4. F

- 7-45. What publication contains complete information on paragraph, sub-paragraph, and document marking?
1. A
 2. C
 3. E
 4. G

Learning Objective: Determine the specific format lines of a basic Navy message to which various portions of the contents are assigned.

- 7-46. Which format lines in a naval message are used for the station(s) called and the station(s) calling?
1. Lines 1 and 2
 2. Lines 2 and 3
 3. Lines 1 and 3
 4. Lines 3 and 4

- 7-47. In which format line is the accounting symbol or group count?
1. Line 3
 2. Line 5
 3. Line 9
 4. Line 10

- 7-48. In which format lines are the FM and TO addressees given?
1. Lines 4 and 5
 2. Lines 5 and 6
 3. Lines 6 and 7
 4. Lines 7 and 8

- 7-49. Identify the format line containing the precedence indicator, DTG, and specific handling or delivery instructions.
1. Line 1
 2. Line 2
 3. Line 5
 4. Line 4

- 7-50. With which format lines do the heading, text, and ending, respectively, of a basic naval message begin?
1. 1, 8, 13
 2. 1, 11, 15
 3. 1, 12, 14
 4. 2, 10, 14

Learning Objective: Identify the four components of the message heading.

- 7-51. What are the four components that comprise the heading called?
1. Classification, origination, destination, and salutation
 2. Beginning procedure, preamble, address, prefix
 3. Original call-up, accounting procedures, address, prefix
 4. Opening remarks, classification, originator's call, addressee's call

Learning Objective: Interpret or properly record date-time groups, abbreviation "GR" with number, and prosign BT.

- 7-52. Which of the following is a correct example of a date-time group as used in the heading of a message?
1. 0815Z 15 Jan 78
 2. 15 Jan 78 0815Z
 3. 150815S Jan 78
 4. 150815Z Jan 78

- 7-53. What would "GR20" mean in a message?
1. The text contains 20 words
 2. The entire message contains 20 words
 3. The message is assigned "general routine 20" priority
 4. This is the 20th message of the day from the originator

- 7-54. What does the prosign BT mean?
1. Break
 2. The Navy has financial responsibility
 3. Bravo transmission
 4. Blind transmission

Learning Objective: Describe standard format and composition of a basic naval message.

- 7-55. If a message text has 15 typed lines, how many format lines does the text comprise?
1. 1
 2. 5
 3. 3
 4. 15

- 7-56. Special handling instructions such as SPECAT or PERSONAL FOR are placed on the same line as which of the following?
1. The TO addressee(s)
 2. The security classification category
 3. The precedence and DTG
 4. The accounting information

- 7-57. What is the composition of the SSIC, and what punctuation, if any, precedes and follows it?
1. A letter (variable) followed by five numbers; two slashes precede and two slashes follow
 2. A letter (variable) followed by six numbers; a semicolon precedes and no punctuation follows
 3. The letter "N" followed by five numbers; a semicolon precedes and a semicolon follows
 4. The letter "N" followed by five numbers; two slashes precede and two slashes follow

- 7-58. What does a passing instruction include?
1. The addressed command's short title, then the office code or individual's name
 2. The addressed command's long title, then the office code or individual's name
 3. The addressed command's short title, then the office code only
 4. The addressed command's long title, then the office code, then the individual's name
- 7-59. Which of the following statements is correct concerning the format of references in a message?
1. They are numbered consecutively and listed one beneath another
 2. They are lettered consecutively and listed one beneath another
 3. They are numbered consecutively and listed one following the other, separated by semicolons
 4. They are lettered consecutively and listed one following the other, separated by semicolons
- 7-60. Which of the following statements is correct concerning the numbering and lettering, if any, of textual paragraphs and subparagraphs?
1. Textual paragraphs are numbered and subparagraphs are lettered. Single paragraphs must be numbered "1."
 2. Textual paragraphs are numbered, but subparagraphs are neither numbered nor lettered. Single paragraphs are numbered "1."
 3. Textual paragraphs are numbered and subparagraphs are lettered. Single paragraphs need not be numbered.
 4. No textual paragraphs nor subparagraphs are numbered or lettered
- 7-61. If a paragraph of a message is Secret and also Restricted Data, what marking, if any, will be recorded immediately preceding the words of the paragraph?
1. SECRET-RESTRICTED DATA
 2. SECRET-RD
 3. SRD
 4. None
- 7-62. In the time group "1030R," what does the "R" mean?
1. Restricted
 2. Release time of message
 3. Receipt time of message
 4. The time zone designation

- 7-63. What are the ending sign prowords and prosigns used for voice and CW or TTY transmission, respectively?
1. OVER or OUT; K or \overline{AR}
 2. ROGER; K or \overline{AR}
 3. OVER or OUT; \overline{BT}
 4. ROGER; \overline{BT}

Learning Objective: Determine who is responsible for the various details involved in the composition, authorization, and transmission of a naval message.

- Use the following as the alternatives for questions 7-64 through 7-66:

1. The drafter
2. The releaser
3. The originator

- 7-64. Who authorizes the message for transmission after validating its contents and ensuring compliance with applicable directives?
- 7-65. In whose name is the message sent?
- 7-66. Who is responsible for actually composing the message, addressing, selecting the proper classification, issuing declassification and downgrading instructions, formatting, and selecting the precedence?

Learning Objective: Explain the meanings of the precedence indicators.

- 7-67. What is the precedence prosign which identifies the Emergency Command Precedence (ECP) in the AUTODIN system?
1. V
 2. W
 3. X
 4. Y

- Use the following as the alternatives for questions 7-68 through 7-71:

1. Flash
2. Immediate
3. Priority
4. Routine

7-68. What should the precedence indicator be for messages relating to situations which gravely affect the national forces or populace and which require immediate delivery to addressees?

7-69. What should the precedence indicator be for initial enemy contact reports or operational combat messages of extreme urgency?

7-70. What should the precedence indicator be for all types of traffic which should be transmitted electrically, but do NOT warrant a higher precedence than the type assigned?

7-71. What should the precedence indicator be for messages which furnish essential information for the conduct of operations in progress? (This is the highest precedence usually authorized for administrative messages.)

Assignment 8

Basic Message Format (Continued)

Textbook Assignment: Pages 223 - 245

Learning Objective: Distinguish among classes of messages.

● Messages are placed in classes A, B, C, D, or E for administrative and accounting purposes. In questions 8-1 through 8-6, select the class(es) into which the messages used as the question may be put.

8-1. Government messages.

1. A and B only
2. C, D, and E
3. A, B, and C only
4. A, B, C, and D

8-2. Broadcast traffic available to ships of all nationalities, such as hydrographic data, weather, etc.

1. A
2. B
3. C
4. D

8-3. Personal messages to or from naval personnel, handled primarily free of charge over naval circuits.

1. A
2. B
3. C
4. E

8-4. Messages originated by and destined for DOD activities (includes the Coast Guard when it is operating as part of the Navy). Most Navy messages are in this class.

1. A
2. B
3. D
4. E

8-5. Messages originated by and destined for U.S. Government agencies other than DOD.

1. A
2. B
3. D
4. E

8-6. Private messages for which the Navy collects tolls. Includes radiotelegrams and press messages sent by correspondents aboard ship.

1. A
2. B
3. C
4. D

Learning Objective: Distinguish among the various types of messages according to the method of addressing.

● Messages may be divided into types, according to the way they are addressed. Use the following as the alternatives for questions 8-7 through 8-10:

1. Book
2. General Message
3. Multiple-Address
4. Single-Address

8-7. What kind of message is destined for two or more addressees, none of whom is informed of any other addressee?

8-8. What kind of message is destined for two or more addressees, each of whom is informed of all other addressees?

8-9. What kind of message is destined to meet recurrent requirements for a wide, pre-determined, standard distribution?

8-10. What kind of message is normally titled (e.g., ALCOM, NAVOP, JAFPUB, etc.) with the title indicating distribution?

Learning Objective: Demonstrate an awareness of the characteristics of the different formats (plaindress, etc.) of messages.

● Use the following as the alternatives for questions 8-11 through 8-13:

1. Abbreviated plaindress
2. Codress
3. Plaindress
4. None of the above

- 8-11. Which, if any, of the preceding is a message format which is used very extensively in voice communications, and may be used in other formats, and in which the initial call serves as the address, and the precedence, date, date-time group, and group count may be omitted?
- 8-12. Which, if any, of the message formats listed is always encrypted, always contains a group count, and includes the entire address component within the encrypted text?
- 8-13. Which, if any, of the message formats listed contains all of the components of the basic message except that the group count at times may be omitted, and contains the originator and addressee designations externally in the address component?

Learning Objective: Describe radio call signs and voice calls used under given circumstances.

- 8-14. Which of the following is an example of an international call sign for a naval shore station, a naval vessel, and a naval aircraft, respectively?
1. NCAW, NAU, N4398
 2. NAU, N4398, NCAW
 3. N4398, NCAW, NAU
 4. NAU, NCAW, N4398

- 8-15. In voice communications, how should a ship identify on ship-shore administrative circuits, excluding local harbor circuits?
1. By phonetically spelled international call signs
 2. By voice call signs as listed in JANAP 119
 3. By voice call signs as listed in ACP 119
 4. By the name of the ship
- 8-16. What is the name of a call sign which represents all of a group of stations in direct contact with each other on a common channel?
1. Group call sign
 2. Net call sign
 3. Detachment call sign
 4. Cluster call sign

Learning Objective: Demonstrate a basic familiarity with address groups and routing indicators.

- 8-17. Address groups are four-letter groups assigned to represent certain commands, activities, or units. How can they be distinguished from Navy four-letter international radio call signs?
1. Address groups are transmitted with a slight pause between the second and third letters
 2. Address groups are transmitted with a slight pause between the third and fourth letters
 3. Address groups are always transmitted twice
 4. Address groups, in contrast to Navy call signs, do not begin with "N"
- 8-18. Which type of address group must always have more information added to it to serve as a complete station and address designator?
1. Individual activity address groups
 2. Collective address groups
 3. Conjunctive address groups
 4. Address indicating groups
- 8-19. Geographic address groups are always preceded by
1. individual activity address groups
 2. collective address groups
 3. conjunctive address groups
 4. address indicating groups

- 8-20. Which of the following is a purpose of address indicating groups?
1. To reduce the number of address groups required in the heading of a message
 2. To convey special instructions in the heading of a message
 3. To provide an alternate address group in the event that the primary address group is compromised
 4. To locate the originator of a message geographically
- 8-21. What is the first letter of routing indicators used with communications relay networks, and how many letters do they have?
1. C; three to six
 2. C; four
 3. R; three
 4. R; four to seven

Learning Objective: Describe procedures to be used by a flag rank commander temporarily detached from headquarters location to send a message to his staff; describe procedures for message readdressal.

- 8-22. Which of the following is a correct example of the "From" and "To" of a message sent by a flag rank commander to his staff when he is temporarily detached from his headquarters location?
1. FM COMSUBLANT NORFOLK VA (TDY AWAY)
TO COMSUBLANT NORFOLK VA
 2. FM COMSUBLANT NORFOLK VA
TO SUBLANT NORFOLK VA
 3. FM COMSUBLANT NORFOLK VA
TO ADMIN COMSUBLANT NORFOLK VA
 4. FM ADMIN COMSUBLANT NORFOLK VA
TO COMSUBLANT NORFOLK VA
- 8-23. What is the correct procedure for your command to use to readdress a message?
1. Delete format lines 1 through 4, precede the remainder with a complete heading from your command
 2. Replace the heading of the message with one from your command
 3. Replace format lines 1 through 5 with format lines 1 through 5 from your command
 4. Leave the message intact, immediately precede it with a supplementary heading from your command

Learning Objective: State the normal cancellation date of a message.

- 8-24. When will a message directive be automatically cancelled if it is NOT cancelled prior to this time by other means?
1. Sixty days after the release date
 2. Ninety days after the release date
 3. Four months after the release date
 4. Six months after the release date

Learning Objective: Identify the meanings of various pro-signs and Q and Z signals, and state how to identify general messages.

To answer questions 8-25 through 8-28, select from column B the precedence prosign which corresponds to the precedence as given in word form in column A.

	A. Precedences	B. Precedence Prosigns
8-25.	Flash	1. O
8-26.	Immediate	2. P
8-27.	Priority	3. R
8-28.	Routine	4. Z
8-29.	What does the prosign AA mean when it is used to identify a portion of a transmission?	1. All after 2. All above 3. Action addressee 4. Alternate addressee
8-30.	What does the prosign K mean?	1. If the message relates to another command, you are requested to readdress 2. This is the end of my transmission to you, and a response is invited 3. Negative report is not required 4. Stand by -- a weather report of significance will follow

- 8-31. What does the pause prosign AS AR mean?
1. I must pause for a few seconds
 2. I must shut down operations for one hour
 3. I must pause _____ minutes (Always followed by a number)
 4. I must pause longer than a few seconds; will call you back
- 8-32. What is the meaning of the prosign F used in transmission instructions?
1. Do not answer
 2. This is the final transmission at this time
 3. Forward to applicable command after readdressing
 4. Repeat this entire transmission back to me exactly as received
- 8-33. What does the prosign \overline{IX} plus a 5-second dash mean, in relation to the executive method?
1. Execution must be complete within one minute. Report required after execution
 2. Execute -- carry out the purpose of the message
 3. You will receive execute orders within five minutes
 4. Stand by for execute order

To answer questions 8-34 through 8-37, select from column B the prosigns which carry the same meaning as the statements given in column A.

A. <u>Prosign Meanings</u>	B. <u>Prosigns</u>
8-34. More to follow	1. B
8-35. Emergency silence	2. EEEEEEEE \overline{AR}
8-36. This transmission is in error. Disregard it	3. \overline{HM} \overline{HM} \overline{HM}
8-37. Repeat	4. \overline{IMI}

-
- 8-38. What are three-letter groups beginning with Q or Z used to convey much longer expressions properly called?
1. Code signals
 2. Operating signals
 3. Prosigns
 4. Prowords

- 8-39. How can general messages be identified as such?
1. By the "GEN" in the heading
 2. By the repetitive short title (e.g., ALNAV, JAFPUB)
 3. By the double spacing between format lines five and six
 4. By the prosign G in the transmission instructions line

Learning Objective: Describe various types of messages and associated procedures.

- 8-40. How are general messages which are NOT of sufficient operational urgency to warrant immediate delivery to forces afloat handled?
1. By the use of minimize conditions
 2. By basegrams
 3. By nightletters
 4. By "Q" messages
- 8-41. What must a general message file contain?
1. Every general message received during the current two-year period
 2. Only those general messages received for action during the current two-year period
 3. Every general message received during the calendar year
 4. Only those general messages received for action during the calendar year
- 8-42. Which of the following statements regarding cancellation of general messages is correct?
1. The first general message of a calendar year lists those messages of the previous year (by number) that are cancelled
 2. An individual general message may include its own cancellation date in parentheses after the signature
 3. A message is automatically cancelled upon receipt of a subsequent message of the same series
 4. General messages which do not have a yearly cancellation message and are not assigned particular cancellation dates are automatically cancelled after 90 days

- 8-43. If an originator designates a message as a basegram, where should the word "BASEGRAM" appear in the message?
1. In the message instructions
 2. As the first word of the text immediately following the classification
 3. As the last word of the text
 4. Immediately following the date-time group
- 8-44. Which of the following actions must be taken prior to the transmittal of American Red Cross emergency or administrative traffic over naval communications facilities?
1. A toll must be collected from the American Red Cross
 2. Verification must be made that the precedence assigned is not higher than ROUTINE
 3. A genuine effort must have been made by the American Red Cross to transmit the message by commercial means
 4. The approval of the commanding officer must be obtained
- 8-45. During minimize conditions, what is the maximum allowable number of words for (a) FLASH and (b) IMMEDIATE traffic?
1. (a) 100, (b) 150
 2. (a) 100, (b) 200
 3. (a) 125, (b) 200
 4. (a) 150, (b) 225
- 8-46. Normally, by what means should delivery of traffic on hand be made when minimize conditions are in effect?
1. By airmail letters and speedletters, observing security precautions
 2. By registered mail, observing security precautions
 3. By regular circuits between 0001 and 0400 local time
 4. By regular circuits after minimize conditions are lifted
- 8-47. What are proforma messages?
1. Messages, the subject matter and content sequence of which are pre-set and can not be changed by the originator
 2. Messages destined for two or more addressees, each of whom must be informed of all the others
 3. Messages destined for two or more addressees, none of whom is informed of the others
 4. Messages in which the entire address component is included within the encrypted text
- 8-48. What is a "Q" message?
1. A short concise message between communications personnel dealing with such things as misrouted or missent messages, etc
 2. A message sent to determine the reason for nondelivery or delay in delivery of a message
 3. A classified portion of Allied navigational warning systems
 4. A message of FLASH precedence which has a pre-set format and contains key instructions from high-level authority
- 8-49. Which of the following statements describes the procedure specified in your rate training manual respecting the timeliness or absence of response to a service message?
1. Action should be taken promptly. Any significant delay in accomplishing the action should be reported to the originator of the SVC
 2. Action should be taken on all service messages before the processing of routine traffic, but after the processing of traffic of higher precedence
 3. Action should be accomplished on a "time available" basis after all traffic is cleared
 4. A service message is always in the form of a report of action taken, and does not require that further action be taken
- 8-50. Which of the following is a correct example of the beginning of the text of a service message?
1. UNCLAS SVC
 2. 180725Z UNCLAS SVC
 3. SVC YOUR DTG 121531Z
 4. SVC 180725Z UNCLAS
- 8-51. Upon receipt of a tracer message, an activity should examine its records for the time of transmission of the message, compile this information with received data, and transmit it, with the tracer action to the
1. originator of the tracer message only
 2. preceding station only
 3. originator of the tracer message, and the preceding station only
 4. originator of the tracer message, the preceding station, and the following station

8-52. How could a ship establish a circuit with another station?

1. By sending a circuit establishment request message to the applicable NAVCOMMTECHGRU
2. By sending a termination request message to the NAVCAMS in whose area the ship is operating
3. By sending a request for an additional circuit by naval message to the Commander, Naval Telecommunications Headquarters
4. By sending a request by naval message to the cognizant fleet commander in chief, requesting additional communications linkage

8-53. Which of the following statements is a correct description of JCS Emergency Action Messages?

1. They have a predetermined format and normally carry IMMEDIATE or PRIORITY precedence, depending upon the degree of time-sensitivity
2. The format is not predetermined, but must be brief and concise; normally of IMMEDIATE precedence, but may be FLASH; are highly (sometimes extremely) time-sensitive
3. The format is not predetermined, but has become fairly standardized through usage; normally carry FLASH precedence; and are extremely time-sensitive
4. They have a predetermined format, normally carry FLASH precedence, and are extremely time-sensitive

8-54. The text of a certain message begins "CHECK ONE EIGHT." What precedence has it?

1. ROUTINE
2. PRIORITY
3. IMMEDIATE
4. FLASH

8-55. The OCR rapidly and accurately transcribes a typewritten outgoing message into a language compatible with computer processing. What does "OCR" stand for?

1. Outgoing Computer Run
2. Optical Character Reader
3. Optical-to-Computer Replacement
4. Outgoing Continuous Reader

Learning Objective: Use the Joint Messageform, DD-173. (This objective is continued in Assignment 9.)

8-56. Joint Messageform, DD-173, is available in two colors. (a) What are the colors, and (b) what determines which color a particular activity should use?

1. (a) Orange and light green,
(b) the geographical location
2. (a) Orange and light green,
(b) the type of equipment used by the serving telecommunications center
3. (a) Red and light blue,
(b) the geographical location
4. (a) Red and light blue,
(b) the type of equipment used by the serving telecommunications center

To answer questions 8-57 through 8-59, select from column B the spacing format appropriate to the part of the DD-173 shown in column A.

<u>A. Parts of DD-173</u>	<u>B. Spacing Formats</u>
---------------------------	---------------------------

8-57. Header lines and address component

1. Single-spaced

8-58. Text

2. Double-spaced

8-59. Distribution block

3. Triple-spaced

8-60. The paper guide should be set at 0 when you are preparing the DD-173. What are the correct settings for the left and right margins, respectively?

1. 4, 73
2. 5, 74
3. 6, 75
4. 8, 77

8-61. Which of the following methods of correction is acceptable for correcting a typing error in the headerlines?

1. Erasing
2. Striking over the error with a slash and typing the correct character in the next space
3. Striking over the error with a "blob" and typing the correct character in the next space
4. Attaching self-adhesive correction tape and retyping

JOINT MESSAGEFORM						SECURITY CLASSIFICATION			
PAGE	DRAFTER OR RELEASEE TIME	PRECEDENCE ACT INFO	LMF	CLASS	CIC	FOR MESSAGE CENTER/ COMMUNICATIONS CENTER ONLY			
						DATE - TIME	MONTH	YR	
OF									
BOOK	MESSAGE HANDLING INSTRUCTIONS								
FROM:									
TO:									

Figure 8A. - Top of a Joint Messageform, DD-173.

- In answering question 8-62, refer to figure 8A.
- 8-62. What, if anything, should be typed between the horizontal lines indicated by arrows?
1. The classification indication
 2. The precedence indication
 3. Any character
 4. Nothing
- Information for question 8-63: You are typing on a DD-173 the fourth page of a message which you thought would be completed on the fourth page. You now realize that a fifth page will be required. You have numbered the first four pages "01 of 04" through "04 of 04," respectively.
- 8-63. How should the page numbers of the five pages read when the message is complete?
1. "01 of 04" through "05 of 04"
 2. "01 of 05" through "05 of 05"
 3. "01 of 04" through "03 of 04"; "04 of 05"; and "05 of 05"
 4. "01 of 04" through "04 of 04"; and "05 of 05"
- 8-64. What does "1221537" in the time block mean?
1. 122nd day, 1537 Greenwich Mean Time
 2. 12th month, 2153 Greenwich Mean Time, 7 = page check
 3. 12th month, 2153 local time, time zone = +7
 4. 1st month, 22nd day, 1537 Greenwich Mean Time
- 8-65. A message could correctly display which of the following notations in its Action Precedence, Info Precedence, and Classification blocks, respectively?
1. VV; RR; UUUU
 2. RR; PP; UUUU
 3. RR; RR; OOOO
 4. PP; RR; CCCC
- 8-66. What operating signals are inserted in the Message Handling Instructions block to indicate that a message must be handled as a book message?
1. ZYZ
 2. ZYQ
 3. ZZQ
 4. ZWQ
- 8-67. Which of the following is correct concerning the address used on a DD-173?
1. It must include the PLA as given in the PLAD, after which amplifying details of address may be added in parentheses
 2. It must include the PLA as given in the PLAD, clarified, as desired, by inserting commas and periods (but no other punctuation)
 3. It must be exactly as given in the PLAD; no characters may be omitted or added
- 8-68. Continuation lines may NOT be used with which of the following PLAs?
1. The originator's PLA
 2. The action addressee's PLA
 3. The info addressee's PLA
 4. The exempt addressee's PLA
- 8-69. What is the meaning of the operating signal "ZEN" appearing before some action or information addressees?
1. Such addressees are to reply within twenty-four hours
 2. Such addressees will receive a mailed copy of the message in addition to the electrically-sent one
 3. Such addressees are to receive the message by other means
 4. Such addressees need not respond if they comply without delay; however, if compliance is impossible or delayed, they must reply within twenty-four hours

- 8-70. What is the correct form and spacing in the classification line to indicate (a) an unclassified message, and (b) a Confidential message?
1. (a) UNCLAS,
(b) C O N F I D E N T I A L
 2. (a) UNCLAS,
(b) CONF
 3. (a) UNCLASSIFIED,
(b) CONFIDENTIAL
 4. (a) U N C L A S S I F I E D,
(b) C O N F I D E N T I A L
- 8-71. How many slant signs (a) precede, and (b) follow the Standard Subject Identification Code (SSIC)?
1. (a) 1, (b) 1
 2. (a) 2, (b) 2
 3. (a) 2, (b) 4
 4. (a) 4, (b) 4
- 8-72. When passing instructions are used, they should begin at tab stop 6, one double-spaced line below the
1. message instructions
 2. precedence and DTG
 3. last addressee
 4. classification line
- 8-73. What is the maximum number of spaces that text lines may be indented for graphic clarity?
1. 10
 2. 12
 3. 18
 4. 20
- 8-74. Which of the following lines displays the correct format of the line one double-space below the last addressee of a readdressed message?
1. RADDR 785431
 2. JCS WASHINGTON DC//122037Z MAY 78
 3. RADDR//122037Z MAY 78
 4. RADDR JCS WASHINGTON DC//122037Z
MAY 78

Assignment 9

Basic Message Format (continued); Radiotelephone Procedures

Textbook Assignment: Pages 218 - 265

Learning Objective: (Continued)
Use the Joint Messageform,
DD-173.

- Questions 9-1 and 9-2 are to be judged True or False.

- 9-1. When a message is referenced, the originator's complete PLA should be given, followed by the DTG, month, and year.
- 9-2. The four-character security redundancy code and the precedence of readdressal messages must be the same as the message being readdressed.

Learning Objective: Identify the publications containing specific instructions relative to each of a number of procedures.

- | |
|------------------------------|
| A. ACP 100 and/or supplement |
| B. ACP 113 |
| C. ACP 124 |
| D. ACP 131 |
| E. JANAP 128 |
| F. NTP 3 and/or supplement |
| G. NTP 4 |
| H. NTP 9 |
| I. NWP 4 |
| J. NWP 7 and/or appendix |

List 9A.

- In answering questions 9-3 through 9-8, select from list 9A the publication to which you have been directed by your textbook to find information on the subject used as the question.

- 9-3. The usage of various accounting symbols for messages.
1. A
 2. D
 3. G
 4. H
- 9-4. Classification line markings.
1. B
 2. C
 3. F
 4. H
- 9-5. Authorized punctuation marks and their abbreviated equivalents.
1. A
 2. E
 3. F
 4. J
- 9-6. Call signs for fixed and land radio stations.
1. A
 2. B
 3. C
 4. D
- 9-7. International and military call signs for ships.
1. B
 2. E
 3. G
 4. I
- 9-8. The Plain Language Address Directory (PLAD).
1. A
 2. C
 3. E
 4. F

- | |
|------------------------------|
| A. ACP 100 and/or supplement |
| B. ACP 113 |
| C. ACP 124 |
| D. ACP 131 |
| E. JANAP 128 |
| F. NTP 3 and/or supplement |
| G. NTP 4 |
| H. NTP 9 |
| I. NWP 4 |
| J. NWP 7 and/or appendix |

List 9B.

● In answering questions 9-9 through 9-15, refer to list 9B.

- 9-9. Authorized operating signals.
1. C
 2. D
 3. F
 4. H
- 9-10. The types of general messages, from whom they originate, and their distribution.
1. E
 2. H
 3. I
 4. J
- 9-11. Types of normal, environmental, and supply messages that may be sent over normal channels and circuits during minimize.
1. E
 2. G
 3. I
 4. J
- 9-12. Instructions for preparing movement reports.
1. B
 2. G
 3. I
 4. J
- 9-13. Detailed information about tracer procedures.
1. D
 2. E
 3. I
 4. J

- 9-14. Instructions regarding communications shift messages and their formats.
1. B
 2. C
 3. D
 4. G
- 9-15. Instructions regarding readdressing a message.
1. F
 2. H
 3. I
 4. J

Learning Objective: Point out a disadvantage of using radiotelephone, and distinguish proper from improper operating procedures.

- 9-16. There are many advantages to the use of radiotelephone. What is an important disadvantage?
1. Radiotelephone equipment is quite difficult to use
 2. Radiotelephone procedures necessitate the use of more expendable supplies than most other methods of communication
 3. Radiotelephone communication is slower than communication by most other methods
 4. With radiotelephone communications, there is an inherent danger of interception
- 9-17. Which of the following is a prescribed operating procedure for the maintenance of good circuit discipline and transmission security?
1. Frequent tuning and testing of the equipment (every time anyone can find a free moment to conduct tests) in order to keep the equipment squarely on frequency
 2. Use of a directed net only with permission
 3. Use of plain language rather than prowords to avoid any misunderstanding
 4. Positive identification of your transmission with your name or personal sign

Learning Objective: Define
beadwindow and EEFIs.

- 9-18. What is a beadwindow?
1. A rapid method of sending encrypted messages
 2. A method of multiple-addressing radiotelephone messages to ensure wide dissemination
 3. A means used by net control, on a directed net, to get rapid confirmation that all stations in the group are receiving satisfactorily
 4. A means of immediately notifying circuit operators of an unauthorized disclosure
- 9-19. What are EEFIs?
1. Essential Elements of Friendly Information
 2. Electronic Encryptions of Friendly Information
 3. Electronic Emissions of False Information
 4. Enemy-Effectuated Fact Interceptions
- 9-20. Which of the following is a correct reply to a beadwindow message?
1. "CONTROL, THIS IS (name of station), WILCO, OUT"
 2. "CONTROL, THIS IS (name of station), ROGER, OVER"
 3. "CONTROL, THIS IS (name of station), ROGER, OUT"
 4. "CONTROL, MESSAGE RECEIVED, (name of station), OUT"

Learning Objective: Recognize
the contents and importance
of an RM's duties.

- Judge whether questions 9-21 and 9-22, regarding responsibilities of an RM, are True or False.
- 9-21. On relatively large ships, voice circuits are handled from the bridge and CIC. As an operator, you would be responsible for establishing transmitter and receiver services to those locations, which may be located a considerable distance from the communications spaces.

- 9-22. It is vital for an RM on a ship to know which nets are guarded by his ship, to know their purposes, and to be able to establish communications on a net or circuit.

Learning Objective: Identify
the three parts of a message,
and demonstrate a familiarity
with the contents and format
of a radiotelephone message.

- 9-23. How many format lines does radiotelephone employ?
1. 12
 2. 14
 3. 16
 4. 18
- 9-24. What are the three major parts of a radiotelephone message?
1. Salutation, text, ending
 2. Heading, text, ending
 3. Salutation, text, closing
 4. Heading, text, closing
- 9-25. Which of the following statements respecting the sequencing of information by format line on a radiotelephone (R/T) message is correct?
1. Its format and the format of the basic naval message are similar, but the format line containing the precedence precedes the addressees in one and follows the addressees in the other
 2. Its format and the format of the basic naval message are similar, but the accounting information is assigned to different format lines in the two types of messages
 3. Its format is of a completely different arrangement from that of a basic naval message
 4. Its format order corresponds to the order of the basic naval message

Learning Objective: Describe the correct method of net contact when there is an exempt addressee, and demonstrate a familiarity with the composition of the time group and of prowords to be used on designated format lines.

● Information for question 9-26: USS AUSTIN is net control on a net, the collective call of which is OVERWORK.

- 9-26. Which of the following is a correct call if the USS AUSTIN is calling all the members of the net EXCEPT USS STODDARD?
1. AUSTIN TO OVERWORK EXEMPT STODDARD
 2. OVERWORK EXEMPT STODDARD FROM AUSTIN
 3. OVERWORK, THIS IS AUSTIN, EXEMPT STODDARD
 4. OVERWORK EXEMPT STODDARD, THIS IS AUSTIN
- 9-27. Which of the following responses contains only prowords which may be contained in the transmission instructions?
1. RELAY TO, WORDS TWICE, READ BACK, DO NOT ANSWER
 2. EXEMPT, RELAY TO, WORDS TWICE, READ BACK
 3. RELAY TO, WORDS TWICE, READ BACK, EXECUTE TO FOLLOW
 4. WORDS TWICE, READ BACK, DO NOT ANSWER, EXECUTE TO FOLLOW
- 9-28. What proword precedes the spoken date-time group?
1. DATE-TIME GROUP
 2. TIME
 3. DATE-TIME
 4. ZULU
- 9-29. What prowords identify the address portion of the message, and what is their correct sequence?
1. FROM, TO, INFO, EXEMPT
 2. FROM, TO, EXEMPT, INFO
 3. FROM, TO, INFO only
 4. FROM, TO, ALL EXCEPT, INFO
- 9-30. What are the prowords for (a) prefixing the word group count, and (b) indicating that groups are NOT counted?
1. (a) GROUP COUNT, (b) GROUP NO COUNT
 2. (a) GROUP NUMBER, (b) NO GROUP COUNT
 3. (a) WORD GROUPS, (b) NO GROUP COUNT
 4. (a) GROUPS, (b) GROUP NO COUNT
- 9-31. If it is necessary to clearly distinguish between the first two or last two sections of the R/T message to avoid confusion, what proword should be used?
1. BREAK
 2. STOP
 3. SLANT
 4. END
- 9-32. It is 1601 on 21 October in your time zone, "S." You wish to send a time-group in format line 14, since it was impossible in this case to send the DTG earlier in the message. In which of the following ways could the required information be correctly expressed?
1. TIME ONE SIX ZERO ONE SIERRA TWO ONE OCTOBER
 2. TIME TWO TWO ZERO ONE ZULU TWO ONE OCTOBER
 3. TIME TWO ONE ONE SIX ZERO ONE SIERRA
 4. TIME TWO ONE TWO TWO ZERO ONE ZULU
- 9-33. Which of the following responses contains only prowords which may be used in the "final instructions" line of an R/T transmission?
1. READ BACK, DO NOT ANSWER, WAIT, MORE TO FOLLOW
 2. WAIT, CORRECTION, AUTHENTICATION IS, MORE TO FOLLOW
 3. WAIT, DO NOT ANSWER, CORRECTION, EXECUTE TO FOLLOW
 4. CORRECTION, DO NOT ANSWER, ACKNOWLEDGE, MORE TO FOLLOW
- 9-34. In transmissions in which the proword "DO NOT ANSWER" is used, what should be the ending proword(s)?
1. EXECUTE
 2. OVER AND OUT
 3. OVER
 4. OUT
-
- Learning Objective: Identify the normal frequency block and range of short-range and long-range R/T communications.
-

- 9-35. Within what frequency range is short-range operational radiotelephone communication normally conducted?
1. 2-32 MHz
 2. 38-200 MHz
 3. 225-400 MHz
 4. 600-850 MHz

- 9-36. What is the normal transmission range of short-range operational radiotelephone communication?
1. 10-15 mi
 2. 20-25 mi
 3. 30-35 mi
 4. 40-45 mi
- 9-37. Within what frequency range is long-range radiotelephone communication normally conducted?
1. 2-32 MHz
 2. 38-200 MHz
 3. 225-400 MHz
 4. 600-850 MHz

Learning Objective: Identify the net usually used in port, point out where to find a list of the official voice call signs, and explain the proper procedures for identifying and checking into the net when in port.

- 9-38. Operational/tactical nets apply to most voice circuits used at sea. What is the name of the nets normally used in port?
1. General nets
 2. Administrative nets
 3. Harbor nets
 4. Coastal nets
- 9-39. What publication contains a list of voice call signs designed to facilitate speed on tactical radio circuits?
1. ACP 100
 2. JANAP 119
 3. JANAP 128
 4. NTP 9
- 9-40. By what call may a ship properly identify itself when entering a port which is NOT under U.S. control?
1. By the voice call signs it uses on tactical circuits
 2. By the hull designation and number of the ship
 3. By the name of the ship (usually last name only)
 4. By the international call sign of the ship, spoken phonetically

- 9-41. The USS AUSTIN enters port in New London, CT, and desires to check into the local net normally used by ships in that harbor. In which of the following forms should the initial call be?
1. "NEW LONDON HARBOR, THIS IS AUSTIN, OVER"
 2. "CONTROL, THIS IS AUSTIN, OVER"
 3. "PORT CONTROL, THIS IS AUSTIN, OVER"
 4. "HARBOR CONTROL, THIS IS AUSTIN, OVER"

Learning Objective: Describe the procedures of a free and a directed net and the responsibilities of net control and of other net members.

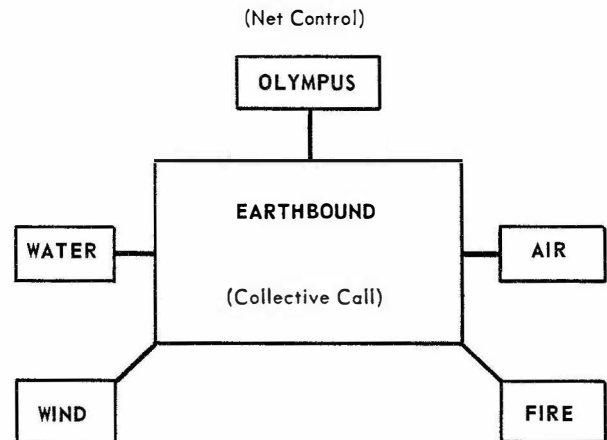


Figure 9A. - Radiotelephone net.

- Assume the existence of the net shown in figure 9A any time the name of one of the net members appears in questions 9-42 through 10-19. For questions 9-42 through 9-46, assume the net is a free net that has been temporarily closed.
- 9-42. Which of the following transmissions is a standard initial call for reopening the net?
1. "AIR, FIRE, WATER, WIND, THIS IS OLYMPUS, OVER"
 2. "WIND FROM OLYMPUS, OVER"
 3. "EARTHBOUND, THIS IS OLYMPUS, OVER"
 4. "EARTHBOUND FROM OLYMPUS, THE NET IS OPEN, OVER"

- 9-43. The initial call to reopen this net has just been given by OLYMPUS. Which of the following would be a correct response to follow immediately?
1. "OLYMPUS, THIS IS AIR, OVER"
 2. "OLYMPUS, AIR HERE, REPORTING IN TO NET, OVER"
 3. "EARTHBOUND, THIS IS AIR, OVER"
 4. "OLYMPUS, THIS IS AIR. I HAVE ONE PRIORITY FOR FIRE, AND ONE ROUTINE FOR WIND, OVER"
- 9-44. If, after OLYMPUS gives the initial call to reopen the net, AIR fails to respond, approximately how long should FIRE wait before giving a response?
1. Five seconds
 2. Twenty seconds
 3. Thirty seconds
 4. One minute
- 9-45. AIR had transmission difficulty and could NOT answer OLYMPUS' reopening transmission. A few minutes after all the other stations responded in sequence, the problem was corrected. Which of the following calls should AIR now make?
1. "OLYMPUS, THIS IS AIR, OVER"
 2. "OLYMPUS, THIS IS AIR REPORTING IN TO NET, OVER"
 3. "EARTHBOUND, THIS IS AIR, OVER"
 4. "EARTHBOUND, THIS IS AIR REPORTING IN TO NET, OVER"
- 9-46. OLYMPUS has reopened the net, all stations have responded, and OLYMPUS has acknowledged their transmissions. Which of the following could be a correct transmission to follow next?
1. "OLYMPUS, THIS IS AIR. I HAVE ONE PRIORITY AND ONE ROUTINE FOR FIRE AND ONE ROUTINE FOR WATER, OVER"
 2. "EARTHBOUND, THIS IS AIR. I HAVE ONE PRIORITY AND ONE ROUTINE FOR FIRE AND ONE ROUTINE FOR WATER, OVER"
 3. "FIRE, THIS IS AIR, OVER"
 4. "FIRE, THIS IS AIR. I HAVE THE FOLLOWING MESSAGE TRAFFIC FOR YOU: ONE PRIORITY AND ONE ROUTINE, OVER"
- For questions 9-47 through 9-50, the net in figure 9A is a directed net that has been temporarily closed.
- 9-47. Which of the following is a standard call for reopening this net?
1. "AIR, FIRE, WATER, WIND, THIS IS OLYMPUS. THIS IS A DIRECTED NET. OF WHAT PRECEDENCE AND FOR WHOM ARE YOUR MESSAGES, OVER"
 2. "EARTHBOUND, THIS IS OLYMPUS. THIS IS A DIRECTED NET. OF WHAT PRECEDENCE AND FOR WHOM ARE YOUR MESSAGES, OVER"
 3. "EARTHBOUND, THIS IS OLYMPUS, OVER"
 4. "EARTHBOUND, THIS IS OLYMPUS. THIS NET IS NOW OPEN, OVER"
- 9-48. The initial call has just been given by OLYMPUS to reopen the net. Which of the following could be a correct call to follow immediately?
1. "EARTHBOUND, THIS IS AIR, OVER"
 2. "OLYMPUS, THIS IS AIR ACKNOWLEDGING NET OPEN, OVER"
 3. "OLYMPUS, THIS IS AIR. I HAVE ONE IMMEDIATE FOR WATER AND TWO ROUTINE FOR WIND, OVER"
 4. "OLYMPUS, THIS IS AIR, OVER"
- 9-49. Each station has traffic to transmit. Which of the following may be a correct transmission for OLYMPUS to make after all stations have responded to the initial reopening transmission?
1. "EARTHBOUND, THIS IS OLYMPUS, OUT"
 2. "AIR, THIS IS OLYMPUS, ROGER. SEND YOUR IMMEDIATE, OVER"
 3. "EARTHBOUND, THIS IS OLYMPUS, ROGER. SEND YOUR IMMEDIATE TRAFFIC, OVER"
 4. "EARTHBOUND, THIS IS OLYMPUS, ROGER. AIR SEND YOUR IMMEDIATE, OVER"
- 9-50. Since the net reopened, all initial traffic has been cleared, and it has been fifteen minutes since anyone has transmitted on frequency. Which of the following may be a correct exchange of transmissions at this time?
1. "OLYMPUS, THIS IS WATER. I HAVE ONE IMMEDIATE FOR AIR, OVER" *** "THIS IS OLYMPUS. SEND YOUR MESSAGE, OVER"
 2. "EARTHBOUND, THIS IS WATER. I HAVE ONE IMMEDIATE FOR AIR, OVER" *** "THIS IS AIR. SEND YOUR MESSAGE, OVER"
 3. "AIR, THIS IS WATER. I HAVE ONE IMMEDIATE FOR YOU, OVER" *** "WATER, THIS IS AIR. SEND YOUR MESSAGE, OVER"
 4. "AIR, THIS IS WATER, OVER" *** "WATER, THIS IS AIR, GO AHEAD, OVER"

Learning Objective: Describe the contents of and procedures used relative to the communications log.

- 9-51. Which of the following items should be included in the R/T circuit log?
1. Frequency adjustments and changes, causes of delay on the circuit, and changing of the watch
 2. Frequency adjustments and changes, causes of delay on the circuit, and four-hour block counts of transmitted and received messages
 3. Causes of delay on the circuit, changing of the watch, and the complete names and rates of personnel who have been assigned to communications within the past twenty-four hours
 4. Frequency adjustments and changes, four-hour block counts of transmitted and received messages, and times of opening and closing by individual stations
- 9-52. When automatic recording devices are used to ensure a total record of traffic, the time should be recorded at intervals NOT exceeding how many minutes?
1. 10 min
 2. 15 min
 3. 3 min
 4. 5 min
- 9-53. How should the operator correct an error in the log?
1. He should erase the error and write the correct entry in its place
 2. He should put gummed tape over the error and write the correct entry in its place
 3. He should draw a single line through the error, and write the correct entry adjacent to the original entry
 4. He should type the correct entry on bond paper, cut it out, and glue it over the incorrect entry

Learning Objective: Describe correct procedures in transmitting easily confused words, encrypted groups, figures, dates, names, punctuation, and Roman numerals.

- 9-54. If part of a plain text message reads "TO AISHA LATER," how should the operator send this portion to facilitate correct receipt?
1. "TO ALFA-INDIA-SIERRA-HOTEL-ALFA LATER"
 2. "TO AISHA, I REPEAT, AISHA LATER"
 3. "TO AISHA, I SAY AGAIN, TO AISHA LATER"
 4. "TO AISHA, I SPELL, ALFA-INDIA-SIERRA-HOTEL-ALFA, AISHA LATER"
- 9-55. In which of the following ways should an operator transmit the encrypted group "BRGSP"?
1. "BRAVO, ROMEO, GOLF, SIERRA, PAPA"
 2. "B-R-G-S-P, I SAY AGAIN, B-R-G-S-P"
 3. "I SPELL, B-R-G-S-P"
 4. "I SPELL, BRAVO, ROMEO, GOLF, SIERRA, PAPA"
- 9-56. What are two correct ways of clearly distinguishing the number "two" from "to" or "too" in R/T communication?
1. "TWO, I SPELL, T-W-O" AND "NUMBERS TWO"
 2. "TWO; THAT IS, T-W-O" and "NUMBERS TWO"
 3. "FIGURES TWO" and "TWO, I SPELL, TANGO, WHISKEY, OSCAR, TWO"
 4. "TANGO, WHISKEY, OSCAR" (no proword preceding) and "TWO, I SPELL, TANGO, WHISKEY, OSCAR, TWO"
- In questions 9-57 through 9-63, select the standard wording for radiocommunication transmission of the information given.
- 9-57. The number 1950.
1. WUN NINER FIFE OH
 2. WUN NINER FIFE ZERO
 3. WUN TOUZAND NINER FIFE ZERO
 4. NINETEEN FIFTY
- 9-58. The number 705,000.
1. SEVEN OH FIFE COMMA ZERO ZERO ZERO
 2. SEVEN HUNDRED FIFE TOUZAND
 3. SEVEN ZERO FIFE ZERO ZERO ZERO
 4. SEVEN ZERO FIFE TOUZAND

- 9-59. The number 68.7.
1. SIX EIGHT AND SEVEN TENTHS
 2. SIXTY EIGHT DAY-SEE-MAL SEVEN
 3. SIX EIGHT DAY-SEE-MAL SEVEN
 4. SIX EIGHT POINT SEVEN
- 9-60. The date 24 March.
1. TOO FOWER M-A-R-C-H
 2. TOO FOWER MARCH
 3. TWENTY FOWER MARCH
 4. TWENTY FOWER M-A-R
- 9-61. The name F. J. LANDRUM.
1. INITIALS, F-J LANDRUM
 2. I SPELL, F-J LANDRUM
 3. INITIALS, FOXTROT JULIETTE LANDRUM
 4. I SPELL, FOXTROT JULIETTE LANDRUM
- 9-62. The punctuation (), when required.
1. PAREN, UNPAREN
 2. PAREN, CLOSE PAREN
 3. OPEN PARENTHESES, CLOSE PARENTHESES
 4. OPEN PAREN, CLOSE PAREN
- 9-63. The Roman number IV.
1. INDIA VICTOR
 2. ROMAN FOWER
 3. ROMAN NUMERAL FOWER
 4. ROMAN INDIA VICTOR

Learning Objective: Point out correct procedures in identifying by call sign, transmitting when call sign encryption is in effect, interrupting the carrier intermittently when transmitting, and testing the communication equipment over an R/T circuit.

- 9-64. At what times is it mandatory that a ship use its full or encrypted radio-telephone call sign?
1. Every time it transmits
 2. When it checks into the net, and when it makes the first call of the day to any member of the net
 3. On the first transmission after 0000 local time each day only
 4. When a net is first established, and when the ship initially reports into an established net

- 9-65. If an operator is transmitting an R/T communication while call sign encryption is in effect, and sees that ship/unit names appear in the text, which of the following should he do?
1. He should transmit the text exactly as it is prepared
 2. He should replace the ship/unit names with their encrypted call signs or address groups, preceded, if desired, by the proword CALL SIGN or ADDRESS GROUP
 3. He should stop transmitting the message, send "DISREGARD THIS TRANSMISSION," and hold the message for transmission after call sign encryption is lifted
 4. He should replace the ship/unit names with the code word CSEE (call sign encryption in effect), and furnish the actual names later after call sign encryption is lifted
- 9-66. Which of the following is the primary reason why an operator, while transmitting an R/T message, should pause and interrupt the carrier momentarily after each natural phrase?
1. To allow the receiving unit to break in, if desired
 2. To make it more difficult for a hostile unit to pinpoint the exact location of the sending unit
 3. To keep the transmission lines from overheating
 4. To give the receiving operator time to catch up if he is behind
- 9-67. In the conduct of an equipment test on an R/T circuit, (a) what words are spoken for testing, and (b) what is the maximum time limit for the test?
1. (a) Numerals,
(b) 10 sec
 2. (a) Numerals,
(b) 15 sec
 3. (a) Letters, spoken phonetically,
(b) 15 sec
 4. (a) The word "testing," repeated as desired,
(b) 10 sec

Learning Objective: Describe the correct sequence of net responses, and the procedures for radio, "WORDS TWICE," "READ BACK," transmission corrections, requests for retransmission of missed parts of messages, and message cancellation. (This objective is continued in Assignment 10.)

- 9-68. When abbreviated call signs are used on a net, in which of the following sequences should members of the net respond?
1. In alphabetic order according to the abbreviated call sign
 2. In alphabetic order of the full call signs for which the abbreviations stand
 3. In the order prescribed by net control, who is directed to assign an answering sequence in such circumstances
 4. In the order prescribed by the current quarterly edition of the publication Net Procedures
- 9-69. The following transmission exchange takes place between AIR and WIND:
"WIND, THIS IS AIR. RADIO CHECK, OVER"
"AIR, THIS IS WIND, ROGER, OVER"
What is the meaning of the exchange?
1. AIR has informed WIND it is time for WIND's radio check, and WIND has acknowledged the call. AIR will now give WIND a report on signal strength and readability
 2. AIR is requesting a radio check, and WIND has agreed to aid. AIR will now give a test call, after which WIND will give the signal report
 3. AIR has requested that WIND give a report on AIR's radio signal, and WIND has agreed. WIND will make a second transmission to AIR within three minutes and give the report
 4. AIR has requested WIND to give a report on AIR's signal. The omission of comment on signal strength and readability in WIND's reply informs AIR that the signal is satisfactory

- 9-70. Which of the following reports on signal strength and readability is in proper Navy R/T communications form?
1. "FOUR BY FOUR"
 2. "FULL QUIETING"
 3. "WEAK AND DISTORTED"
 4. "SIGNAL STRENGTH 3, READABILITY 4"

● Because of poor communication conditions, OLYMPUS includes the prowords "WORDS TWICE" and "READ BACK" in a transmission to FIRE. Use the following as the alternatives for questions 9-71 through 9-74:

1. One time
 2. Two times
 3. None
- 9-71. How many times, if any, should OLYMPUS send the proword "THIS IS"?
- 9-72. How many times, if any, should OLYMPUS send the proword "WORDS TWICE"?
- 9-73. How many times, if any, should FIRE send the proword "ROGER"?
- 9-74. How many times, if any, should FIRE send each word of the text?

Assignment 10

Radiotelephone Procedures (Continued); Manual Teletypewriter Procedures

Textbook Assignment: Pages 267 - 285

Learning Objective: (Continued)
Describe the procedures for transmission corrections, requests for retransmission of missed parts of messages, and message cancellation.

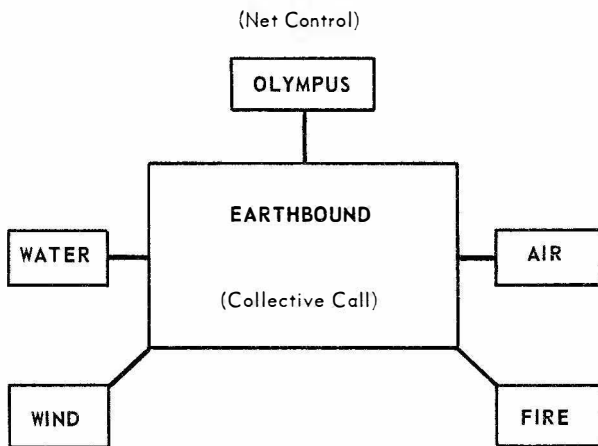


Figure 10A.

- In answering questions 10-1 through 10-19, refer to figure 10A.

10-1. An operator has just transmitted "USE TEST CHARLIE" as part of a message, and now realizes that the word sent as "TEST" is actually "TEXT." Which of the following transmissions is in the correct form for him to send next?

1. "CORRECTION, USE TEXT CHARLIE"
2. "CORRECTION. CHANGE TO USE TEXT CHARLIE"
3. "CORRECTION. TEXT VICE TEST"
4. "CORRECTION. STRIKE TEST, INSERT TEXT"

- 10-2. An operator on the AIR had received nearly an entire message from WIND when a loud noise occurred, causing him to miss the remainder. The last part of the text he received was "ADVISE IF ANY." Which of the following transmissions should he send?
1. "WIND, THIS IS AIR. REPEAT TEXT, OVER"
 2. "WIND, THIS IS AIR. SAY AGAIN TEXT, OVER"
 3. "WIND, THIS IS AIR. SAY AGAIN ALL AFTER ADVISE IF ANY"
 4. "WIND, THIS IS AIR. SAY AGAIN ALL AFTER ANY, OVER"
- 10-3. An operator on board the FIRE was receiving a message from OLYMPUS, but missed the FROM, TO, and INFO portions. He received and copied the EXEMPT portion. How should he request the part he missed?
1. "OLYMPUS, THIS IS FIRE. SAY AGAIN ALL BEFORE EXEMPT"
 2. "OLYMPUS, THIS IS FIRE. SAY AGAIN FROM TO EXEMPT, OVER"
 3. "OLYMPUS, THIS IS FIRE. REPEAT FROM, TO, AND INFO, OVER"
 4. "OLYMPUS, THIS IS FIRE. SAY AGAIN ZULU TO EXEMPT, OVER"

- 10-4. What should be transmitted to cancel
- (a) a message in process of being sent; and
 - (b) a message that has been completely sent?
1. (a) The proword, "DISREGARD THIS TRANSMISSION, OUT;"
(b) by separate message, "CANCEL MY ... (date-time group), OVER"
 2. (a) The proword, "CANCEL THIS TRANSMISSION, OUT;"
(b) by separate message, "DISREGARD MY ... (date-time group), OVER"
 3. (a) The proword, "DISREGARD;"
(b) by separate message, "DISREGARD MY ... (date-time group), OVER"
 4. (a) The proword, "CANCEL;"
(b) by separate message, "CANCEL MY ... (date-time group), OVER"

Learning Objective: Point out correct procedures for the receipt, acknowledgement, and verification of a message.

- 10-5. What are the prowords for (a) the receipt of a message, and (b) the acknowledgment of a message?
1. (a) RECEIVED; (b) WILCO
 2. (a) ROGER; (b) WILCO
 3. (a) ROGER; (b) ROGER, WILCO
 4. (a) RECEIVED; (b) ROGER, WILCO
- 10-6. What do the prowords for (a) the receipt and (b) the acknowledgment of a message indicate?
1. (a) I have received and understand your last transmission;
(b) I have received your signal, understand it, and will comply
 2. (a) I have received your last transmission satisfactorily;
(b) I have received your signal, understand it, and will comply
 3. (a) I have received your last transmission satisfactorily;
(b) I will comply within 24 hours
 4. (a) I have received and understand your last transmission;
(b) I will comply within 24 hours
- 10-7. In addition to the commanding officer, who is/are authorized to initiate an acknowledgment for a message?
1. The communications officer and the assistant communications officer
 2. The commanding officer's authorized representative and the communications officer
 3. The commanding officer's authorized representative and the operations officer
 4. The commanding officer's authorized representative only

- 10-8. If an operator receives a request to verify part of a message, he should find it and check the cryptography (if it is encrypted). What else should he always do before transmitting the verification of the message?
1. Verify his reading of the message with the senior enlisted person in communications
 2. Verify his reading of the message with the communications officer
 3. Verify the message with the person who originated it
 4. Ask the requesting operator specifically which word(s) he suspects is/are in error in order that he may check more specifically

Learning Objective: Name the general types of authentication and describe procedures for breaking in on a net in order to send FLASH messages, for using the delayed executive and immediate executive method, and for imposing emergency silence.

● Assume the following situation in questions 10-9 and 10-10: WATER is sending ROUTINE messages to WIND. The operator on the FIRE is given a FLASH message for AIR.

- 10-9. If the units named are operating on a free net, the operator on the FIRE should break in and make what transmission?
1. "AIR, AIR, AIR, THIS IS FIRE. I HAVE ONE FLASH FOR YOU, OVER"
 2. "AIR, AIR, AIR, THIS IS FIRE, FLASH, OVER"
 3. "FLASH, FLASH, FLASH. AIR, THIS IS FIRE, FLASH, OVER"
 4. "FLASH, FLASH, FLASH. AIR, THIS IS FIRE. I HAVE ONE FLASH FOR YOU, OVER"
- 10-10. If the net is directed, the operator on the FIRE should make what transmission?
1. "OLYMPUS, OLYMPUS, OLYMPUS, THIS IS FIRE. I HAVE ONE FLASH FOR AIR, OVER"
 2. "FLASH, FLASH, FLASH, OLYMPUS, THIS IS FIRE, FLASH FOR AIR, OVER"
 3. "FLASH, FLASH, FLASH, OLYMPUS, THIS IS FIRE, REQUEST PERMISSION TO SEND ONE FLASH TO AIR, OVER"
 4. "AIR, AIR, AIR, STAND BY FOR FLASH. OLYMPUS, THIS IS FIRE, OVER"

- 10-11. Which of the following transmissions is in the correct format to impose emergency silence?
1. "EARTHBOUND, THIS IS OLYMPUS, SILENCE, SILENCE, SILENCE, OUT"
 2. "EARTHBOUND, THIS IS OLYMPUS, EMERGENCY SILENCE, SILENCE, SILENCE, OUT"
 3. "EARTHBOUND, THIS IS OLYMPUS, EMERGENCY SILENCE, SILENCE, SILENCE, TIME ONE ONE THREE EIGHT ZULU, OUT"
 4. "EARTHBOUND, THIS IS OLYMPUS, SILENCE, SILENCE, SILENCE, TIME ONE ONE THREE EIGHT ZULU, OUT"
- 10-12. Which of the following is a correct example of a tactical message sent by the delayed executive method?
1. "EARTHBOUND, THIS IS OLYMPUS, SHIFT YOUR RUDDER, STAND BY TO EXECUTE, OVER"
 2. "EARTHBOUND, THIS IS OLYMPUS, DELAY EXECUTE, SHIFT YOUR RUDDER, OVER"
 3. "EARTHBOUND, THIS IS OLYMPUS, EXECUTE TO FOLLOW, SHIFT YOUR RUDDER, OVER"
 4. "EARTHBOUND, THIS IS OLYMPUS, DEFER EXECUTION, SHIFT YOUR RUDDER, OVER"
- 10-13. The executive signal that follows a delayed executive transmission can correctly be exemplified in which of the following ways?
1. "EARTHBOUND, THIS IS OLYMPUS. STAND BY, EXECUTE, FIRE, OVER"
 2. "EARTHBOUND, THIS IS OLYMPUS. PREPARE, EXECUTE, FIRE, OVER"
 3. "EARTHBOUND, THIS IS OLYMPUS. THREE-TWO-ONE-EXECUTE, FIRE, OVER"
 4. "EARTHBOUND, THIS IS OLYMPUS. EXECUTE, FIRE, OVER"
- 10-14. Following is an example of the beginning of a message sent in the immediate executive method: "EARTHBOUND, THIS IS OLYMPUS, IMMEDIATE EXECUTE, BREAK, SHIFT YOUR RUDDER." Which of the following endings is in the correct format?
1. "FIRE, WATER, EXECUTE, OVER"
 2. "I REPEAT, SHIFT YOUR RUDDER, EXECUTE, FIRE, WATER, OVER"
 3. "I SAY AGAIN, SHIFT YOUR RUDDER, EXECUTE, FIRE, WATER, OVER"
 4. "I SAY AGAIN, SHIFT YOUR RUDDER, STAND BY, EXECUTE, FIRE, WATER, OVER"
- 10-15. Generally speaking, what are the two types of authentication?
1. Challenge and reply, and transmission
 2. Password response and transmission
 3. Challenge and reply, and code key
 4. Password response and code key
-
- Learning Objective: State the conditions under which enemy contacts are made more than once, describe the correct procedures for transmitting code words, state the proword to precede the transmission of flag signals, and give the term for the standard words and phrases used to standardize and speed transmissions.
-
- 10-16. Reports of enemy contacts are normally to be made only once when you are in direct communication with the Officer in Tactical Command (OTC), a higher authority, or a shore radio station. Under what two conditions are enemy contact reports made more than once?
1. When "DO NOT ANSWER" procedures are used; when the text consists of emergency alarm signals
 2. When the text consists of emergency alarm signals; when adverse weather conditions prevail
 3. When "DO NOT ANSWER" procedures are used; when adverse weather conditions prevail
 4. When it seems likely the enemy is preparing to attack; when "DO NOT ANSWER" procedures are used
- 10-17. What is the proword(s) used on administrative nets to precede the transmission of flag signals?
1. "FLAG SIGNALS"
 2. "FLAG"
 3. "SIGNALS"
 4. "FLAGSIGS"

- 10-18. What is the proper term for the words and phrases used in radiotelephone to standardize the vocabulary, increase accuracy, and shorten the time of transmission when messages are sent that relate to such specialized subjects as tactical maneuvering, electronic countermeasures, air control, etc.?
1. Standard tactical code
 2. Standard short forms
 3. Operational short forms
 4. Operational brevity codes

Learning Objective: Select the publications recommended for increasing proficiency as an R/T communications operator.

- 10-19. One of the best times to know and the worst times to look up proper communications procedures is when the operational situation is critical and requires quick action. The last part of chapter 12 of your textbook recommends the careful study of two publications and part of a third to enhance the skill of radiotelephone operators. Which publications are they?
1. ACP 125, ACP 165, and part of ATP 1
 2. NWP 4, NWP 33, and part of KAG 1
 3. CMS 4, KAG 1, and part of ACP 125
 4. ACP 122, ACP 125, and part of ACP 165

Learning Objective: Identify a publication that contains detailed information pertaining to manual teletype procedure, and explain the purpose and usage of various teletype machine functions.

- 10-20. Which of the following publications contains detailed information concerning basic teletype machine functions, operating instructions, and procedures associated with manual teletype procedure?
1. ACP 100
 2. ACP 113
 3. ACP 124
 4. ACP 126

- 10-21. If "(FIG) 45573 (SP) 28763" is transmitted on a Navy teletype, how would it be received on (a) a commercial teletypewriter exchange teletype (TWX) and (b) a Navy teletype?
1. (a) 45573 28763, (b) 45573 WIUYE
 2. (a) 45573 WIUYE, (b) 45573 28763
 3. (a) 45573 28763, (b) 45573 28763
 4. (a) 45573 WIUYE, (b) 45573 WIUYE

- 10-22. How would "(FIGS) 17642 (SP) WRITE," transmitted on a TWX teletype, be received on (a) a TWX teletype and (b) a Navy teletype?
1. (a) 17642 WRITE, (b) 17642 24853
 2. (a) 17642 24853, (b) 17642 WRITE
 3. (a) 17642 24853, (b) 17642 24853
 4. (a) 17642 WRITE, (b) 17642 WRITE

- 10-23. How should you transmit "14860 27539" on (a) a Navy teletype and (b) a TWX teletype?
1. (a) (FIGS) 14860 (SP) (FIGS) 27539, (b) (FIGS) 14860 (SP) (FIGS) 27539
 2. (a) (FIGS) 14860 (SP) 27539, (b) (FIGS) 14860 (SP) 27539
 3. (a) (FIGS) 14860 (SP) (FIGS) 27539, (b) (FIGS) 14860 (SP) 27539
 4. (a) (FIGS) 14860 (SP) 27539, (b) (FIGS) 14860 (SP) (FIGS) 27539

- 10-24. Why should the carriage return (CR) be pressed twice rather than just once?
1. To provide a second chance for the mechanism to engage, should it fail to do so the first time
 2. To allow sufficient time for the carriage to return all the way to the left margin before typing resumes
 3. Because the machine design by the manufacturer is such that some functions are initiated by a single stroke, and others, including CR, by a double stroke
 4. Because it takes one stroke for the carriage to go back and one stroke for the paper to turn up to the next line

In questions 10-25 through 10-28, select from column B the teletype functions associated with the actions listed in column A.

- | <u>A. Actions</u> | <u>B. Teletype Functions</u> |
|---|---|
| 10-25. The advancement of blank tape through the punch block of the teletype perforator | 1. Line feed (LF)
2. Space (SP)
3. Blank (BL)
4. Shift/unshift |
| 10-26. The changing of upper or lower case to the opposite | |
| 10-27. The advancement of the paper up the page | |
| 10-28. The advancement of the carriage (type box) to the right without printing | |
-
- 10-29. To attract the attention of the receiving operator, the sending operator should activate the bell signal by sending which of the following transmissions?
1. (FIGS) JSJSJSJSJS (LTRS)
 2. (FIGS) JJJJJSSSSS (LTRS)
 3. (FIGS) JJJJJ (SP) (FIGS) SSSSS (LTRS)
 4. (FIGS)J(SP)J(SP)J(SP)J(SP)J(SP)S(SP)S(SP)S(SP)S(LTRS)
- 10-30. What type of equipment utilizes (a) a warning light and (b) a margin bell to indicate the approach of the end of the typing line?
1. Both (a) and (b), page printers with direct line operation capabilities
 2. Both (a) and (b), tape perforating equipment
 3. (a) Tape perforating equipment, (b) page printers with direct line operation capabilities
 4. (a) Page printers with direct line operation capabilities, (b) tape perforating equipment
- 10-31. What are the alignment functions that must precede all message transmissions?
1. 3SP, 2CR, 2LF
 2. 5SP, 2CR, 2LF
 3. 5SP, 2CR, 1LF
 4. 8SP, 2CR, 1LF

- 10-32. What is the correct procedure for returning the carriage and placing it in the proper position for the next line of text?
1. 3CR only
 2. 2CR, 2LF
 3. 3CR, 1LF
 4. 2CR, 1LF
- 10-33. What is the function group used between pages of a long message?
1. 2CR, 2LF, 12LTRS
 2. 3CR, 2LF
 3. 2CR, 4LF only
 4. 2CR, 4LF, NNNN
- 10-34. What is the standard group of functions that comprise the end of message (EOM) functions?
1. 2CR, 8LF, NNNN, 12LTRS
 2. 2CR, 8LF, NNNN, 6LTRS
 3. 2CR, 12LF, NNNN only
 4. 2CR, 12LF, NNNN, 12LTRS
- 10-35. What is the standard maximum number of characters, including spaces, for each line?
1. 63
 2. 65
 3. 67
 4. 69

Learning Objective: Specify the authorized abbreviations and symbols for message punctuation.

- 10-36. Which of the following alternatives contains either an abbreviation or a symbol that is NOT authorized for teletype transmission?

<u>Abbreviations</u>	<u>Symbols</u>
1. QUES	?
2. HPHN	-
3. CLN	:
4. PAREN	()

- 10-37. Which of the following alternatives contains either an abbreviation or a symbol that is NOT authorized for teletype transmission?

<u>Abbreviations</u>	<u>Symbols</u>
1. PD	.
2. CMM	,
3. SLANT	/
4. QUOTE-UNQUOTE	"

- 10-38. Which of the following statements concerning the use of "X" as punctuation in messages is correct?
1. It is mandatory that "X" be used as punctuation at a specified point in each message, but this is the only point at which it may be used
 2. The letter "X" may be used when exact punctuation is not required, and no ambiguity will result from its use
 3. At one specified point the phonetic form "X-RAY" must be used, and throughout the message "X-RAY" is a more acceptable form of punctuation than "X"
 4. The use of "X," either as a single-letter or phonetic form, as punctuation is forbidden

Learning Objective: Explain the format of basic teletypewriter messages.

- 10-39. What publication gives detailed usages of format line 1 with reference to tape relay procedures?
1. ACP 127
 2. JANAP 128
 3. NTP 3
 4. NWP 4
- 10-40. Which of the following is NOT an approved use of format line 1?
1. For "pilots" (message handling instructions) and for "pilot cards" containing special handling instructions in data communications
 2. For transmission identification (TI), normally channel numbers, and for start of message (SOM) indicators
 3. For indicators of the inclusion of foreign language words
 4. For use in specified AUTODIN methods of operation

Learning Objective: Describe or identify procedures for manual teletype (TTY) calling, answering, and testing.

In items 10-41 through 10-43, select from column B the name of the type of call shown in column A. (NNBD and NFGO are single stations; HZDQ is a collective call including several stations.)

	<u>A. Calls</u>	<u>B. Types of Calls</u>
10-41.	NNBD DE NFSK K	1. Single call
10-42.	HZDQ DE NFSK K	2. Multiple call
10-43.	NNBD NFGO DE NFSK K	

-
- 10-44. NBCR wants to send a TTY message to action addressees NMJQ and NKYP, and to information addressees NBBW and NKQY. Which of the following should appear in the message? (Machine functions are NOT shown.)
1. ACT NMJQ NKYP DE NBCR
INFO NBBW NKQY DE NBCR K
 2. NMJQ NKYP FM NBCR
ZFH2 NBBW NKQY FM NBCR K
 3. NMJQ NKYP DE NBCR
NBBW NKQY
 4. NMJQ NKYP NBBW NKQY DE NBCR
ZFH2 NBBW NKQY
- 10-45. Which, if any, of the following statements is correct relative to the following example, received as part of a TTY message?
- (5SP)(2CR)(LF)
NMJQ NRSV NBBW DE NBCR (2CR)(LF)
ZFH2 (2CR)(LF)
1. NMJQ, NRSV, and NBBW are all information addressees
 2. NMJQ, NRSV, and NBBW are action addressees; ZFH2 is a transmission instruction connected with format line 4
 3. NMJQ, NRSV, and NBBW are action addressees; ZFH2 is an information addressee
 4. The last two addressees, NRSV and NBBW, are information addressees, as indicated by the "2" in "ZFH2"

- 10-46. HZDQ has just initiated a call to NBBW. How should NBBW answer?
1. (5SP)(2CR)(LF)
NBBW K (2CR)(LF)
 2. (5SP)(2CR)(LF)
HZDQ DE NBBW K (2CR)(LF)
 3. (5SP)(2CR)(LF)
HZDQ DE NBBW GO AHEAD K
 4. (5SP)(2CR)(LF)
HZDQ DE NBBW STANDING BY K
- 10-47. HZDQ has called NBBW, and NBBW has answered. What machine function should HZDQ execute prior to sending the message?
1. (5SP)(2CR)(LF)
 2. (2CR)(8LF) only
 3. (5SP)(2CR)(8LF)
 4. (5SP)(2CR)(2LF)
- 10-48. If a station fails to answer in proper sequence when a multiple call is made, how long should the next station wait before responding?
1. 5 sec
 2. 10 sec
 3. 15 sec
 4. 20 sec
- 10-49. In a net of six stations, if the station that should have answered first is NOT able to answer, but clears its problem just as the third station answers, which of the following procedures should the first station follow?
1. It should answer between the third and fourth stations
 2. It should answer between the last two stations
 3. It should wait five seconds after the last station answers, transmit the bell signal, and then answer
 4. It should answer within five seconds after the last station responds
- 10-50. A certain circuit has just opened after experiencing difficulty. NBBW correctly conducts a standard test. He first transmits (5SP)(2CR)(LF). Which of the following may be the next part of his transmission?
1. THIS IS A TEST
 2. HZDQ DE NBBW
 3. NBBW TESTING
 4. TEST HZDQ DE NBBW

Learning Objective: Describe various procedures relative to ending prosigns and message precedence.

- 10-51. When a message transmission ends with "AR," may a station, in accordance with regulations, (a) receipt for the message, and (b) request a verification?
1. Both (a) and (b), no
 2. (a) No, (b) yes
 3. (a) Yes, (b) no
 4. Both (a) and (b), yes
- 10-52. In duplex operation, when, if ever, should messages being transmitted be interrupted to respond to received messages?
1. Any time the received message is of higher precedence than the message being transmitted
 2. Only when the received message is of FLASH precedence and the message being transmitted is of lower precedence
 3. Only when the received message is of IMMEDIATE precedence or higher and the message being transmitted is of lower precedence
 4. Never
- 10-53. If a string of messages is being transmitted, when should responses ordinarily occur?
1. After the last message only
 2. After every fifth message and the last message
 3. After every third message and the last message
 4. After each message
- 10-54. If multiple-page messages are being transmitted, when should responses be made?
1. After the last page only
 2. After every third page and the last page
 3. After every second page and the last page
 4. After each page

- 10-55. Whose responsibility is it to assign the precedence to a TTY message?
1. The originator of the message
 2. The communications officer
 3. The senior enlisted man in communications
 4. The Classified Material Control Officer
- 10-56. A message is being sent to NBAT for action and NFWS for information. Its precedence is IMMEDIATE to NBAT and PRIORITY to NFWS. Which of the following precedence entries is correct?
1. O ACT P INFO
 2. O P INFO
 3. OP
 4. O P
- 10-57. Which, if any, of the following explanations gives the correct meaning of the following initial call?
(5SP)(2CR)(LF)
NBAT DE NFWS ZB03 O P R K (2CR)(LF)
1. NFWS, identified by ZB03 as the third station to respond on the net, has messages of O, P, and R precedence for NBAT
 2. NFWS is sending the same message to three action addressees. It is O precedence to those required to reply, P to other action addressees, and R to info addressees
 3. NFWS has three messages for NBAT, these having precedences O, P, and R
 4. NFWS has an unspecified number of messages of precedences O, P, and R for NBAT
- 10-58. On simplex circuits, what is the standard transmission used to interrupt message traffic for a FLASH message?
1. (FIGS) A (FIGS) A (FIGS) A
 2. (LTRS) Z (FIGS) JS (LTRS) Z (FIGS) JS
 3. (FIGS) JJJJJSSSSS
 4. (FIGS) JSJSJSJSJS

Learning Objective: Describe correct procedures for correcting teletype errors when a unit is in direct communication with another unit, and also when it is preparing tape for transmission.

- 10-59. During manual transmission of a message text, an operator, attempting to send "PERFORM ALL DUTIES," sent "PERFORM ALL DTUIES." Being aware of his error, what should he send next?
1. (FIGS) A (FIGS) A (FIGS) A (LTRS) ALL DUTIES
 2. (FIGS) JJJJJSSSSS (LTRS) ALL DUTIES
 3. (FIGS) JJJJJSSSSS (LTRS) EEEEEEEE ALL DUTIES
 4. EEEEEEEE ALL DUTIES
- Judge whether questions 10-60 through 10-63, relating to correcting teletype errors, are True or False.
- 10-60. When tape is being prepared for transmission, an error in the text may be corrected by backspacing the tape, striking the LTRS key to block out the error, and then retyping.
- 10-61. When tape is being prepared for transmission, an error in the heading may be corrected by backspacing the tape, striking the LTRS key to block out the error, and then retyping.
- 10-62. When the unit is in direct communication with another unit, an error in the heading may be corrected by using the error prosign, repeating the last prosign or operating signal correctly sent, and continuing.
- 10-63. If an operator sent "READY CORRECTION" vice "READY CONNECTION" in the text but did not notice it until later, he may properly correct it at the end of the message in this way:
(.....Text of message)(2CR)(LF)
BT (2CR)(LF)
C WA READY - CONNECTION (2CR)(LF)
(...Operating signals and prosigns as required).

- 10-64. While preparing a tape for transmission, an operator made a mistake on the second page of a four-page message. He was on the fifth line down from the error (and two lines from the end of the page) when he realized his mistake. Where should he correct it?
1. Immediately after the line he is transmitting now
 2. Starting at the location of the error. Go back and LTR out all characters from the place the error was made
 3. At the bottom of the page on which the error occurred
 4. At the end of the message

In questions 10-65 through 10-67, assume that correct operation signals are included. They have been omitted for the sake of simplicity.

- 10-65. NABC received a message from NZYX, the text of which began as follows:
 "ONE P3C AIRCRAFT AND TWO S2 AIRCRAFT
 EWXWNTLY ARRIVED ..."
- The word received as "EWXWNTLY" should be "RECENTLY." If NABC transmits "NZYX DE NABC IMI WA AIRCRAFT," what answer should he receive?
1. NABC DE NZYX WA AIRCRAFT RECENTLY K
 2. NABC DE NZYX WA AIRCRAFT RECENTLY VICE EWXWNTLY K
 3. NABC DE NYZX EEEEEEEE AIRCRAFT RECENTLY K
 4. NABC DE NZYX WA AIRCRAFT AND K

Learning Objective: Describe procedures for questioning words or groups in messages, repeating or asking for repetitions, and handling messages when unable to get immediate corrections.

- 10-66. What is the correct procedure for NABC to use to request NZYX to repeat the sixth group of an encrypted message?
1. NZYX DE NABC IMI 6 K
 2. NZYX DE NABC IMI SIX K
 3. NZYX DE NABC IMI SIXTH K
 4. NZYX DE NABC IMI GRP 6 K

- 10-67. If NBQD receives the transmission, NBQD DE NPVD IMI BT TO BT K, what part of the message should he retransmit?
1. The text only
 2. All except the text
 3. The heading and the text
 4. The heading only

- 10-68. If an operator receives a medium-length message of 0 precedence for forwarding, but it has one garbled word for which he is unable to obtain a correction or repetition immediately, what should he do?
1. He should hold the message until he gets a correction
 2. He should forward the message, subject to correction (SUBCOR) immediately, and then send the correction when he can obtain it
 3. He should forward the message immediately, and include the proword "CORFOL" (correction follows) to notify the recipient that he will forward the correction when he can obtain it
 4. He should forward the message, and advise the recipient by the proword "NOCOR" that he was NOT able to receive a correction

Learning Objective: Explain the meanings of "J," eight "E"s followed by "AR," and "INT GR9"; count the groups in a text; and identify the correct formats for transmitting group count checks for plaintext and encrypted messages.

- 10-69. What does the prosign "J" mean?
1. Retransmit last message. Experiencing equipment trouble
 2. Wait five minutes before transmitting. Equipment down
 3. I have received your message and am ready to continue
 4. Verify with the originator and repeat

- 10-70. An operator is receiving the text of a message when suddenly he receives eight Es separated by spaces and followed by "AR." What does this mean?
1. The sender has equipment trouble. He will send the message again later
 2. There is an apparent discrepancy between the classification of the message and its contents
 3. The message is canceled
 4. The sending unit must clear all machines of traffic until the accounting data for the past twenty-four hours is collected

- 10-71. What is the group count of the following text?
- INITIATE SECOND PHASE OF PROJECT
 CRTZOF X RULNAX REPORT DUE
 THIRTEENTH X EXPECT INTERVIEW
 AT SALTLAKECITY OR SANDIEGO
1. 16
 2. 18
 3. 19
 4. 21

- 10-72. What is the meaning of the following transmission?
- (5SP)(2CR)(LF)
 NOKB DE NFSK INT GR9 K
 (2CR)(LF)
1. Is the group count, indicated as "9," correct?
 2. Repeat the 9th group
 3. Verify group 9
 4. Sender was interrupted, but will resume sending with group 9

In questions 10-73 through 10-75, select from column B the transmission format in which the group count checks of the types of message specified in column A should be transmitted. Assume operating signals are correctly included in column B.

	A. Types of message	B. Formats
10-73.	Plaintext message, over 50 words	1. NABC DE NZYX GR (number in group) BT D P R C(...etc.) BT K
10-74.	Encrypted message, over 50 words	2. NABC DE NZYX GR (number in group) BT DRAW POWER RECORDS (...etc.) BT K
10-75.	Plaintext or encrypted message, 50 words or less	3. NABC DE NZYX GR (number in group) BT 1-D 11-R 21-S 31-M(... etc.) BT K 4. NABC DE NZYX GR (number in group) BT 1-D 6-C 11-R 16-F (... etc.) BT K

Assignment 11

Manual Teletypewriter Procedures (Continued); Automated Systems

Textbook Assignment; Pages 286 - 305

Learning Objective: Describe correct format procedures for placement of words on a line, lines on a page, and division of messages into multiple pages and multiple increments.

- 11-1. In teletype messages, may a word be hyphenated at the end of a line?
1. Yes
 2. Yes, if, and only if, it is at least nine letters long
 3. Yes, if, and only if, it is at least twelve letters long
 4. No
- 11-2. What is the maximum number of lines, counting from format line 5 of the heading, the first page of a message may contain without being divided into pages for transmission?
1. 15
 2. 18
 3. 20
 4. 25
- 11-3. What is the maximum number of pages of message text allowed in one transmission, disregarding any page containing both heading and text?
1. 7
 2. 6
 3. 5
 4. 4
- 11-4. How many lines must be contained on the second and each succeeding page of a multiple-page message, excluding the last page?
1. 15
 2. 18
 3. 20
 4. 25
- 11-5. Long messages are sometimes divided into increments for transmissions. What is the name of these segments?
1. Dispatch segments
 2. Transmittal increments
 3. Transmission sections
 4. Communication installments
- 11-6. A certain unencrypted message has been divided into three parts for transmission. How should the parts be identified?
1. SECTION 1, SECTION 2, SECTION 3
 2. SECTION 1 OF 3, SECTION 2 OF 3, SECTION 3 OF 3
 3. SECTION 1 OF 3, SECTION 2 OF 3, FINAL SECTION OF 3
 4. 1ST SECTION OF 3, 2ND SECTION OF 3, FINAL SECTION OF 3
- 11-7. Does each increment of a message that has been divided for transmission have the same or different (a) station serial number(s), and (b) date-time group(s)?
1. (a) Same, (b) different
 2. Both (a) and (b), same
 3. Both (a) and (b), different
 4. (a) Different, (b) same
-

Learning Objective: Explain the meanings of various prosigns, group count reports, and operating signals.

In questions 11-8 through 11-11, select from column B the prosign associated with the meaning given in column A.

<u>A. Meanings</u>	<u>B. Prosigns</u>
11-8. Repeat back	1. AS
11-9. More to follow	2. B
11-10. Action on the message or signal which follows is to be carried out upon receipt of "EXECUTE"	3. G 4. IX
11-11. Wait	
<hr/>	
11-12. On a transmission which NABC received from NZYX, the last line in the heading reads GR190 (2CR)(LF). The last two lines of the transmission read B100 (2CR)(LF) K (2CR)(4LF). How many groups of this message are still to be transmitted? 1. 10 2. 90 3. 100 4. 190	
11-13. What does "ZUG HM HM HM" mean? 1. The sending unit is requesting an immediate check to find out if its transmissions are garbled 2. All units stand by for emergency message 3. Maintain emergency silence 4. Emergency silence is lifted	
11-14. The first part of a transmission reads as follows: (5SP)(2CR)(LF) NABC DE NZYX (2CR)(LF) T NFJL (2CR)(LF) P 221410Z AUG 78 (2CR)(LF) What is the meaning of the "T"? 1. NZYX will transmit the same message to NFJL 2. NABC is to transmit the message to NFJL 3. Time is critical in passing the message to NFJL 4. The message is applicable to NFJL for a temporary time	

Learning Objective: Give the location of manual switching procedures, explain various manual switching procedures, and identify standard phraseology used in switchboard operation.

- 11-15. What does the operating signal "ZWL" mean?
1. "Double relay." Messages designated for addressees specified after "ZWL" must pass through two relay stations
2. The addressee specified after ZWL is required to reply within six hours
3. No forwarding action is required to the addressee specified after ZWL
4. The replies from all other addressees are to be sent to the addressee specified after "ZWL," who will consolidate them and send one reply
- 11-16. The National Annex to what publication contains the manual switching procedures used by each nation?
1. ACP 100
2. ACP 113
3. ACP 126
4. JANAP 128
- 11-17. If your teletype unit works through a switchboard, how should you call the switchboard operator?
1. Activate the bell signal, and sound five bells
2. Send "RYRYRYRYRY"
3. Transmit "SWITCH DE (your call)"
4. Depress the "BREAK" switch for two seconds
- 11-18. If NABC has an O precedence message for NZYX, what transmission should NABC send to the switchboard operator on the preliminary call?
1. "NABC ONE O FOR NZYX K"
2. "NXYX DE NABC O K"
3. "SWITCH DE NABC O FOR NZYX K"
4. "SWITCH NZYX DE NABC ONE O K"
- 11-19. After sending the message, what transmission should NABC make to terminate the switchboard connection?
1. "SWITCH DE NABC AR"
2. "DE NABC AR"
3. "SWITCH TERMINATE NABC AR"
4. "TERMINATE NABC AR"

In questions 11-20 through 11-22, select from column B the standard term the switchboard uses in the situation given in column A.

	<u>A. Situations</u>	<u>B. Terms</u>
11-20.	NABC has called the switchboard operator and sent the preliminary call. The switchboard operator responds, "Your call has been _____"	1. Confirmed 2. Booked 3. Tabled out 4. Engaged
11-21.	After the switchboard operator makes contact with the called station, he tells NABC, "The station called is _____"	
11-22.	If switching arrangements can NOT be made through existing trunk connections or are NOT considered practicable for further switching, the messages are _____"	

Learning Objective: Describe briefly and generally, the name, organization, and advantages/disadvantages of AUTODIN, and the function of Automatic Switching Centers (ASCs).

11-23.	For what does the acronym "AUTODIN" stand? 1. Automatic Directed Network 2. Automated Distribution Network 3. Automatic Digital Network 4. Automated Digital Network
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● Questions 11-24 through 11-27, related to AUTODIN, are to be judged True or False.

11-24.	AUTODIN is managed by the Federal Communications Commission.
11-25.	AUTODIN has the advantages of reliability and speed, but its lack of flexibility in interfacing with various computer languages, equipment, media, and speeds is a serious disadvantage.

11-26. The function of the Automatic Switching Centers (ASCs) is to accept messages from subscribers, determine their classifications and precedences, and relay them to the subscribers to whom they are addressed.

11-27. The ASCs are the focal points of the entire AUTODIN system.

Learning Objective: Identify the basic types of languages used by AUTODIN, and distinguish among the operational modes available.

To answer questions 11-28 through 11-30, select from column B the name of the language that matches the description shown in column A.

	<u>A. Descriptions</u>	<u>B. Languages</u>
11-28.	Eight-level paper tape	1. ASC II Code 2. Hollerith Code
11-29.	Five-level paper tape	3. ITA #2 Code
11-30.	Standard punch card language	

11-31. What name is given to the following method of channel operation: A duplex operation with automatic error and channel controls allowing independent and simultaneous two-way operation?
1. Mode I
2. Mode II
3. Mode III
4. Mode IV

Learning Objective: Explain the timing system in AUTODIN equipment, and define terms used in the AUTODIN system.

- 11-32. In which of the following ways does the timing system work, insofar as message delivery is concerned?
1. As a switching center receives messages addressed to each of various terminals, the timing system connects the ASC to the terminals in the same sequence in which messages were received so that they may be delivered
 2. It briefly connects a switching center to each terminal in turn, and at each connection any messages which are awaiting delivery to that terminal are transmitted
 3. It briefly connects a switching unit to each terminal in turn, except that terminals for whom there is no traffic will be "passed over" (no connection made) any time there is a complete message awaiting transmission
 4. As each terminal calls in, in a prescribed sequence, to request its messages, the timing device effects the release and automatic transmission of messages for that terminal
- 11-33. What is a journal, and for what is it used?
1. It is a brief daily message report to the headquarters in charge of AUTODIN to report the number of messages sent and received at a particular ASC during the last twenty-four hours
 2. It is a brief, concise list of operating instructions used for the indoctrination of new AUTODIN subscribers
 3. It is a copy of an incoming message, in its entirety, and is used for reference as necessary
 4. It is a copy of the address only of an incoming message, and is used as an index to locate the reference copy
- 11-35. What is the function of the common control unit (CCU)?
1. To accept data characters as input, accumulate them into data blocks in memory, and distribute data blocks as output
 2. To accept data characters as input; print output on single, 2, 3, 4, and 5 multiple paper or multilith or ditto masters; and retain data in memory for farther utilization
 3. To accept data characters from cards or paper tape in any of three codes, and do necessary conversion, output characters in ASC II
 4. To serve only as a central unit to start, stop, and coordinate all peripheral equipment
- 11-36. What is the function of the card reader?
1. To read cards punched in ASC II characters, change them to Hollerith code, and transfer data to CCU
 2. To read cards punched in Hollerith code, change them to ASC II code, and transfer data to CCU
 3. To read cards punched in Hollerith code, print on each card the information punched in it, and stack cards for further use
 4. To read cards punched in any code, convert them to Hollerith code, and transfer the data to the page printer
- 11-37. What is the function of the paper tape reader?
1. To convert the perforations to electrical data in the ITA #2 code and transfer the data to the CCU
 2. To transmit the data contained in the paper tape to a switching unit for relay
 3. To convert the paper perforations to Hollerith code and transfer the data to the high-speed card punch
 4. To convert the paper perforations to electrical data in the ASC II code, and transfer the data to the CCU

Learning Objective: Explain the configuration, functions, and operation of Digital Subscriber Terminal Equipment (DSTE).

- 11-34. DSTE may be configured as which of the following?
1. Only as a card terminal
 2. Only as a tape terminal
 3. As either a card or a tape terminal, but not as a combination
 4. As a card or a tape or a combined card and tape terminal

- 11-38. What is the function of the high- and low-speed card punches?
1. To accept data from the universal keyboard only, and punch cards in Hollerith code
 2. To accept data in ASC II code from the CCU (and low-speed also from the universal keyboard), convert to Hollerith code, and punch cards
 3. To accept data in ASC II code from the CCU and universal keyboard (and low-speed also in ITA #2 from the tape reader), convert data to Hollerith code, and punch cards
 4. To effect the input of data from operator keyboards and conversion of such data to ASC II code
- 11-39. What is the function of the high-speed and low-speed paper punches?
1. To serve as on-line output devices, and for off-line key punch operations in conjunction with the universal keyboard
 2. To serve as on-line input devices, receiving incoming messages and relaying them into the CCU as the work-load permits
 3. To serve as off-line auxiliary punches in conjunction with the universal keyboard only
 4. To serve as primary "mainstream" on-line devices, both input and output, relaying information into and out of the CCU
- 11-40. The paper tape printer interpreter prints directly on the paper tape. What is the relationship, so far as dependency is concerned, of the operation of the interpreter and the paper punch?
1. The interpreter may be turned off or it may interpret each character at a set interval after punching (to allow for tape transfer between machines) only
 2. The interpreter may be turned off, it may interpret each character at a set interval after punching, and it may continue to interpret if the punch is idle and is placed in the "INT ON" position
 3. The interpreter may be turned off or it may operate completely independently of the punch so long as the punch is off-line or idle only
 4. The operation of the interpreter is completely independent of that of the punch

Learning Objective: Identify the types and formats of messages AUTODIN will accept.

- 11-41. What types of messages will the AUTODIN network accept?
1. Single call only
 2. Single call and multiple call only
 3. Single call and general only
 4. Single call, multiple call, and general
- 11-42. What formats of messages will the AUTODIN network accept?
1. Plaindress only
 2. Plaindress and abbreviated plaindress only
 3. Plaindress, abbreviated plaindress, and data pattern only
 4. Plaindress, abbreviated plaindress, codress, and data pattern
-
- Learning Objective: Identify character positions in the routing indicator.
-
- 11-43. How many letters must a routing indicator have?
1. From four to seven
 2. From five to seven only
 3. Six or seven only
 4. Seven only
- 11-44. What does an "R" in the first position mean?
1. A routine message follows
 2. The routing indicator is part of the worldwide tape relay system
 3. The message to follow is in the "restricted" category
 4. It designates the nation or international alliance of destination
- 11-45. What does a "U" in the second position mean?
1. An unclassified message follows
 2. The groups in the message are uncounted
 3. It designated the nation or international alliance of destination
 4. It designates the particular geographical area of destination

- 11-46. What does a "C" in the third position mean?
1. A Confidential message follows
 2. It designates the nation or international alliance of destination
 3. It designates the particular geographical area of the station or substation of destination
 4. The routing indicator is part of the common or worldwide tape relay system
- 11-47. What do letters appearing in positions four through seven designate?
1. Classification and precedence of message, and whether or not answer is required
 2. Relay and tributary stations within the network to which the message will be passed
 3. Relay and stations through which the message has passed, as each adds his designator as he relays the message
 4. Whether transmission is by worldwide or local net, country of destination, particular geographical area of destination, and whether message will go direct to terminal of destination or will be relayed
- 11-48. In order to ensure that the first character of the message is accepted and transmitted, what is the minimum content of the leader of (a) five-level baudot code and (b) eight-level baudot code?
1. (a) Five blanks and five letter functions, (b) eight nulls and eight delete functions
 2. (a) Six blanks and four letter functions, (b) six nulls and four delete functions
 3. (a) Six blanks and six letter functions, (b) six nulls and six delete functions
 4. (a) Six blanks and six letter functions, (b) six nulls and eight delete functions
- 11-49. Which of the following correctly gives the significance of "Y" in position 1 (precedence)?
1. This indicates that six or more messages have been sequenced for transmission in descending order of precedence
 2. This is an indicator of personal traffic, which is processed on a "time available" basis only
 3. This is an indicator of a service message which relates to previous traffic and must be handled without delay
 4. This indicates that the message has FLASH preemption capability and is designated Emergency Command precedence
- 11-50. To what do positions 2 and 3, respectively, relate?
1. The output device preferred by the addressee; the language used in the message
 2. The language used in the message; the output device preferred by the addressee
 3. The language used in the message; the classification
 4. The classification; the output device preferred by the addressee
- 11-51. Which of the following conditions does a "T" in position 4 indicate?
1. The classification of the message is Top Secret
 2. The output device preferred by the addressee is the teletype
 3. This message is being processed on a worldwide net system (tape)
 4. The media format being used is the five-level baudot code
- 11-52. Positions 5 through 8 contain four letters or three letters and a number to indicate message content and provide identification for communications handling. What publication contains a complete listing of these codes?
1. JANAP 119
 2. JANAP 128
 3. ACP 122
 4. NWP 4
- 11-53. What does position 9 contain?
1. A space if the message is addressed to a single addressee; an "M" if it is for multiple addressees
 2. A space
 3. A "T" if the message is in five-level baudot code; an "A" if it is in eight-level baudot code
 4. An "R" if the station's involvement is for relay action; a "D" if the message is to go direct
- 11-54. After the routing indicator in positions 10 through 16, the station serial number appears in positions 17 through 20. What are two specific purposes served by this number?
1. To provide a means for checking for straggler messages and to identify the subject of the message
 2. To identify the subject of the message, and, by means of a code, to serve as a crosscheck of the security classification
 3. To assist in providing positive identification, and, by means of a code, to serve as a crosscheck of the security classification
 4. To assist in providing positive identification and to provide a means for checking for straggler messages

- 11-55. If the message was received by the originator for transmission by the communications center on 5 January 1978, what should go in positions 21 through 24?
1. 8005
 2. 8105
 3. (SPACE)005
 4. (SPACE)1(SPACE)5
- 11-56. What goes in positions 25 through 28?
1. The time of transmission (GMT)
 2. The time of receipt from the originator by the communications center (GMT)
 3. The time of transmission (local time)
 4. The time of receipt from the originator by the communications center (local time)
- 11-57. If the classification of the message is Confidential and the actual time of transmission is 1015Z, what would go in positions 29 through 33?
1. C1015
 2. 1015C
 3. -CCCC
 4. -CCC-
- 11-58. What goes in positions 34 and 35?
1. Two hyphens
 2. Two blanks
 3. Two spaces
 4. Two periods
- 11-59. What is the maximum number of routing indicators that can be listed in one transmission in positions 36 through 42?
1. 200
 2. 300
 3. 400
 4. 500
- 11-60. What character goes in the position immediately following the last address-see's routing indicator, and by what term is it correctly called?
1. Hyphen; end of heading signal
 2. Period; end of heading signal
 3. Period; end of routing signal
 4. Hyphen; end of routing signal
- 11-61. What is the correct end of message (EOM) procedure for (a) five-level baudot code, and (b) eight-level baudot code?
1. (a) 2CR, 8LF, 4Ns, 12LTRS; (b) 2CR, 8LF, 4Ns, 12LTRS
 2. (a) 2CR, 8LF, 4Ns, 12LTRS; (b) 12DEL
 3. (a) 12DEL; (b) 2CR, 8LF, 4Ns, 12LTRS
 4. (a) 12DEL; (b) 12DEL
- 11-62. As RM3 Schmeer is preparing the message header, he accidentally strikes the LETTERS function twice in succession. Which, if any, of the following occurrences will happen as a result of the extra LETTER function?
1. The teletype will switch back to figures at the second LETTER function
 2. The teletype will jam
 3. The message will be rejected by the ASC
 4. None of the above
- 11-63. If, in transmitting a message, RM3 Johnson makes an error in the EOM validation in format line 15, realizes it immediately, completely blocks out the error, inserts the correct information, and completes the message with no further errors, which of the following actions will occur?
1. The message will process successfully through the ASC
 2. The message will be rejected by the ASC
 3. The part of the tape containing the blocked out error will jam the receiving machine at the ASC
 4. The ASC will relay the first part of the message, but the blocked out portion of the tape will cause it to skip to the next message

Learning Objective: State some general rules regarding TTY operation and format.

- 11-64. When a TTY tape is cut for transmission, using ASC II code, what functions, as a minimum, should precede the message header?
1. Six nulls and six deletes
 2. Six blanks and six letters
 3. Six letters and six figures
 4. Six nulls and six blanks
- 11-65. If a message which contains the colon symbol (:) must be refiled commercially, which of the following actions should the operator take prior to transmission?
1. He should convert the ":" to "COLON"
 2. He should convert the ":" to "CLN"
 3. He should replace the ":" with ",,"
 4. He should replace the ":" with a blank

- 11-66. RM3 Rolfe receives for transmission a message with a dual precedence: FLASH for the action addressee, and PRIORITY for the information addressee. In which of the following ways should he transmit this message?
1. He should make two separate transmissions: one to the action addressee, indicating "FLASH" in line 2; and one to the info addressee, indicating "PRIORITY" only in line 5
 2. He should make two separate transmissions: one to the action addressee, indicating "FLASH" in line 2; and one to the info addressee, indicating both precedences in line 5
 3. He should make only one transmission, and indicate "FLASH" in line 2 and both precedences in line 5
 4. He should make only one transmission, and indicate "FLASH" in line 2 and "PRIORITY" only in line 5

- 11-67. In a long off-line encrypted message being transmitted in sections, what should the group count in format line 10 of a section include?
1. The number of groups in the complete message, the cryptopart identification, the page identification, and the transmission section identification
 2. The number of groups in the complete message, the cryptopart identification, and the page identification only
 3. The number of groups in the text section being transmitted and the cryptopart identification
 4. The number of groups in the text section being transmitted only

Learning Objective: Explain and interpret the group of characters and operations that prefix the message header in modes II, IV, and V.

VZCZCJTA(FIGS)123(LTRS)(2CR)(1LF)

Figure 11A

- Refer to figure 11A, a transmission preceding a message header, in answering questions 11-68 and 11-69.

- 11-68. What is the correct term for this group of characters and operations?
1. Transmission identification (TI)
 2. Header prefix (HP)
 3. Notification of transmission (NT)
 4. Message identifier (MI)
- 11-69. What are the station/channel designator letters?
1. VZC
 2. ZCZC
 3. CJT
 4. JTA

To answer questions 11-70 through 11-73, select from column B the operating and classification characters that match the usage descriptions given in column A.

A. Usage Descriptions	B. Characters
11-70. Used for unclassified EFTO messages	1. ZNR UUUUU 2. ZNY AAAAA
11-71. Used for Special Category (SPECAT) messages	3. ZNY CCCCC 4. ZNY EEEEE
11-72. Used for off-line encrypted messages and classified messages that are transmitted in the clear	
11-73. Used for Confidential messages	

- A. Send a message to the originating station saying "Your (DTG) not for us. Retransmit."
- B. Obtain the correct routing indicator.
- C. Label the message "SUSDUPE" to indicate it is a suspected duplicate.
- D. Replace the header, and retransmit the message to the correct routing indicator.
- E. Attach a service message to the message informing the recipient that the message had been missent to (identification of tributary station).
- F. Send a service message to the originating station advising him of the reroute action and correct routing indicator.

List 11A

- Use list 11A in answering question 11-74.

- 11-74. Which of the preceding actions should be taken by a tributary station which has received a misrouted message? (Assume that the correct routing indicator is obtainable.)
- 1. A
 - 2. B, C, D, E
 - 3. B, D, F only
 - 4. B, D, E, F
- 11-75. What is the difference, if any, between a misrouted and a missent message?
- 1. A misrouted message goes through a relay station; a missent one does not
 - 2. A misrouted message is transmitted on line; a missent one, off line
 - 3. A misrouted message contains an incorrect routing instruction; a missent message, a correct one
 - 4. None; these are two interchangeable terms

Assignment 12

Automated Systems (Continued)

Textbook Assignment: Pages 305 - 322

Learning Objective: Describe actions to be taken relative to suspected duplications (SUSDUPEs).

- 12-1. If an operator receives a message marked "SUSDUPE" after he has received and delivered the original (identical) message, what should he do with the duplicate?
1. He should file it
 2. He should destroy it
 3. He should deliver it to the addressee only
 4. He should deliver it to the addressee with an attached brief message of explanation

- | |
|---|
| <ol style="list-style-type: none">A. Check the records to determine whether the message was duplicated.B. If the message was duplicated, check in-station procedures regarding message handling, and train personnel as necessary.C. If the message was duplicated, check the equipment if equipment malfunction is suspected.D. Advise the connected ASC via service message if only one transmission can be accounted for.E. Advise the connected ASC via service message if the transmission was duplicated.F. Report to the connected ASC the measures taken to attempt to eliminate future duplications, if the message was duplicated. |
|---|

List 12A.

- Use list 12A in answering question 12-2.
- 12-2. Which of the preceding actions should the originating station take upon receipt of a service message advising of or inquiring about a suspected duplicate?
1. A through C only
 2. A through D only
 3. A through E only
 4. A through F
-
- Learning Objective: Describe the data pattern message and related characteristics and operating procedures.
-
- 12-3. How many characters are normally contained in each record block of data pattern messages?
1. 40
 2. 60
 3. 75
 4. 80
- 12-4. What is the maximum number of cards (NOT counting cards used as pilots) that may be included in one transmission via message switching facilities?
1. 250
 2. 300
 3. 400
 4. 500
- 12-5. For what is the Data Message Form (DD Form 1392) normally used?
1. To aid the originator in drafting a message text
 2. To aid the originator in preparing the message header
 3. To keep a running record, by station serial number, of incoming and outgoing messages
 4. To keep a running record, by DTG, of incoming and outgoing messages

- 12-6. By whom and for what purpose is the Message Correction Notice (DD Form 1503) normally used?
1. By the communication facility to notify the originator of message discrepancies
 2. By the recipient to notify the communication facility of message discrepancies
 3. By the originating station to notify the drafter of discrepancies
 4. By the ASC supervisor to notify the operators of discrepancies
- Use the following information in answering question 12-7: CC = card to card, CT = card to tape, CA = card to ASC II, TC = tape to card, AC = ASC II to card.
- 12-7. In data message format, (a) what is the most common language and media format (LMF), and (b) what other LMFs are available for use?
1. (a) CC; (b) CA, TC, AC only
 2. (a) CC; (b) CA, AC, TC, CT
 3. (a) CA; (b) CC, CT, TC
 4. (a) CA; (b) CC, TC, AC
- 12-8. Which of the following may be prepared by automatic message originators?
1. The communication header only
 2. The header and text with partial text header information only
 3. The header and text with complete text header information only
 4. The header, text (with complete text header information), and EOT formats (with all necessary information)
- 12-9. Other than relaying the message, what action(s), if any, should communications facility personnel take if a message arrives at their facility more than thirty minutes later than the time in format line 2?
1. Preparing a service message to trail the message and informing the recipient of the time of receipt and processing by the center
 2. Correcting the time in format line 2; advising the originator via the Message Correction Notice (DD 1503)
 3. Sending a service message to the originator and one to the addressee notifying them of the time of processing
 4. None
- 12-10. In what publication can the designators for the language and media format be found?
1. NTP 3
 2. NWP 4
 3. ACP 122
 4. JANAP 128
- 12-11. How many characters must the routing indicator field contain?
1. Five
 2. Six
 3. Seven
 4. Eight
- 12-12. What SSN would the next message after 9999 bear?
1. 0000
 2. 0001
 3. 9001
 4. 10000
- 12-13. If a message was drafted by the originator at 1530 local time (0930Z) and was received by the center at 1536 local time (0936Z), what should be placed in positions 25 through 28 (time filed)?
1. 0930
 2. 0936
 3. 1530
 4. 1536
- 12-14. What characters should go in positions 39 and 40, designated for the start of routing indicator?
1. SR
 2. AA
 3. --
 4. //
- 12-15. (a) What is the maximum number of addressee routing indicators that can be listed without requiring a separate transmission, and (b) of what does the end of routing signal consist?
1. (a) 300, (b) a period
 2. (a) 300, (b) a hyphen
 3. (a) 500, (b) a period
 4. (a) 500, (b) a hyphen

- 12-16. The first part of the End of Transmission (EOT) consists of a repeat of positions 1 through 38. Of what does the remainder consist for (a) a single-record transmission and (b) a multiple-record transmission?
1. (a) Ns in positions 77-80,
(b) N in position 80 only
 2. (a) Ns in positions 77-80,
(b) Ns in positions 77-80
 3. (a) N in position 80 only,
(b) Ns in positions 77-80
 4. (a) N in position 80 only,
(b) N in position 80 only

- 12-17. Unless an exception has been granted, what is the minimum time for which (a) data pattern messages must be retained intact, and (b) the header must be retained?
1. (a) 7 days, (b) 30 days
 2. (a) 7 days, (b) 60 days
 3. (a) 10 days, (b) 60 days
 4. (a) 10 days, (b) 30 days

The following situation applies to questions 12-18 through 12-20: A center, using message batching or commingling, is preparing to combine and send ten messages as one transmission. To answer these questions, select from column B the number that tells how many, if any, of the items shown in column A must be included in the transmission.

	<u>A. Items for Possible Inclusion</u>	<u>B. Number Required</u>
12-18.	Header card	1. One
12-19.	EOT card	2. Ten
12-20.	General purpose content indicator code	3. None

- 12-21. A certain terminal does NOT receive printed journal entries. Which of the following selections lists two actions communications personnel must perform after receipt of data pattern traffic?
1. Verifying the message record count and recording the SSNs in the log
 2. Duplicating the header for record purposes and recording the SSNs in the log
 3. Endorsing the header card to show the time of receipt and duplicating the header for record purposes
 4. Endorsing the header card to show the time of receipt and verifying the message record count

Learning Objective: Describe Magnetic Tape Terminal Station (MTTS) operation and format.

- 12-22. What is the basic mode of Magnetic Tape Terminal Station (MTTS) operation with other AUTODIN tributary stations?
1. Simplex only
 2. Either simplex or duplex
 3. Either simplex or store and forward
 4. Either duplex or store and forward

- 12-23. What is the deciding factor in determining the sequence of transmission of several tape reels received for transmission?
1. The majority message precedence level
 2. The majority message classification level
 3. The reel rating according to a formula based on both precedence and classification
 4. The sequence in which the reels arrived

- 12-24. A printout is made of the headers and EOTs of messages on each reel. Who is responsible for furnishing this printout?
1. The message originator
 2. A person assigned to the MTTS, whose primary duties are limited to receipting for reels and making message header and EOT printouts
 3. In each case, the operator who transmits that reel
 4. The senior E-6 or below in the MTTS

- 12-25. Which of the following statements reflects the policy on splicing magnetic tapes used for traffic?
1. The splicing of such tapes is authorized only if the angle of cut is diagonal to the side of the tape and precision work is done
 2. The splicing of such tape is authorized only if the tape is cut at right angles to the edge of the tape and precision work is done
 3. The splicing may be done at any angle so long as precision work is done
 4. The tape may not be spliced
- 12-26. What is the language of transmission from an MTTs?
1. Hollerith
 2. ASC II
 3. ITA #2
- 12-27. An operator has records of 19 and 1152 characters, respectively, to send by AUTODIN, and asks if he may send them without checking the addressee's receiving capabilities. He should have known that the addressee's receiving capabilities must be checked if the record contains (a) less than, and (b) more than what number of characters?
1. (a) 18, (b) 1000
 2. (a) 18, (b) 1200
 3. (a) 20, (b) 1000
 4. (a) 20, (b) 1200
- 12-28. Who is responsible for the preparation of magnetic tape messages, formats, routing, contents, and sequence on tape?
1. The supervisor of the MTTs
 2. A person specifically assigned "tape control" duties by the MTTs supervisor
 3. The person who accepts and signs for the reel
 4. The originator
- 12-29. What is the minimum number of days for which (a) originated tape reels, and (b) header and EOT printouts should be retained?
1. (a) 10, (b) 30
 2. (a) 20, (b) 10
 3. (a) 30, (b) 20
 4. (a) 30, (b) 30

- 12-30. What is the name of the MTTs log which reflects the status and lists outages, repairs, etc. of equipment and circuits?
1. The Status and Maintenance Log
 2. The Daily Operations Log
 3. The Master Station Log
 4. The Equipment/Circuit Log
- 12-31. What should be recorded in the Reel Delivery Log?
1. Reel number, number of messages contained, highest classification, and time delivered to the transmitting operator or the addressee
 2. Reel number, highest classification, highest precedence, and time delivered to the transmitting operator or the addressee
 3. Reel number, from whom received, highest classification, and time delivered to the transmitting operator or the addressee
 4. Reel number and time delivered to the transmitting operator or the addressee only

Learning Objective: Describe procedures following the attempted transmission of classified traffic over a circuit NOT authorized to carry it or to an addressee NOT authorized to receive it, and identify the location of security regulations for AUTODIN.

- 12-32. What action follows the sending of a classified message to an ASC over a circuit NOT authorized for use with that degree of classification?
1. The message is accepted, but the bell rings an alert, and an automatically generated service message is sent to the originator, advising of the possible security compromise
 2. The message is rejected, the bell rings an alert, and an automatically generated service message is sent to the originator, advising of the possible security compromise
 3. The message is rejected, and an automatically generated service message is sent to the originator, advising of the possible security compromise only
 4. The message is rejected only

- 12-33. Which of the following sets of actions is descriptive of those that occur when a message is routed through the ASC to a destination which does NOT have the necessary clearance to receive it, if it is (a) a single-address message, and (b) a multiple-address message?
1. (a) The message is accepted and filed by ASC, and ASC sends a service to the originator; (b) the message is accepted and forwarded to the authorized recipients, and ASC sends a service to the originator
 2. Both (a) and (b), the message is rejected by ASC; for invalid routing indicators, an automatically generated service advises the originator of the need for retransmission
 3. Both (a) and (b), the message is rejected by ASC; alarms will appear at the originating terminal indicating the need for retransmission
 4. (a) The message is rejected by ASC, alarms will appear at the originating terminal indicating the need for retransmission; (b) the message is accepted and forwarded to any authorized recipients; for invalid routing indicators, an automatically generated service advises the originator of the need for retransmission
- 12-34. In what publication can complete security precautions and operating rules for AUTODIN be found?
1. JANAP 128
 2. JANAP 137
 3. NTP 3
 4. NTP 8
-
- Learning Objective: Describe the geographical coverage of AUTOVON and define some of the terms associated with that system.
-
- 12-35. The Defense Communications System Automatic Voice Network (AUTOVON) includes activities at which of the following locations?
1. Continental United States (CONUS) only
 2. Overseas only
 3. CONUS and five overseas locations only
 4. CONUS and many overseas locations
- 12-36. What is the difference between an AUTOVON subscriber and an AUTOVON user?
1. An AUTOVON subscriber gains access to AUTOVON by dialing an access code; an AUTOVON user gains access by placing a call through a PBX
 2. An AUTOVON subscriber has direct access to AUTOVON; an AUTOVON user has indirect access
 3. An AUTOVON user has direct access to AUTOVON; an AUTOVON subscriber has indirect access
 4. An AUTOVON subscriber is an activity which is served by AUTOVON; an AUTOVON user is the individual who actually makes or receives an AUTOVON call
- 12-37. What is the term that means the seizing of telecommunications before or in preference to other subscribers' calls, even those already in progress?
1. Prioritization
 2. Preemption
 3. Precedence
 4. Preference
- 12-38. What is the difference in the procedure for joining in on a pre-set conference and a random conference?
1. For pre-set, users dial a prescribed number; for random, the AUTOVON operator assists
 2. For pre-set, users request connection through an AUTOVON operator; for random, users dial a prescribed number
 3. For pre-set, users have scheduled the AUTOVON call previously by message; for random, users call other users to join them as the need arises
 4. For pre-set, users have had the prescribed telephone number on file for at least 30 days; for random, a user must call for a number and then relay it to the others who will participate in the conference

Learning Objective: Differentiate among the classes of telephone service available on board military installations.

To answer questions 12-39 through 12-43, select from column B the class of telephone that is associated with the characteristic shown in column A.

	<u>A. Characteristics</u>	<u>B. Classes</u>
12-39.	Service available for transaction of official business on DOD or military installations; NO access to commercial telephone company trunks	1. Class A 2. Class B 3. Class C 4. Class D
12-40.	Service installed on military installations for official business; restricted to special classes of use, such as fire alarm, crash alarm, or security	
12-41.	Service available for transaction of official business on DOD or military installations; requires access to commercial telephone company trunks	
12-42.	Service installed in or near a military PBX or CENTREX system; authorized for personal or unofficial business; requires access to commercial telephone company trunks	
12-43.	Users of this class may initiate outgoing official business phone calls in the AUTOVON network	

Learning Objective: Differentiate among the types of calls assigned each precedence.

To answer questions 12-44 through 12-47, select from column B the precedence assignment that matches the circumstance or type of information described in column A.

	<u>A. Information</u>	<u>B. Precedences</u>
12-44.	Calls pertaining to conduct of diplomatic negotiations critical toward limiting or stopping hostilities	1. FLASH 2. IMMEDIATE 3. PRIORITY 4. ROUTINE
12-45.	Calls requiring rapid transmission, but NOT preferential handling	
12-46.	Calls requiring expeditious action by calling party and/or calls which furnish information essential for the conduct of government operations	
12-47.	Calls concerning intelligence reports concerned with national security	

Learning Objective: Differentiate among the types of service provided for AUTOVON users.

Learning Objective: State security precautions relative to AUTOVON, and tell where to find instructions regarding the use of AUTOVON.

To answer questions 12-48 through 12-51, select from column B the type of service associated with the characteristics shown in column A.

	A. Characteristics	B. Types of Service
12-48.	When the telephone is lifted off its cradle, it is immediately connected to a pre-designated telephone instrument at a distant installation	1. General Purpose 2. Special 3. Off-hook 4. Special Grade
12-49.	By dialing direct or by enlisting the services of a local operator, the subscriber may contact other subscribers, worldwide, for day-to-day low-precedence communication. When push-button four-wire telephone sets are used, any precedence calls may be employed	
12-50.	This type of service provides access to specially conditioned trunks which provide the transmission capability sometimes required by data and facsimile stations	
12-51.	Subscribers utilizing this service may have the privacy afforded by a denial of access to and from other nets	

● Questions 12-52 and 12-53, dealing with general information for AUTOVON users, are to be judged True or False.

12-52. The AUTOVON is a secure line, but users must be careful to make sure NO one is within earshot in the office when classified subjects are to be discussed.

12-53. An AUTOVON directory, containing general instructions for placing calls on AUTOVON and for reporting AUTOVON trouble, is published periodically and distributed to subscribers connected to respective AUTOVON switches.

Learning Objective: Define some basic terms relative to Automatic Secure Voice Communications (AUTOSEVOCOM).

12-54. As it relates to naval communications, what is the meaning of the term "approved circuit"?

1. A foreign harbor circuit for which permission for U.S. Navy use has been requested and granted
2. A circuit which has been authorized for passing of encoded material of specific security classifications
3. A circuit which has been authorized for plain language transmissions of specific security classifications
4. Any circuit which conforms to safety standards and is available for Navy use

12-55. What does the term "cross talk" mean?

1. The garbled sound that results from more than one operator speaking on the same circuit at the same time
2. The sound heard in a receiver resulting from telephone currents in another channel
3. Intentional voice interference (or voice jamming) on a circuit
4. Communication by voice from one mobile naval unit to another; i.e., ship-to-ship

Learning Objective: State the location of instructions and describe some of the procedures concerning the operation of AUTOSEVOCOM.

- 12-56. Where should you look to find specific instructions concerning correct placement of calls on the AUTOSEVOCOM network?
1. In the local AUTOSEVOCOM directory
 2. In the local AUTOVON directory
 3. In NTP 9
 4. In ACP 125
- 12-57. Which of the following statements regarding precedents used via the AUTOSEVOCOM network is correct?
1. Since so many users have routinely assigned higher precedences than required, it is now recommended that a precedence one level higher than that prescribed by existing circumstances be assigned, as a standard rule-of-thumb
 2. An IMMEDIATE call will normally preempt an IMMEDIATE call in progress
 3. A PRIORITY call will normally preempt a PRIORITY call in progress
 4. Precedences used on the AUTOSEVOCOM network are as prescribed by the Joint Uniform Telephone Communications Precedence System
- 12-58. What is the minimum classification level at which the call originator must authenticate, ensuring that the called party is cleared for the information to be discussed?
1. Confidential
 2. Secret
 3. Top Secret
- 12-59. If an AUTOSEVOCOM user hears cross talk on his call, what should he do in addition to any required reporting of the inadvertent disclosure of classified information?
1. He should employ tracer techniques in an attempt to ascertain the identity of the other party
 2. He should immediately report the incident, in detail, to the security officer
 3. He should hang up and call again
 4. He should report the occurrence, in detail, to the switch operator serving the termination

Learning Objective: Identify, define terms associated with, and describe purposes, procedures, and benefits connected with MPDS, LDMX, NAVCOMPARS, and IXS.

- 12-60. For what is MPDS an acronym, and what is it?
1. The Message Processing and Distribution System, a shipboard message-switching system which processes, stores, logs, and routes traffic
 2. The Multi-Purpose Digital System, a step forward in the processing of traffic by increased interface with digital computers
 3. The Multi-Purpose Data System, an innovation in overall handling of data, including message traffic, by more fully automatic means
 4. The Multiplex/Phone/Duplex System, a fascinating achievement in shipboard communications, linking various communications systems together and making the entire macrosystem available for rapid processing of traffic
- 12-61. Which of the following actions does LDMX NOT perform on outgoing messages?
1. Validating the message identifiers
 2. Searching system files to assign correct routing indicators
 3. Counting, verifying, and printing group count
 4. Arranging messages in precedence order for transmission
- 12-62. If a major component of the LDMX becomes inoperable, to what extent, if at all, can the system continue to operate?
1. The system can still operate in the semiautomatic or manual mode
 2. The system can still operate in the manual, but seldom in the semiautomatic, mode
 3. The system can still operate in the manual, but NOT the semiautomatic, mode
 4. The system can not operate until the faulty component is again operable

- 12-63. In the LDMX system, the detection of a mismatch in a security field of a Secret message would result in which of the following occurrences?
1. The display of the message to an inrouter or outrouter for review and action
 2. The sounding of the discrepancy alarm
 3. The flashing of the red mismatch light
 4. All of the above
- 12-64. The LDMX system is rapid. In which of the following ways can it also be correctly described?
1. It is reliable and secure, but lacks flexibility
 2. It is reliable, secure, and flexible, but it requires significantly more personnel and equipment as the traffic load increases
 3. It is secure and flexible, but, because of frequent maintenance requirements, is rather unreliable
 4. It is reliable, secure, and flexible, and it will handle increases in traffic without increases in manpower and equipment
- 12-65. What is the primary purpose of NAVCOMPARS?
1. To maintain a running inventory and maintenance record of all communications equipment
 2. To serve the fleet by providing automated communications processing and routing
 3. To provide automated communications processing and routing among various shore-based units
 4. To link subscribers together for the exchange of information by way of a satellite path
- 12-66. What is the maximum number of continuous lines of message headings and text a fleet unit operating directly with a NAVCOMSTA equipped with NAVCOMPARS may transmit without dividing the message into two sections?
1. 100
 2. 100 text + standard heading
 3. 350
 4. 550
- 12-67. What is the IXS?
1. A newly-developed intercommunications system
 2. An up-to-date system used for troubleshooting communications equipment
 3. A system by which subscribers may exchange information via a satellite path
 4. A system which simultaneously transmits and receives messages over AUTODIN to provide rapid, accurate, reliable processing
- 12-68. (a) On what type of unit is the SSIXS intended for installation, and (b) what is the relationship of the SSIXS with other communications equipment already installed?
1. (a) Submarine, (b) the SSIXS completely replaces the existing communications system
 2. (a) Submarine, (b) the SSIXS complements the existing communications system
 3. (a) Aircraft, (b) the SSIXS completely replaces the existing communications system
 4. (a) Aircraft, (b) the SSIXS complements the existing communications system
- 12-69. CUDIX is the automated information subsystem that was developed especially for the purpose of enabling rapid exchange of information between/among
1. the aircraft squadron commander and each member of his squadron
 2. ships at sea and aircraft
 3. fleet mobile units and activities ashore
 4. activities ashore

Assignment 13

Fleet Communications

Textbook Assignment; Pages 323 - 338

Learning Objective: Define the control and organization of the fleet multichannel broadcast (MULCAST) system.

- 13-1. Which of the following actions is taken to help assure that each ship can receive all transmissions made by the Fleet Multichannel Broadcast (MULCAST) System, regardless of ship location?
1. Immediately after each message is broadcast, it is repeated
 2. The HF broadcast is transmitted on several frequencies at the same time
 3. Message traffic is transmitted from five different Naval Communication Area Transmitting Stations (NAVCATS) within each ocean area
 4. Official traffic is routed through a special amplifier unit, called a Super Power Pack (SPP)
- 13-2. What are the locations of the Naval Communications Area Master Stations acting as (a) NAVCAMSLANT and (b) NAVCAMSMED, respectively?
1. (a) Norfolk, (b) Naples
 2. (a) Lajes, (b) Naples
 3. (a) Lajes, (b) Gaeta
 4. (a) Norfolk, (b) Gaeta
- 13-3. What are the locations of the Naval Communications Area Master Stations acting as (a) NAVCAMSEASTPAC and (b) NAVCAMSWESTPAC, respectively?
1. (a) Midway, (b) Cubi Point/Subic Point
 2. (a) Honolulu, (b) Cubi Point/Subic Point
 3. (a) Midway, (b) Guam
 4. (a) Honolulu, (b) Guam

To answer questions 13-4 through 13-7, select from column B the terms that match the definitions in column A.

	<u>A. Definitions</u>	<u>B. Terms</u>
13-4.	The activity responsible for placing the message traffic directly into the broadcast	1. Broadcast Control Authority (BCA)
13-5.	The controller of a specific broadcast	2. Broadcast Control Station (BCS)
13-6.	The activity that engineers the broadcast and delivers the keying to the transmitting stations	3. Broadcast Keying Station (BKS)
13-7.	A station responsible for radiating a signal from a broadcast supplied by the activity that engineers the broadcast and delivers the keying	4. Broadcast Radiation Station (BRS)

Learning Objective: Explain the significance of the broadcast designator, tell where to find a list of broadcast designators, and identify the components of the fleet multichannel broadcast system equipment.

- 13-16. What do the characters in the broadcast designator signify?
1. The first indicates the type of broadcast, and the second, the naval communications area of origin
 2. The first indicates the type of broadcast, the second and third consist of the identification number assigned, and the fourth identifies the naval communications area of origin
 3. The first identifies the naval communications area of origin, subsequent characters indicate the type of broadcast
 4. The first identifies the naval communications area of origin; the second, the type of broadcast; and the third and fourth, the identification number
- 13-17. In what publication can a complete list of broadcast designators be found?
1. NTP 3
 2. NTP 4
 3. ACP 121
 4. ACP 122
- 13-18. Into how many channels is the MULCAST divided?
1. 12
 2. 14
 3. 16
 4. 18
-
- Learning Objective: Define various MULCAST operating procedures.
-
- 13-19. While an operator on a ship was copying routine traffic, an emergency event occurred which caused him to miss a broadcast number. How should he obtain it?
1. By sending "BREAK" to the transmitting station, and, when his "BREAK" is acknowledged, asking for a repeat
 2. By sending a service message to the broadcast control station, requesting a repeat
 3. By copying it from his primary channel one hour later
 4. By copying it from his secondary channel one hour later
- 13-20. Where is the broadcast alignment procedure outlined?
1. NTP 3
 2. NTP 4
 3. JANAP 128
 4. ACP 122
- 13-21. When does the MULCAST require restart?
1. At the beginning of each crypto day only
 2. At the beginning of each crypto day and any time synchronization is lost only
 3. At the beginning of each crypto day and after each time message serial number 999 is received
 4. At the beginning of each crypto day, any time synchronization is lost, and at the change of each watch
- 13-22. What functions does the TSEC/KWR-37 crypto device provide?
1. Decryption of message traffic and timing for the TSEC/KG-14 only
 2. Encryption of message traffic and timing for the TSEC/KG-14 only
 3. Decryption and encryption of message traffic and timing for the TSEC/KG-14
 4. Decryption and encryption of message traffic only
- 13-23. If a spare TSEC/KWR-37 is available, approximately how many minutes before the new crypto day begins should (a) the new day's key card be inserted, and (b) the new TSEC/KWR-37 be patched in?
1. (a) 15, (b) 1
 2. (a) 15, (b) 5
 3. (a) 45, (b) 1
 4. (a) 45, (b) 5
- 13-24. In what publication are the operating instructions for the TSEC/KWR-37 found?
1. KAO-34 (series)
 2. H.O. 117
 3. JANAP 119
 4. JANAP 128
- 13-25. If a ship is transitting the Atlantic and is going to make a routine broadcast shift, at what time should the operator (a) shift from one broadcast to another and (b) send the broadcast shift message?
1. (a) 0800Z, (b) in time to reach the destination by 0001Z
 2. (a) 0800Z, (b) in time to reach the destination by 1600Z, preceding day
 3. (a) 0001Z, (b) in time to reach the destination by 1201Z, preceding day
 4. (a) 0001Z, (b) in time to reach the destination by 1600Z, preceding day
- 13-26. If an emergency broadcast shift occurs, what precedence should the message of notification have?
1. ROUTINE only
 2. ROUTINE or PRIORITY
 3. PRIORITY or IMMEDIATE
 4. IMMEDIATE or FLASH

- 13-27. What is the minimum number of days for which broadcast copies, carbons, and tapes must be retained?
1. 10
 2. 15
 3. 20
 4. 30

- 13-28. If Top Secret messages which were received but NOT addressed to an afloat command are destroyed, (a) how many witnessing officials must initial the check-off sheet next to the appropriate broadcast serial numbers, and (b) how long must the check-off list be retained?
1. (a) 1, (b) 30 days
 2. (a) 2, (b) 10 days
 3. (a) 3, (b) 10 days
 4. (a) 3, (b) 2 years

- 13-29. If a Radioman has missed broadcast numbers applicable to his ship and has exhausted all other means of obtaining them, without success, he should send a Broadcast Screen Request. Who should be (a) the action addressee, (b) the information addressee, and (c) a second information addressee if more than 25 broadcast numbers were missed?
1. (a) BKS, (b) BCS, (c) BCA
 2. (a) BKS, (b) the appropriate NAVCAMS, (c) his numbered fleet commander
 3. (a) BCS, (b) BCA, (c) the appropriate NAVCAMS
 4. (a) BCS, (b) the appropriate NAVCAMS, (c) his numbered fleet commander

- 13-30. At regular intervals, a message summary heading recap is sent on each first-run broadcast channel. How often does this occur?
1. Once an hour
 2. Once every four hours
 3. Once every six hours
 4. Once a day

- | |
|---|
| <p>A. To list the number of messages received/transmitted via the broadcast</p> <p>B. To list the precedence of each message</p> <p>C. To list the classification of each message</p> <p>D. To list the date-time group (DTG) of each message</p> <p>E. To serve as the record of destruction for classified messages</p> |
|---|

- Use list 13A in answering question 13-31.

- 13-31. Which of the preceding functions does the Broadcast Circuit Number Log and Record of Destruction serve?
1. A through E
 2. A, B, C, and E only
 3. A, B, and E only
 4. A, C, and E only

Learning Objective: Explain how to identify single channel broadcasts, and define procedures applicable to submarine broadcasts.

- 13-32. Single channel broadcasts are identified as such by the COMMAREA designator followed by
1. SGL or SCB
 2. SGL or SPG
 3. RTT or SPG
 4. RTT or SGL

- 13-33. Which of the following statements reflects the normal procedure concerning the new cryptographic day in the submarine broadcast system?
1. The cryptographic day for all submarine traffic is 0001Z, and the first transmission is the message with the highest precedence
 2. The cryptographic day for all submarine traffic is 0001Z, and the first message is a traffic list
 3. The cryptographic start times are staggered, and the first message of the cryptoday is a traffic list
 4. The cryptographic day start times are staggered, and the first message of the cryptoday is the message with the highest precedence

- 13-34. How many times are transmissions repeated on submarine broadcasts?
1. Twice only
 2. Two, three, or four times, as required
 3. Four, six, or eight times, as required
 4. Three, four, six, or twelve times, as required

- 13-35. What is VERDIN?
1. The most widely used single-channel submarine broadcast system
 2. A multichannel submarine broadcast system using minimum shift keying (MSK)
 3. A multichannel MERCAST system which transmits traffic 40% faster than the old system
 4. A category of weather schedules dealing with potentially dangerous weather

Learning Objective: Describe the Composite Fleet/General Broadcast (CMP), and describe related transmission formats and operating procedures.

- 13-36. Which of the following statements correctly describes a Composite Fleet/General Broadcast (CMP)?
1. It is a CW broadcast system serving U.S. fleet units which are unable to copy a covered broadcast, and also serving Allied ships and other authorized users
 2. It is basically a teletype system of communications, sending message traffic and weather and hydrographic messages to U.S. and friendly foreign warships
 3. It is a single sideband communication system which handles message traffic and weather and hydrographic messages to and from U.S. and friendly foreign warships
 4. It is a broad-coverage, world-wide CW communication system, serving both fleet-based and shore-based units of U.S. and friendly forces
- 13-37. Which of the following transmissions is in the correct format for a call-up for a fleet schedule?
1. NERK NERK NERK DE NAB NAB NAB FLEET
 2. NERK NERK NERK DE NAB NAB NAB K
 3. NERK NERK NERK FROM NAB NAB NAB K
 4. NERK NERK NERK FROM NAB NAB NAB FLEET
- 13-38. Which of the following transmissions illustrates the correct format of the complete transmission immediately prior to the first message of a fleet schedule?
1. NERK NERK NERK DE NAB NAB NAB K
 2. NERK NERK NERK DE NAB NAB NAB ZBO 04
 3. EEEEEEEE NERK NERK NERK DE NAB NAB NAB ZBO 04 AR
 4. EEEEEEEE NERK NERK NERK DE NAB NAB NAB ZBO 04

- 13-39. What does the operating signal ZIA preceding a message mean?
1. There has been at least one other message on this same subject within the past 24 hours
 2. This message is sent out of sequence, ahead of those with a lower precedence
 3. One or more classified messages follow
 4. This is the first section of a multisection message
- 13-40. After all fleet traffic has been transmitted, a QRU tape should be transmitted in which of the following formats?
1. NERK NERK NERK DE NAB QRU AR
 2. NERK NERK NERK DE NAB NAB NAB NR 004 QRU AR
 3. EEEEEEEE NERK NERK NERK DE NAB QRU AR
 4. EEEEEEEE NERK NERK NERK DE NAB NAB NAB NR 004 QRU AR
- 13-41. At the beginning of a fleet schedule, if the transmitting station has NO traffic, the operator should send a transmission in which of the following formats?
1. NERK NERK NERK DE NAB QRU AR
 2. NERK NERK NERK DE NAB NR 004 QRU AR
 3. EEEEEEEE NERK NERK NERK DE NAB QRU AR
 4. EEEEEEEE NERK NERK NERK DE NAB NAB NAB NR 004 QRU AR
- 13-42. In what publication is there detailed information concerning MERCAST systems during peacetime?
1. ACP 122
 2. ACP 149
 3. H.O. 117
 4. KAO 34 (series)
- 13-43. In what publication are the wartime schedules and frequencies of each Allied MERCAST area?
1. ACP 122
 2. ACP 149
 3. H.O. 117
 4. KAO 34 (series)
- 13-44. How many minutes before the hydrographic schedule time is the call-up usually made?
1. 3 min
 2. 5 min
 3. 7 min
 4. 10 min

- 13-45. How should a Radioman find out the schedule and frequencies for the Navy weather schedules?
1. By requesting them from the BKS
 2. By requesting them from the BCS
 3. By requesting them from the BCA
 4. By looking in the COMMAREA Communications Information Bulletins (CIBs)
- 13-46. If the commanding officer and other competent authority impose NO additional directives, what are the requirements, if any, regarding the copying of the weather schedule by (a) ships with weather units, and (b) ships without weather units?
1. Both (a) and (b), copy the entire Navy broadcast for their areas
 2. (a) Copy the entire Navy broadcast for their areas, (b) copy at least the synoptic schedules of the Navy broadcast for their areas
 3. (a) Copy at least the synoptic schedules of the Navy broadcast for their area, (b) none
 4. Both (a) and (b), none
- 13-47. In what order are Composite Fleet/General Broadcast schedule messages filed in the communication center?
1. By date-time group
 2. By classification
 3. By subject
 4. Incoming, by station of origin; outgoing, by addressee
- 13-48. At least how often should entries be made in the radio log?
1. Every five minutes
 2. Every ten minutes
 3. Every fifteen minutes
 4. Every twenty minutes
- 13-49. When, if ever, must the radio log be signed in ink?
1. When the watch changes, when a net or circuit is closed down, and when any abnormal or unusual circumstance is recorded in the log
 2. When the watch changes and when a net or circuit is closed down only
 3. When the watch changes only
 4. Never. Operator initials or designator letters are used

Learning Objective: State the purpose of the facsimile broadcast, and describe related general operating procedures.

- 13-50. For what purpose is the facsimile broadcast normally used?
1. To receive illustrated news bulletins
 2. To receive weather maps
 3. To receive navigational maps
 4. To receive operational and tactical sketches of items such as rendezvous points
- 13-51. For how many minutes before the beginning of a facsimile schedule should a station (a) make a preliminary test call, and (b) transmit the synchronous signal?
1. Both (a) and (b), 2 min
 2. (a) 2 min, (b) 5 min
 3. (a) 5 min, (b) 2 min
 4. Both (a) and (b), 5 min

Learning Objective: Identify the primary means of delivering traffic to ships, and describe various ship/shore circuits and procedures.

- 13-52. What is the primary means of delivering traffic to ships?
1. Fleet Multichannel Broadcast System
 2. VERDIN
 3. Composite Fleet/General Broadcast
 4. Merchant Ship Broadcast
- 13-53. What is the primary means of ship/shore communications today?
1. CW
 2. Radioteletype
 3. Single sideband reduced carrier
 4. Single sideband suppressed carrier
- 13-54. What are ORESTES circuits?
1. Fully duplex nonsecure ship/shore radioteletype circuits over which traffic may be processed very rapidly
 2. Secure ship/shore radioteletype circuits which may be operated in simplex or semiduplex modes of operation only
 3. Secure ship/shore radioteletype circuits which may be operated in simplex, semiduplex, or fully duplex mode
 4. Radiotelephone circuits for ship/shore use

- 13-55. The Federal Communications Act of 1934 provides for what penalty for those found guilty of transmitting obscene, indecent, or profane language by radio?
1. Not more than \$5,000 fine or one year's imprisonment, or both
 2. Not more than \$5,000 fine or two years' imprisonment, or both
 3. Not more than \$10,000 fine or one year's imprisonment, or both
 4. Not more than \$10,000 fine or two years' imprisonment, or both

- 13-56. If a unit observes for the first time a certain deviation from prescribed procedure, which of the following actions should it take?
1. It should send a Communication Improvement Memorandum (CIM) to the violator
 2. It should send a CIM to the fleet commander-in-chief, with a copy to the violator
 3. It should send a speedletter report to the violator
 4. It should send a speedletter report to the fleet commander-in-chief, with copies to COMNAVTELCOM, the type commander, and the violator

Learning Objective: State the highest degree of classification that may be processed over RFCS circuitry, and describe the basic equipment that is a part of this system.

- 13-57. What is the highest security marking of traffic which can be cleared for transmission on a full duplex FSK ship/shore/ship radio frequency carrier shift (RFCS) system covered by a TSEC/KW-7CR?
1. Unclassified
 2. Confidential
 3. Secret
 4. Top Secret

- 13-58. To learn the operation of each equipment used in the primary ship/shore system, where should you look?
1. NTP 3, Annex C
 2. NTP 4, Annex D
 3. The operator's section of each equipment technical manual
 4. ACP 149, Annex C

- 13-59. Depending upon the type of transmitter used in conjunction with RFCS, the transmitter frequency must be set to either the exact carrier frequency or to a frequency that is
1. 2 Hz below the carrier frequency
 2. 2 Hz above the carrier frequency
 3. 2 kHz below the carrier frequency
 4. 2 kHz above the carrier frequency

● Questions 13-60 through 13-62, pertaining to full duplex FSK ship/shore/ship (RFCS) equipment, are to be judged True or False.

- 13-60. The basically crystal-controlled R-1051 receiver, capable of receiving radio signals in the 2 to 30 MHz frequency range, is the primary receiver now used for ship/shore communications.

- 13-61. For space diversity reception, two receivers are tuned to the same carrier frequency, but their antennas are physically located some distance apart; for frequency diversity reception, two receivers are tuned to different carrier frequencies that are carrying identical information.

- 13-62. The TSEC/KW-7CR crypto equipment is a duplex device which can be used to send on one channel and receive on the other channel at the same time.

- 13-63. In the ORESTES system, a restart at the beginning of a crypto day can be made very quickly and easily. How is this done?
1. By replacing the old card in the card reader with a new one
 2. By pressing a button and holding it in while turning the knob above the button counterclockwise
 3. By inputting a prepared restart program on paper tape
 4. By inputting the letters "RST" and the date and time by means of the keyboard

Learning Objective: State the number of key cards in a book and the time limit for key card destruction.

- 13-64. How many ship/shore key cards come in a complete book?
1. 15
 2. 21
 3. 31
 4. 34

- 13-65. Within how many hours after being superseded must a key card be destroyed?
1. 24
 2. 48
 3. 72
 4. 96

Learning Objective: Discuss traffic flow on primary and secondary ship/shore circuits.

- 13-66. Which of the following actions occurs when a message arriving at a NAVCOMPARS-equipped station has an error in the critical format line?
1. A time delay occurs at the NAVCOMPARS-equipped station because of required manual intervention and service action
 2. A service message will automatically be generated to the sender, advising that, because of an error, the message is rejected and should be retransmitted in correct form
 3. A service message, automatically sent to the originator, causes the bell to ring, and directs the retransmission, in correct form, of a specified portion of the message
 4. The error will not be detected as it passes through the NAVCOMPARS-equipped station; however, the existing error may trigger other errors, or the message may be missent

- 13-67. Which of the following types of circuits is the secondary ship/shore circuit?
1. Radiotelephone
 2. CW
 3. Radioteletype classified
 4. Radioteletype unclassified

- 13-68. How, if in any way, would it be permissible for a classified message to be sent on the secondary ship/shore circuit?
1. In any way, as this is a secure circuit
 2. By first encrypting it off-line
 3. By preceding it with the classified material preparatory operating signals
 4. In no way

- 13-69. Briefly, what are (a) the operating principle and (b) the purpose of MIDDLEMAN?

1. (a) An operator in an aircraft copies ships' transmissions on UHF and retransmits them on HF, (b) to permit message traffic to continue without violating EMCON restrictions
2. (a) An operator in an aircraft copies ships' transmissions on UHF and retransmits them on HF, (b) to increase the transmission range
3. (a) An operator in an aircraft copies ships' transmissions on HF and retransmits them on UHF, (b) to increase the transmission range
4. (a) An operator in an aircraft copies ships' transmissions on HF and retransmits them on UHF, (b) to permit message traffic to continue without violating EMCON restrictions

Learning Objective: Describe AUTOCAT and MIDDLEMAN operations, procedures for use when the shipboard HF must be shut down, and procedures used in the Pigeon Post system.

- 13-70. What is the difference between MIDDLEMAN and AUTOCAT?

1. MIDDLEMAN uses an aircraft in its retransmission procedure; AUTOCAT uses a ship
2. The procedure is the same; but the frequencies are different
3. In MIDDLEMAN operations, an operator copies and retransmits; in AUTOCAT operations, the equipment receives and retransmits automatically
4. Retransmissions via MIDDLEMAN are at the same speed as the original transmission; retransmissions via AUTOCAT are at a higher speed

- 13-71. If the HF transmitters on a carrier must be shut down when, for instance, aircraft are being armed, how, if in any way, can ship/shore communications be maintained?

1. Message traffic may be passed by Pigeon Post, but in no other way
2. After a service message of notification to the NAVCOMMSTA is sent, the operator may send and receive traffic by UHF
3. The operator may transmit via UHF to a relay ship that will then relay the message via HF to a NAVCOMMSTA
4. In no way

- 13-72. What is the procedure involved in Pigeon Post?
1. An operator physically carries the messages to be sent and goes to another ship to send them
 2. Messages and other material are flown from one ship to another, but the operators remain aboard their own ships
 3. Messages are prepared on precut tapes, bagged, and flown to a message center for transmission
 4. A temporary communications shelter is set up ashore for use while the ship is in that port

Assignment 14

Fleet Communications (Continued): Distress Communications

Textbook Assignment: Pages 338 - 355

Learning Objective: Describe the Fleet Flash Net (FFN) and related procedures.

- 14-1. What is the Fleet Flash Net (FFN)?
1. A duplex TSEC/KW-7CR covered Top Secret net, the main purpose of which is to provide communications among operational command subscribers
 2. An uncovered net which has preemption capabilities over other nets, and which is used only for destructive weather flashes or other similar warnings in which rapid transmission is crucial
 3. A duplex net, secure up to Secret only, used primarily for tactical purposes during actual or simulated encounters with hostile forces
 4. An uncovered net over which a subscriber may "ring up" the subscriber of his choice by the use of "touchtone" buttons
- 14-2. Normally, of what precedence(s) are messages transmitted on the FFN?
1. ROUTINE and PRIORITY
 2. PRIORITY and IMMEDIATE
 3. IMMEDIATE and FLASH
 4. FLASH only
- 14-3. For messages on the FFN, what is the maximum number of (a) addressees, and (b) groups?
1. (a) 12, (b) 100
 2. (a) 12, (b) 150
 3. (a) 15, (b) 100
 4. (a) 15, (b) 150
- 14-4. What is the meaning of the term "hubbing"?
1. Routing the signal of the calling party through all subscribers of the net and back to the calling party
 2. Gaining access to a circuit already in use, and causing interference with the ongoing transmission by testing or transmitting
 3. Batching messages for transmission rather than sending them individually
 4. Calling in and identifying on the net in order to ensure that all subscribers are accounted for and able to copy
-
- Learning Objective: Describe the Interim Command Switchboard (ICSB), its purpose, and general operating procedures.
-
- 14-5. Detailed information concerning the FFN is in NAVTELCOMINST C2303.6 (series). Your textbook tells you that which of the following publications also contains information on that subject?
1. ATP 121
 2. ATP 122
 3. NTP 3
 4. NTP 4
- 14-6. What is the Interim Command Switchboard (ICSB)?
1. A fully automated interface between voice radio circuits and telephone lines ashore
 2. A manually operated interface among subscribers at sea (ships)
 3. A fully automated ship/air and air/ship interface
 4. A manually operated interface between voice radio circuits and telephone lines ashore

- 14-7. What is the main purpose of the ICSB?
1. To provide the tactical linkage necessary among the captains of different ships at sea
 2. To facilitate the inter-unit communication necessary during search and rescue operations
 3. To provide the linkage necessary to enable naval commanders to communicate with their subordinates
 4. To provide the linkage necessary in case of medical, fire, or destructive weather emergency
- 14-8. What types of communications are allowed on ICSB?
1. Official business calls, up to and including Secret
 2. Unclassified official and personal calls, with the official having precedence over the personal
 3. Unclassified official calls only
 4. Official business calls, unclassified and Confidential only
- 14-9. If a fleet or airborne subscriber attempts to place, through ICSB, an official unclassified call that involves tolls, which of the following actions would normally be taken?
1. The call would be completed, and the NAVCOMMSTA transferring the call would pay the tolls, using operations funds
 2. The call would be completed, and the originating subscriber would pay the tolls
 3. The call would be completed, and the tolls would be cancelled, by agreement between the government and the telephone companies
 4. The call would not be completed
- 14-10. Frequencies for use in the ICSB network are assigned by
1. the cognizant NAVCAMS
 2. the cognizant numbered fleet commander
 3. the cognizant Fleet Commander-in-Chief
 4. CNO
- 14-11. Who has direct control over the entire HICOM network?
1. The Secretary of Defense
 2. The Chief of Naval Operations
 3. The Director of the Defense Communications Agency
 4. The Commander, Naval Communications Command
- 14-12. Into how many area voice nets is HICOM divided?
1. One
 2. Two
 3. Three
 4. Four
- 14-13. Units in which of the following categories may be designated to maintain a continuous guard on the HICOM network?
1. Aircraft carriers and command ships
 2. Cruisers and command ships
 3. Command ships only
 4. All of the above
- 14-14. Which of the following statements concerning the relationship of naval ships with HICOM is correct?
1. All naval ships, stations, and aircraft are automatically members of the HICOM net
 2. All naval ships, stations, and aircraft should be prepared to communicate via HICOM, as they may be directed to do so
 3. All naval ships and stations should be prepared to communicate via HICOM if directed to do so, but aircraft are exempt from this requirement
 4. As membership in the net is highly restrictive, and the operating frequencies associated with HICOM are classified, no unit should be concerned with operating procedures or equipment unless it is a permanent member of the net

Learning Objective: Identify the source of control over the HICOM network and its components, identify the frequency of the Fleet Warning/Tactical Net, and describe HICOM and Fleet Warning/Tactical Net operations.

- 14-15. What is the prescribed procedure for tuning transmitters assigned to HICOM net use?
1. Transmitters should be pretuned and calibrated in a dummy load, and the final tuning accomplished during live transmissions, as tuning is not permitted on HICOM frequencies
 2. Each net member is assigned a certain block of time each day in which to tune the transmitter on HICOM frequencies
 3. Each net member is assigned a certain block of time each week in which to tune the transmitter on the HICOM frequencies
 4. All net members may tune transmitters on HICOM frequencies between 2000 and 0600 local time on a not-to-interfere-with-traffic basis
- 14-16. The HICOM net may be used for messages of which of the following precedences and classification categories?
1. All precedences and classification categories
 2. FLASH or IMMEDIATE in any classification category only
 3. All precedences of unclassified messages only
 4. FLASH or IMMEDIATE unclassified messages only
- 14-17. What is the frequency of the Fleet Warning/Tactical Net?
1. 500 kHz
 2. 121.5 MHz
 3. 277.8 MHz
 4. 282.8 MHz
-
- Learning Objective: Identify the two basic types of terminations, and describe procedures and circuits involved in single-channel and variable frequency carrier telegraph (VFCT) terminations.
-
- 14-18. As given in your textbook, what are the two basic types of terminations?
1. Complete and partial
 2. Temporary and permanent
 3. AM and FM radiotelephone
 4. Single channel and multichannel radioteletype
- 14-19. Under normal conditions, (a) where should a termination request be sent, and (b) at least how many hours before the requested time of termination should the request be made?
1. (a) To CNO, (b) 36
 2. (a) To the appropriate fleet commander, (b) 36
 3. (a) To CNO, (b) 48
 4. (a) To the appropriate NAVCAMS, (b) 48
- 14-20. In what publication are procedures for requesting a termination outlined?
1. NTP 3
 2. NTP 4
 3. ACP 121
 4. ACP 122
- 14-21. If the signal of a transmitting unit is NOT at traffic quality, which of the following has the responsibility for initiating or requesting frequency shift?
1. The receiving unit
 2. The transmitting unit
 3. The appropriate NAVCOMMSTA
 4. The local security group
- 14-22. What is the difference, if any, between the operating procedure on a ship/shore circuit and that on a full termination net?
1. On a ship/shore circuit, the sending station must transmit the calls of the receiving and the sending units three times; on a full termination circuit, only one time
 2. Messages sent on a ship/shore circuit are limited to 25 words each; on full termination there is no limit
 3. On a ship/shore circuit, as opposed to a full termination net, units must wait their turns to transmit
 4. There is no difference in procedure; only in frequency
- Questions 14-23 and 14-24, relative to terminations, are to be judged True or False.
- 14-23. When variable frequency carrier telegraph (VFCT) is used, the signals from the various teletypewriters (channels) are multiplexed together into a "tone package" at the transmitting station for transmission. Then, at the receiving station, the signals are demultiplexed into individual signals and distributed.
- 14-24. A single channel full period termination circuit on board ship is covered by TSEC/KW-7CR cryptographic equipment.

- 14-25. State the number and assigned functions of the teletypewriter(s) in a single channel, full period termination.
1. One; used for both transmitting and receiving
 2. Two; one for transmitting and one for receiving
 3. Three; one for transmitting, and two for receiving
 4. Two; each for both transmitting and receiving
- 14-26. Which of the following statements is correct concerning the tone channels of a division multiplexing teletype terminal?
1. There are two tone channels set and stabilized at 500-Hz separation
 2. There are four groups of tone channels, each group containing three channels tuned to the identical frequency, and each group slightly displaced in frequency from the others
 3. There are six pairs of tone channels, each pair containing two channels tuned to the identical frequency, and each pair slightly displaced in frequency from the others
 4. There are a number of tone channels, each slightly displaced in frequency
- 14-27. If a ship has been requested to stop sending (QRT) because its transmissions are garbled, what should the operator do?
1. He should immediately shut down and turn off all transmitters
 2. He should alternate five minutes transmitting, five minutes silence
 3. He should type "RYRY..." on the keyboard until the circuit is restored
 4. He should begin sending a test tape
- 14-28. Ships maintaining a full period termination must send a report at 0001Z daily (unless otherwise directed) concerning circuit outages during the previous radio day. What are (a) the name and (b) the precedence of the report?
1. (a) COMMSTAT, (b) PRIORITY
 2. (a) COMMSTAT, (b) IMMEDIATE
 3. (a) COMMSPOT, (b) PRIORITY
 4. (a) COMMSPOT, (b) IMMEDIATE

Learning Objective: Explain the meanings of the characters that comprise the radio emission designator.

Questions 14-29 through 14-32 relate to the characters that comprise the radio emission designator "3A3J." To answer these questions, select from column B the character which gives the information specified in column A.

	<u>A. Information</u>	<u>B. Characters</u>
14-29.	Type of transmission (Telephony)	1. 3 (1st character) 2. A (2nd character)
14-30.	Supplementary information (Single side-band suppressed carrier)	3. 3 (3rd character) 4. J (4th character)
14-31.	Type of modulation (AM)	
14-32.	Necessary bandwidth (in kHz)	
<hr/>		
Learning Objective: Explain procedures and regulations regarding transmitter tuning, and state the frequency range of satellite communications.		
<hr/>		
14-33.	When you tune a transmitter, the final stage of which will be tuned on the air, you should ensure that the antenna is grounded, and then follow which of the procedures listed below?	1. First, tune the antenna stage, using average operating power; then, using reduced power, tune the transmitter through all the remaining stages, beginning at the first stage 2. First, tune the transmitter through all the stages preceding the antenna stage; then, in three separate tests -- at low power, average power, and high power -- test the antenna 3. First, tune the transmitter through all the stages preceding the antenna stage; then test the antenna at low power only 4. First, tune the antenna stage, using low power; then, still using low power, tune the transmitter through all the remaining stages, beginning at the first stage
14-34.	Normally, when should antennas for frequencies (a) between 15 and 30 MHz, and (b) in the VHF and UHF range be tuned?	1. (a) After darkness, (b) during daylight hours 2. Both (a) and (b), after darkness 3. (a) During daylight hours, (b) after darkness 4. Both (a) and (b), during daylight hours

- 14-35. What is the maximum allowable time interval between frequency meter checks of the frequency of radio receivers (unless crystal controlled) on circuits with NO or few transmissions?
1. Every hour
 2. Every two hours
 3. Every three hours
 4. Every four hours
- 14-36. What is the maximum allowable time interval between checks of the shipboard frequency meters against the standard frequency broadcast?
1. Three days
 2. One week
 3. Fifteen days
 4. One month
- 14-37. When a ship is in port, who will control any transmissions made for test purposes?
1. The communications operators
 2. The communications officer
 3. The senior officer present
 4. The senior enlisted communications person present
- 14-38. In what frequency bands do Navy tactical and strategic satellite communications operate?
1. SHF and EHF
 2. UHF and SHF
 3. VHF and UHF
 4. HF and VHF

Learning Objective: Identify the location of information on the subjects of communications reports and procedures.

To answer questions 14-39 through 14-42, select from column B the publication which contains the information listed in column A.

	<u>A. Information</u>	<u>B. Publications</u>
14-39.	Examples of COMMSTAT and COMSPOT reports	1. Annex A to NTP 6 2. NTP 2
14-40.	Detailed information concerning the submission of the frequency report	3. NTP 4 4. OPNAVINST 2400.7
14-41.	Formulas for finding bandwidth	
14-42.	Specific operation procedures concerning various satellites	

Learning Objective: Identify the frequencies to be used and describe the correct procedures for sending a distress message.

- 14-43. If a ship sailing alone becomes involved in a distress situation under circumstances in which security considerations outweigh the need for assistance, what frequency(ies) is/are an operator authorized to use to send a distress message?
1. Normal operating encrypted circuits only
 2. Normal operating encrypted circuits and national distress frequencies only
 3. Normal operating encrypted circuits and international distress frequencies only
 4. Normal operating encrypted circuits and national and international distress frequencies
- 14-44. What frequency(ies) is/are an operator authorized to use to send a distress message if the need for assistance outweighs security considerations?
1. Normal operating encrypted circuits only
 2. Normal operating encrypted circuits and national distress frequencies only
 3. Normal operating encrypted circuits and international distress frequencies only
 4. Normal operating encrypted circuits and national and international distress frequencies

- 14-45. A distressed ship traveling in company with other ships should transmit a distress message addressed to
1. CQ (all stations)
 2. the Officer in Tactical Command (OTC)
 3. the nearest ship
 4. the appropriate NAVCOMMSTA

Learning Objective: Identify various emergency and calling frequencies and describe the observance of silent periods.

To answer questions 14-46 through 14-48, select from column B the frequency that matches the description of distress or emergency usage given in column A.

	<u>A. Usage</u>	<u>B. Frequencies</u>
14-46.	International voice distress, safety, and calling	1. 500 kHz 2. 1000 kHz 3. 2182 kHz
14-47.	International CW/MCW distress and calling	4. 8364 kHz
14-48.	International CW/MCW lifeboat, liferaft, and survival craft	

To answer questions 14-49 through 14-51, select from column B the frequency that matches the description of distress or emergency usage given in column A.

	<u>A. Usage</u>	<u>B. Frequencies</u>
14-49.	Joint/combined military voice aeronautical emergency and international survival craft	1. 8364 kHz 2. 121.5 MHz 3. 156.8 MHz 4. 243.0 MHz
14-50.	FM United States voice distress and international voice safety and calling	
14-51.	International voice aeronautical emergency	
14-52.	On what frequency should merchant ships make contact with each other? 1. 318 kHz 2. 500 kHz 3. One of the standard frequencies reserved for merchant ship message traffic 4. The "merchant ship frequency of the day" as designated daily by the cognizant NAVCOMMSTA	

To answer questions 14-53 through 14-55, select from column B the frequency that matches the description of search and rescue (SAR) usage given in column A.

	<u>A. Usage</u>	<u>B. Frequencies</u>
14-53.	An international SAR frequency used by mobile units at a search site; also used by shore stations to communicate with aircraft proceeding to or from the search site. CW or voice	1. 3023.5 kHz 2. 4550 kHz 3. 123.1 MHz 4. 138.78 MHz
14-54.	International worldwide voice search and rescue use	
14-55.	U.S. military voice SAR on-the-scene use. Also used for direction finding	

Learning Objective: Discuss the control of distress message traffic and procedures involving the imposition of silence due to a distress situation.

14-56.	Through the International Telecommunications Union (ITU) regions of the world, regular periods of silence are observed on and immediately adjacent to the international distress frequency (a) beginning how many minutes before and after each hour, and (b) for how many minutes? 1. (a) 10, (b) 2 2. (a) 10, (b) 3 3. (a) 15, (b) 2 4. (a) 15, (b) 3
14-57.	It is required that how many kHz on each side of the international distress frequency be kept clear during silent periods? 1. 10 kHz 2. 20 kHz 3. 30 kHz 4. 50 kHz

- 14-58. What station is responsible for the control of distress message traffic when it (a) does, (b) does NOT involve civil aviation?
1. (a) The station in distress, but it may be delegated to another station on frequency, (b) the station addressed
 2. (a) The station addressed, (b) the station in distress, but it may be delegated to another station on frequency
 3. Both (a) and (b), the station addressed
 4. Both (a) and (b), the station in distress, but it may be delegated to another station on frequency

- 14-59. What is the correct form of a CW distress signal to impose silence?
1. CW SOS
 2. CW MAYDAY
 3. QRT SOS
 4. QRT MAYDAY

- 14-60. What is the correct form of a voice distress signal to impose silence?
1. SILENCE - MAYDAY
 2. CLEAR CIRCUIT - SOS
 3. CLEAR CIRCUIT - MAYDAY
 4. STOP TRANSMITTING - MAYDAY

Learning Objective: Give the correct name of the transmission that precedes a distress call, describe action to be taken by a station hearing a distress call, and describe the setting of the radio upon ship abandonment or when disaster is imminent.

- 14-61. What is the correct name for a transmission that precedes a distress call and consists of a series of dashes (CW) or two sinusoidal tones (voice transmission)?
1. Alarm signal
 2. Distress signal
 3. Area alert
 4. Distress alert

- 14-62. If a station which is sending traffic hears a distress call, what action must it take immediately?
1. Turning off its transmitter and receiver in order not to interfere with the emergency transmission
 2. Changing frequency (QSY) and continuing to send traffic
 3. Calling the station sending the distress message and asking the nature of the distress, location of the unit, and other particulars
 4. Stopping the transmitter, staying on frequency, and listening

- 14-63. Immediately before a ship/aircraft in distress is abandoned or an aircraft is crash-landed, in what condition should the radio equipment be placed?
1. Continuous emission
 2. Intermittent emission
 3. Power attached, but no emission
 4. Equipment off and unplugged

Learning Objective: Describe correct procedures related to acknowledging the receipt of distress traffic, and describe the contents of the follow-up transmission.

● Questions 14-64 through 14-66, relating to acknowledging receipt of a distress message, are to be judged True or False.

- 14-64. A mobile station receiving a distress message from a nearby mobile station must acknowledge receipt immediately, assuming proper equipment is present and NO restrictions are imposed.
- 14-65. A mobile station receiving a distress message from a mobile station not in its vicinity must acknowledge immediately.
- 14-66. A mobile station, aware of an unacknowledged distress signal but NOT able to render assistance, may transmit a distress signal for the station in distress if conditions warrant.

- 14-67. Which of the following transmissions portrays the correct format for the CW acknowledgement of the receipt of a distress message?
1. WATER WATER WATER DE FIRE FIRE FIRE RRR SOS AR
 2. WATER WATER WATER DE FIRE FIRE FIRE RRR RRR RRR SOS SOS SOS AR
 3. WATER DE FIRE RRR RRR RRR SOS AR
 4. WATER DE FIRE RRR RRR RRR SOS SOS SOS AR

- 14-68. Which of the following transmissions portrays a correct format for the voice acknowledgement of the receipt of a distress message?
1. WATER WATER WATER THIS IS FIRE FIRE FIRE RECEIVED MAYDAY OUT
 2. WATER WATER WATER THIS IS FIRE FIRE FIRE ROMEO MAYDAY OUT
 3. WATER THIS IS FIRE RECEIVED MAYDAY OUT
 4. WATER WATER WATER THIS IS FIRE FIRE FIRE ROMEO ROMEO ROMEO MAYDAY OVER

- 14-69. What information must a mobile station which has received a distress message give in a follow-up message, and in what sequence?
1. Its own identification; the time it received the distress message; the approximate time it will reach the station in distress only
 2. Its own identification; the time it received the distress message; its own position; its speed; the approximate time it will reach the station in distress
 3. Its own identification; its own position; its speed; the approximate time it will take to reach the station in distress; and the true bearings of the unit in distress, if available, when the position seems doubtful
 4. Its own identification; its own position; the time it received the distress message; its speed; the approximate time it will take to reach the distressed station; the true bearing of the distressed station, if available when the position seems doubtful

Learning Objective: Describe the format of transmissions for cessation of distress traffic.

- 14-70. What is the correct format for the CW transmission for cessation of distress traffic?
1. CQ CQ CQ DE NEDO END SOS USS AUSTIN NEDO QUM AR
 2. SOS CQ DE NEDO 1615Z USS AUSTIN NEDO QUM AR
 3. SOS CQ CQ CQ DE NEDO 1615Z USS AUSTIN NEDO QUM AR
 4. SOS CQ CQ CQ DE NEDO NEDO NEDO QUM AR

- 14-71. Which of the following examples is in a correct format for the voice transmission for cessation of distress traffic?
1. MAYDAY HELLO ALL STATIONS HELLO ALL STATIONS HELLO ALL STATIONS THIS IS FOXFIRE 1615Z BLUEJAY DISTRESS TRAFFIC ENDED OUT
 2. MAYDAY CHARLIE QUEBEC THIS IS FOXFIRE 1615Z BLUEJAY DISTRESS TRAFFIC ENDED OUT
 3. HELLO ALL STATIONS HELLO ALL STATIONS THIS IS FOXFIRE 1615Z BLUEJAY MAYDAY DISTRESS TRAFFIC ENDED OUT
 4. CHARLIE QUEBEC CHARLIE QUEBEC CHARLIE QUEBEC THIS IS FOXFIRE 1615Z BLUEJAY MAYDAY DISTRESS TRAFFIC ENDED OUT

Learning Objective: Describe the composition of and procedures involved with urgency and safety signals. (This objective is continued in Assignment 15.)

- 14-72. What is the CW urgency signal?
1. QQQ QQQ QQQ
 2. UUU UUU UUU
 3. XXX XXX XXX
 4. ZZZ ZZZ ZZZ
- 14-73. What is the voice equivalent for the urgency signal?
1. DART DART DART
 2. PAN PAN PAN
 3. QUEBEC QUEBEC QUEBEC
 4. UNIFORM UNIFORM UNIFORM
- 14-74. If an operator of a mobile station hears an urgency signal as he is preparing to transmit, what procedure should he follow immediately?
1. Changing to another frequency and sending his traffic
 2. Listening on the same frequency for at least three minutes
 3. Sending the following transmission: "QRZ QRZ QRZ DE (call sign) (call sign) (call sign) K"
 4. Contacting shore station and reporting the signal

- 14-75. What is the CW safety signal?
1. CCC CCC CCC
 2. MMM MMM MMM
 3. SSS SSS SSS
 4. TTT TTT TTT

Assignment 15

Distress Communications (Continued); Commercial Traffic

Textbook Assignment; Pages 355 - 377

Learning Objective:(Continued)

Describe the composition of and procedures involved with urgency and safety signals.

- 15-1. What is the voice safety signal?
 1. VENUS VENUS VENUS
 2. METRO METRO METRO
 3. SURETE SURETE SURETE
 4. SECURITE SECURITE SECURITE
- 15-2. Which of the following types of message should be preceded by a safety signal?
 1. One that concerns navigation safety or gives a meteorological warning
 2. One that warns of possible impending collision with another mobile unit
 3. One that warns of mines in the area
 4. One that reports the sighting of a hostile unit

To answer questions 15-3 through 15-5, select from column B the distress signal used by merchant ships to indicate the class of distress shown in column A.

A. Classes of Distress	B. Distress Signals
15-3. Armed merchant ship raids	1. AAAA
15-4. Aircraft	2. MMMM
15-5. Mine	3. QQQQ
	4. RRRR

To answer questions 15-6 and 15-7, select from column B the distress signal used by merchant ships to indicate the class of distress shown in column A.

A. Classes of Distress	B. Distress Signals
15-6. Warship raider	1. RRRR
15-7. Submarine	2. SSSS
	3. WWWW
	4. XXXX

Learning Objective: Describe the requirements for distress watches ashore.

- 15-8. A NAVCOMMSTA that is open to public correspondence must maintain, as a minimum, a continuous watch on what frequency?
 1. 500 kHz
 2. 2182 kHz
 3. 3023.5 kHz
 4. 123.1 MHz
- 15-9. All naval air activities with VHF/UHF tower communications capability must guard what two frequencies?
 1. 121.5 MHz and 156.8 MHz
 2. 121.5 MHz and 243.0 MHz
 3. 121.5 MHz and 123.1 MHz
 4. 156.8 MHz and 243.0 MHz

Learning Objective: Identify the location of regulations pertaining to commercial traffic handling, and state the policy regarding transmission and delivery of commercial traffic by U.S. naval communications.

- 15-10. What publication contains detailed coverage of the handling of commercial traffic by the U.S. Navy?
1. NTP 4
 2. NTP 6
 3. NTP 9
 4. NWP 4
- 15-11. Which of the following statements is correct regarding the transmission and delivery of commercial traffic by U.S. naval communications?
1. All commercial traffic must be transmitted and delivered within 24 hours
 2. All commercial traffic must be transmitted and delivered within 36 hours
 3. Commercial and official government traffic are transmitted, intermingled, in the sequence in which they are received
 4. Within regulations, commercial traffic is handled as rapidly as possible, but official government traffic has priority, and no guarantee is made when (or that) commercial traffic will be transmitted

Learning Objective: Explain the method of designation of the commercial traffic clerk and identify his duties.

- 15-12. (a) By whom, and (b) how should the commercial traffic clerk be designated?
1. (a) By the commanding officer, (b) by oral proclamation and the pinning on of an identification badge
 2. (a) By the commanding officer, (b) in writing
 3. (a) By the communications officer, (b) by oral proclamation and the pinning on of an identification badge
 4. (a) By the communications officer, (b) in writing

- 15-13. Which of the following duties is NOT listed in your textbook as a duty of the commercial traffic clerk?
1. Keeping a complete file of all incoming and outgoing commercial messages
 2. Maintaining and understanding all instructions and materials concerned with handling commercial traffic
 3. Preparing and posting the communications watch bill
 4. Collecting proper charges and safeguarding funds collected and in his custody
- 15-14. To whom should the commercial traffic clerk forward for review the prescribed reports he prepares?
1. The communications officer
 2. The administration officer
 3. The operations officer
 4. The executive officer

Learning Objective: Explain various procedures related to commercial traffic funds.

- 15-15. Naval commercial traffic funds should be inspected upon relief of the commercial traffic clerk and at what regular time intervals?
1. Every three weeks
 2. Every month
 3. Every six weeks
 4. Every two months
- 15-16. The regularly scheduled inspections of the naval commercial traffic funds must be conducted by whom?
1. The communications officer and an officer he selects
 2. The officer of the day and the senior enlisted man in the communications department
 3. Two officers or senior enlisted personnel, one of whom must be the communications officer
 4. Two officers or senior enlisted personnel, one of whom should be from the supply department, if possible
- 15-17. If NO irregularities are found during the inspection of commercial funds, what is the minimum length of time for which the report must be retained?
1. 60 days
 2. 90 days
 3. Six months
 4. One year

- 15-18. If there are irregularities disclosed during the inspection of commercial funds, to what destination must a report, accompanied by endorsements, be sent?
1. Navy Regional Finance Center
 2. Director of Naval Communications
 3. Federal Communication Commission
 4. Naval Telecommunications Command
- 15-19. What is the maximum amount of commercial traffic funds allowed to accumulate in the custody of the commercial traffic clerk without special approval by COMNAVTELCOM?
1. \$50
 2. \$75
 3. \$100
 4. \$150
- 15-20. When the time for remittance arrives, in what form should deposited funds be made available to the commercial traffic clerk?
1. Cash
 2. U.S. Treasury check
 3. Postal Money Orders
 4. Credit vouchers
- 15-21. Which of the following fees are listed in your textbook as authorized expenditures from naval commercial traffic funds?
1. Money order fees, required registration fees, typewriter and teletype ribbons
 2. Money order fees, required postage for mailing reports, pencils and standard forms for communications
 3. Money order fees, required postage for mailing reports, required registration fees for registered mail
 4. Required postage for mailing reports, required postage for mailing Home Town News Release forms to home towns of personnel, required registration and insurance fees for registered mail
- 15-22. For which of the following reasons may a refund be made to a person sending a non-Government message?
1. Addressee deceased
 2. Addressee unknown
 3. Addressee moved
 4. Ship out of range
- 15-23. How often should reports of commercial traffic be prepared and submitted, assuming that commercial traffic has been handled?
1. Weekly
 2. Biweekly
 3. Monthly
 4. Quarterly
-
- Learning Objective: Explain serial number assignment and report symbol placement, and name the reference which contains instructions for word count.
-
- 15-24. If a Class D message, entitled to Class E privilege, bears the serial number "SRS 14C," what would be the serial number of a second unpaid service message on it?
1. SRS 14CB
 2. SRS 14C(2)
 3. SRS (next available number)C
 4. SRS 14C(SVC2)
- 15-25. A message, assigned serial number SRS 12D by the first station by which it is transmitted, would be assigned what serial number, if known, by the second transmitting station?
1. SRS 12D
 2. SRS 12DA
 3. SRS 12D-1
 4. Unknown. The second station assigns a number in sequence with the list of that station
- 15-26. Where should report symbols (such as NAVCOMPT 7210-1) be placed when a commercial traffic report is filed?
1. On a log in the unit
 2. On the envelope or cover only
 3. On the abstract form only
 4. On both the envelope or cover and abstract form
- 15-27. The Navy uses two systems of word count, domestic and international. Where can you find details on these two systems?
1. NTP 4
 2. NTP 6
 3. NTP 9
 4. NWP 4

Learning Objective: Define Classes A and B messages, and explain the system of handling abstracting, and accounting for messages of these classes which require commercial filing or refiling.

- 15-28. Which of the following descriptions correctly identifies Classes A and B messages?
1. Official U.S. Government messages
 2. Toll-free personal messages
 3. Personal messages subject to tolls
 4. Press releases
- 15-29. When a Class A or B message originating from or addressed to a person outside the U.S. is filed with a commercial company, to what facility should it ordinarily be sent first for relay?
1. The U.S. military communications facility nearest the point of destination
 2. The U.S. military communications facility nearest the point of origin
 3. The commercial communications office nearest the point of destination
 4. The U.S. Navy Overseas Control Facility in San Diego or Norfolk
- 15-30. When a message is refiled by a shore station within the continental U.S. and addressed to a point in (a) Canada, (b) Cuba, or (c) the Saint Pierre-Miquelon Islands, should domestic or international form and word count be used?
1. (a) Domestic, (b) international, (c) international
 2. (a) International, (b) international, (c) international
 3. (a) Domestic, (b) international, (c) domestic
 4. (a) Domestic, (b) domestic, (c) international
- 15-31. When a message is refiled by a shore station outside the continental U.S. and addressed to a point in (a) Hawaii, (b) Canada, or (c) San Diego, should domestic or international form and word count be used?
1. (a) International, (b) international, (c) domestic
 2. (a) International, (b) international, (c) international
 3. (a) Domestic, (b) international, (c) domestic
 4. (a) Domestic, (b) domestic, (c) domestic

- 15-32. When the point of refile is treated as the point of origin, where in the message, if anywhere, is the point of actual origin shown?
1. After the signature
 2. Immediately after the date in the heading
 3. In parentheses at the beginning of the first line of text
 4. Nowhere

To answer questions 15-33 through 15-35, select from column B the report form on which the report described in column A should be prepared.

A. Report Descriptions	B. Forms
15-33. Report of outgoing Classes A and B and official radiotelephone messages from a Navy ship to a commercial shore radio station	<ol style="list-style-type: none">1. Speedletter Form 20652. NAVCOMPT 20653. NAVCOMPT Form 2132
15-34. Report of incoming Classes A and B messages received by Navy ships from commercial shore stations	
15-35. Report of Class B messages refiled with commercial communication companies by naval shore stations which are designated commercial refile activities	
15-36. How many copies, if any, of each message reported must be sent with the monthly report of Class B messages refiled by commercial refile activities?	<ol style="list-style-type: none">1. One2. Two3. Three4. None

Learning Objective: Define Class D messages, and explain the system of handling, abstracting, and accounting for them.

- 15-37. Which of the following descriptions correctly identifies Class D messages?
1. Official messages of the Department of Defense
 2. Official messages of U.S. Government departments and agencies other than the Department of Defense
 3. Non-Government messages subject to tolls
 4. Toll-free non-Government messages
- 15-38. On board U.S. Navy ships, who is responsible for approving Class D messages?
1. The commanding officer or an officer designated by him
 2. The executive officer or an officer designated by him
 3. The communications officer or an officer designated by him
 4. The commercial traffic clerk
- 15-39. On board U.S. Navy ships, who determines the word count and associated charges for Class D messages?
1. The communications officer
 2. The assistant communications officer
 3. The fiscal accounting clerk
 4. The commercial traffic clerk
- 15-40. If doubt exists as to the proper charge for the transmission of a Class D message, and the unit is unable to obtain such information by a rate request, what charge, if any, should be collected at the time the message is filed?
1. The maximum charge
 2. The minimum charge
 3. The charge thought to be correct
 4. None

NR3 CK? DL NAVSTA ADAK 12 MAR 78 1103 AMC
 DAVID CHRISTOPHER INC
 TULSA OKLAHOMA
 YOUR RECOMMENDATION IS REQUESTED REGARDING
 OPTIMUM THICKNESS OF ALUMINUM FOR PURPOSE
 PREVIOUSLY DISCUSSED. S. JERNIGAN

Figure 15A

- In answering question 15-41, refer to figure 15A.
- 15-41. How many chargeable words or groups are in the preceding Class D message, domestic form?
1. 13
 2. 15
 3. 20
 4. 21

PCH DE NMIB NR4 INTL USS AMERICA/NMIB CK?
 12 1350
 BT MP BT
 WAYNE JACOBS
 1423 WESTPATRICKST
 SANDIEGO
 BT
 SELL HOUSE ON FIREFLYBLVD AT PRICE QUOTED BT
 SEAN GABRIEL AR NMIB K

Figure 15B

- In answering question 15-42, refer to figure 15B.
- 15-42. How many chargeable words or groups are in the preceding Class D message, international form?
1. 7
 2. 9
 3. 14
 4. 15
- 15-43. If the first line of a domestic form message reads "NR4 CK15 DL NAVSTA ADAK 12 MAR 78 1115 AMP," what information is relayed by "AMP"?
1. "A" indicates that this is a Class A message; "M" indicates it was handled by military communications; "P" indicates it is a press release
 2. "A" indicates this is a Class A message; "MP" is a service indicator
 3. "AM" indicates the message was filed in the morning; "P" indicates this is a paid commercial message
 4. "AM" indicates the message was filed in the morning; "P" indicates the time zone is Pacific
- Questions 15-44 and 15-45, on the subject of abstracting Class D messages, are to be judged True or False.
- 15-44. On a regular basis, ships that collect money for the handling of Class D messages submit checks or money orders made out to the commercial companies involved.
- 15-45. A unit must report all Class D messages filed with it for which it has received payment for transmission, but need NOT report service messages or Class D messages that it has received over Navy circuits.

- 15-46. Which of the following examples is in the correct format for reporting ship identification on an abstract of Class D messages?
1. NJFK/USS JOHN F KENNEDY
 2. USS JOHN F KENNEDY/NJFK
 3. NJFK
 4. USS JOHN F KENNEDY
- 15-47. A message identified by "SVH" at the beginning and end of the preamble has absolute priority of transmission. For what is "SVH" always an identifier?
1. Safety of Life Message
 2. Special Vessel Handling Message
 3. Submerged Vessel Sighting Report
 4. Sinking Vessel Alarm
- 15-48. Charges for commercial messages are subject to change. What publication (with up-to-date changes) should be consulted for rate information?
1. NTP 4
 2. NTP 6
 3. NTP 9
 4. NWP 4

Learning Objective: Define Class D messages entitled to Class E privilege, and explain the system of handling, abstracting, and accounting for them.

- 15-49. Which of the following correctly describes a Class D message entitled to Class E privilege?
1. An emergency message filed by the Red Cross
 2. A message which, because of the geographical location of its addressee, can not be sent as Class E, although its contents meet the provision of that class
 3. An official Government message which is placed ahead of all other Class D messages for earlier transmission
 4. A message concerning the health or life of a member of the immediate family of a member of the U.S. Navy
- 15-50. What symbol is placed as the first word in the text to identify a Class D message entitled to Class E privilege?
1. COMLE
 2. QSJ
 3. PARLE
 4. DPRIE

● Information for question 15-51: A Class D message entitled to Class E privileges was filed aboard ship. It was transmitted to another naval ship which relayed it to a commercial shore station. The message was then delivered by a long-distance call on commercial telephone.

- 15-51. For what service will the sender be charged?
1. The transmission and relay service of the Navy, the receipt charges of the commercial station, and the long-distance telephone charges
 2. The receipt charges of the commercial station and the long-distance telephone charge only
 3. The receipt charges of the commercial station only
 4. The long-distance telephone charges only

● Information for question 15-52: Included with the monthly report of Class D messages entitled to Class E privileges must be a copy of each message, with an attached QSJ or service message.

- 15-52. What is the QSJ or service message?
1. A report of delivery
 2. A record of the DTG and word count
 3. A rate request
 4. An authorization for transmission
- 15-53. Which of the following statements relative to the remittance, if any, which accompanies the abstract is correct?
1. Included should be a check or money order payable to Navy Regional Finance Center
 2. Included should be two checks or money orders, one to Western Union Telegraph Company, and one to the applicable telephone company
 3. Included should be a check or money order payable to Western Union Telegraph Company only
 4. No remittance should accompany this abstract

- 15-54. Which of the following statements reflects the normal peacetime policy of Navy handling of press releases from correspondents aboard Navy ships at sea?
1. Press releases are processed as quickly as possible after the transmission of all messages filed by naval personnel
 2. Operational messages have priority; then, all other messages, including press releases, are sent on a "first-come, first-served" basis
 3. Press releases take precedence over all messages except emergency messages (distress, etc.)
 4. Press releases take precedence immediately after operational messages
- 15-55. Which of the following service indicators could properly be used on a press release for which payment has NOT been made, being sent directly to or from a continental U.S. naval station and handled commercially by the Western Union Telegraph Company only?
1. DPR COLLECT
 2. DPR
 3. PRESSE COLLECT
 4. PRESSE DPR COLLECT
- 15-56. Which of the following statements correctly reflects a procedure that is utilized for collection of tolls for a press release?
1. The commercial charges must be paid in advance, but the Navy charges may be either paid in advance or charged to a newspaper or news association
 2. The Navy charges must be paid in advance, but the commercial charges may be either paid in advance or charged to a newspaper or news association
 3. The entire toll may be charged, in which case the Navy Regional Finance Center is responsible for collecting the entire toll and making proper remittance to the commercial carriers
 4. The entire toll may be charged, in which case the Navy Regional Finance Center is responsible for collecting the Navy tolls, and the commercial carriers are responsible for collecting the commercial tolls
- 15-57. What letter is added to a serial number to identify the related message as a press release?
1. C
 2. M
 3. P
 4. X
-
- Learning Objective: Explain the system of handling, abstracting, and accounting for Class E messages.
-
- 15-58. Which of the following descriptions correctly characterizes Class E messages?
1. They are primarily Government messages related to stores and supplies
 2. They are primarily Government messages related to operational tactics
 3. They are primarily personal messages sent by naval personnel
 4. They are personal messages sent approximately equally from Army, Navy, and Air Force personnel, and, to a lesser degree, from other members of the Armed Forces
- 15-59. Where are the refile points for Class E messages from and addressed to authorized persons on board ships and at overseas duty stations?
1. San Diego, CA and Washington, DC
 2. San Diego, CA and Norfolk, VA
 3. Stockton, CA and Washington, DC
 4. Stockton, CA and Norfolk, VA
- 15-60. Why are there charges for some Class E messages and NOT for others?
1. Those sent entirely on Navy circuits are toll-free; others, sent entirely on commercial circuits, have tolls assessed
 2. Those sent entirely on Navy circuits are toll-free; others, sent partially on commercial circuits, have tolls assessed for the commercial service
 3. This service is free to active-duty Navy personnel; tolls are collected from other users
 4. Fees are assessed for sending messages to or from an overseas station; other messages are toll free
- 15-61. What are the indicators, if any, used to distinguish (a) telegrams, and (b) overnight telegrams?
1. (a) None, (b) NL
 2. (a) None, (b) OT
 3. (a) T, (b) none
 4. (a) T, (b) OT

- 15-62. The minimum charge is for how many words for (a) a (full-rate) telegram, and (b) an overnight telegram?
1. (a) 8, (b) 75
 2. (a) 10, (b) 100
 3. (a) 12, (b) 75
 4. (a) 15, (b) 100
- 15-63. Which of the following statements relative to the remittance, if any, which accompanies the Class E message report is correct?
1. Included should be a check or money order payable to Navy Regional Finance Center
 2. Included should be two checks or money orders, one to Western Union Telegraph Company, and one to the applicable telephone company
 3. Included should be a check or money order payable to Western Union Telegraph Company only
 4. No remittance should be included with this report

Learning Objective: Define coastal harbor radiotelephone service and explain procedures relative to its use.

- 15-64. What is coastal harbor radiotelephone service?
1. A telephone communication service over naval circuits between, and limited to, ships and the operating departments at their home ports
 2. A telephone communication service over commercial circuits between, and limited to, coastal naval stations and naval vessels within a few hundred miles of the shore
 3. A telephone communication service over naval circuits between, and limited to, coastal naval stations and naval vessels within a few hundred miles of the shore
 4. A telephone communication service over commercial circuits between naval vessels within a few hundred miles of the shore and any land-based telephone

- 15-65. With certain limited exceptions, are harbor radiotelephone calls (a) incoming to or outgoing from the ships, and (b) usually prepaid or collect?
1. (a) Outgoing from the ships, (b) collect
 2. (a) Outgoing from the ships, (b) prepaid
 3. (a) Incoming to the ships, (b) collect
 4. (a) Incoming to the ships, (b) prepaid
- 15-66. (a) What publication shows the division of coastal waters into rate areas for coastal harbor radiotelephone service, and (b) from whom may rates be requested if assistance is required?
1. (a) NTP 4, (b) the nearest commercial operator
 2. (a) NTP 4, (b) the marine operator
 3. (a) NTP 9, (b) the nearest commercial operator
 4. (a) NTP 9, (b) the marine operator

Learning Objective: Explain procedures relative to the high seas radiotelephone service.

- Questions 15-67 through 15-69, relative to high seas radiotelephone service, are to be judged True or False.
- 15-67. Authorization and availability of high seas radiotelephone service are the same as that of harbor radiotelephone service, but there are some additional limitations (atmospheric, etc.) due to the additional distance involved.
- 15-68. When high seas radiotelephone is utilized, an approximation of the bearing of the ship to the shore station is furnished.
- 15-69. Normally, all calls from ships using the high seas radiotelephone service are made prepaid.
- 15-70. In what publication are operating frequencies and land and ocean rate areas associated with high seas radiotelephone contained?
1. NTP 9
 2. NTP 2
 3. NTP 3
 4. NTP 4

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