METRIC

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(See 6.9)

MILITARY SPECIFICATION

CALL SIGNAL STATIONS
GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers call signal stations for use with sound powered systems on Naval ships.

1.2 Classification. The call signal stations shall be of the following types as specified (see 6.2):

a. Type IC/D - selective call, common talk.
b. Type TA-974/WTC-2 - selective call, selective talk, side crank.
c. Type TA-975/WTC-2 - selective call, selective talk, front crank.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, ATTN: SEA 05Q42, 2531 Jefferson Davis Hwy., Arlington, VA 22242-5160 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 5805

SPECIFICATIONS

FEDERAL

QQ-S-571 - Solder, Electronic (96 to 485°C).

MILITARY

MIL-S-901 - Shock Tests, H.I. (High Impact), Shipboard Machinery, Equipment and Systems, Requirements for.

MIL-P-15024 - Plates, Tags, and Bands for Identification of Equipment.

MIL-T-15514 - Telephone Equipment, Sound Powered Handsets, Headset-Chest Sets, and Headset-Microphones, Types H-200/U, H-201/U, H-202/U, H-203/U, and H-204/U

MIL-J-24649 - Jackbox, Jack and Plug for Telephone, Sound Powered.

MIL-T-31000 - Technical Data Packages, General Specification For.

(See supplement 1 for list of associated specifications)

STANDARDS

MILITARY

MIL-STD-108 - Definitions of and Basic Requirements for Enclosures for Electric and Electronic Equipment.

MIL-STD-129 - Marking for Shipment and Storage.

MIL-STD-167-1 - Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internal Excited).

MIL-STD-454 - Electronic Equipment, Standard General Requirements for.

MIL-STD-810 - Environmental Test Methods and Engineering Guidelines.

MIL-STD-1277 - Splices, Terminals, Terminal Boards, Binding Posts, Terminal Junction Systems, Wire Caps; Electrical.

MIL-STD-2036 - General Requirements for Electronic Equipment Specifications

(Unless otherwise indicated, copies of federal and military specifications, and standards are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted shall be those listed in the issue of DODISS specified in the solicitation. Unless otherwise specified, the issues of the documents not listed in the DODISS are the issue of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging
D 4169 - Performance Testing of Shipping Containers and Systems
F 1166 - Standard Practice for Human Engineering Design for Marine Systems, Equipment and Facilities

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103).

UNDERWRITERS LABORATORIES, INC. (UL)

UL 486 - Standard for Safety Wire Connectors and Soldering Lugs for use with Copper Conductors.

(Application for copies should be addressed to the Underwriters Laboratories, Inc. 207 E Ohio Street Chicago, IL 60611).

(Non-government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.4.

3.3 Construction.

3.3.1 Enclosure. Cable entrance plates shall preserve the degree of enclosure specified in figure 1. Space shall be provided inside the enclosure so that ships wiring will not be crushed or distorted when the enclosure is mounted and assembled.

3.3.2 Screw threads. Screw threads for all threaded securing devices shall conform to FED-STD-H28. The thread shall be right handed, of the course thread series. Threads in aluminum alloys shall not be used. Through bolts shall be used whenever practical. Inserts shall be provided where screws or bolts must be removed for maintenance. Threads shall not be employed in plastic parts without the use of suitable threaded metallic inserts.

3.3.3 Castings. Castings, if applicable, shall be in accordance with QQ-A-601, type 356-T4. The castings shall be free of cold shots, blow holes, or any other imperfections that may affect strength in any way. All surfaces of castings shall have all fins and burrs removed. Sand surfaces shall be disturbed as little as possible.

3.3.4 Flash. Flash shall be removed and the width of the flash edges made thereby shall be no greater than 0.031 inch. Flash edges shall then be buffed smooth.

3.3.5 Parts. All loose parts required for installation or operation shall be provided in a suitable cloth or plastic bag and packaged with the assembly.

3.4 General requirements. The call signal station shall be in accordance with the applicable sections of MIL-STD-2036 in addition to the requirements specified herein. Whenever a requirement of MIL-STD-2036 conflicts with a requirement of this specification, the requirement of this specification shall govern.

3.4.1 Technology. Equipment manufactured in accordance with this document shall utilize new technology provided form, fit and function are maintained. The equipment manufactured incorporating new technology shall meet or exceed the requirements of this specification. Unless otherwise specified in the contract or purchase order the contractor shall submit a waiver to incorporate the new technology.

3.4.2 Accessibility. All parts and subassemblies which may require servicing, repair, or replacement during the life of the equipment shall be readily accessible for repair or replacement.

3.4.3 Interchangeability. Parts, subassemblies, and major assemblies of the call signal station that are removable or separable from the equipment shall be physically and electrically interchangeable with corresponding items from manufacturer stock or production. Following any such part replacement, the equipment shall meet the requirements of this specification.

3.4.4 Temperature. The call signal station shall be subjected to temperatures of minus 28 degrees Celsius (°C) to plus 65°C in accordance with 4.6.2. Upon completion of this test, the call signal station shall show no evidence of cracking, bulging, melting, congealing or any other form of physical defect.

3.4.5 Vibration. The call signal station shall be subjected to vibrations up to 50 Hertz (Hz) in accordance with 4.6.3. Upon completion of this test the call signal station shall show no evidence of physical or electrical defects.

3.4.6 Shock. The call signal station shall be subjected to grade A, class I, light weight, type A shock in accordance with 4.6.4. Upon completion of this test the call signal station shall show no evidence of physical or electrical defects.

3.4.7 Salt fog. The call signal station shall be subjected to a 20 percent (%) hot salt spray, and hot air blasts in accordance with 4.6.5. Upon completion

of this test the call signal station shall show no evidence of corrosion, damage, or leakage due to the salt fog.

3.4.8 Insulation resistance. The insulation resistance of the call signal station shall be greater than 10 megohms when subjected to the test specified in 4.6.6.

3.4.9 Connection resistance. Electrical resistance of all mechanically secured electrical connections before, during, and after testing as specified in 4.6.7, shall be less than 0.010 ohm without any reconnecting or other action of any kind to adjust the connection state established at the start of the test.

3.4.10 Workmanship. Workmanship shall be in accordance with requirement 9 of MIL-STD-454 (see 4.6.8).

3.5 Materials.

3.5.1 Recovered materials. Unless otherwise specified herein, all material incorporated in the products covered by this specification shall be new. Products maybe fabricated using raw materials produced from recovered bulk materials to the extent practicable if the intended use of the product in not jeopardized. The term "recovered materials" means material which have been collected or recovered from solid waste and reprocessed to become part of a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of partially processed, assembled, used or rebuilt products are allowed under this specification.

3.5.2 Toxic materials. The material shall have no adverse effect on the health of personnel when used for its intended purpose. Questions pertaining to this effect shall be referred by the contracting activity to the appropriate departmental medical service who will act as advisor to the contracting agency.

3.5.3 Wiring. Internal wiring shall be insulated, stranded wire, American Wire Gage (AWG) size 20, with a dielectric withstanding voltage of 600 volts. Internal wiring shall have sufficient slack to permit removal of covers or panels for maintenance or connection. Each circuit shall consist a black and white twisted wire pair.

3.5.3.1 Wire dressing. Wire dress of the wires shall not result in improper electrical operation or interfere with mechanical operation that will lead to damage of the wires. Wires subject to flexing shall be protected to prevent abrasion. Wires shall be positioned or protected to avoid contact with rough or irregular surfaces and sharp edges. Lacing shall be applied firmly, avoiding excessive pressure which would cut into the insulation.

3.5.4 Wire terminals. Wire terminals shall be in accordance with UL 486. Wires subject to breakage at the connection shall be provided with terminals that grip the wire insulation. Where practical, wires soldered to terminals shall be looped at least once and not more than twice around the terminal before soldering.

3.5.5 Terminal boards. Terminal boards shall be in accordance with MIL-STD-1277. Terminal boards shall be marked in a clear and permanent manner so as to

identify individual terminals. Mounting of the terminal boards shall be in accordance with requirement 19 of MIL-STD-454.

3.5.6 Solder. Solder shall conform to type S, composition Sn60, of QQ-S-571 for all soldered electrical connections.

3.5.7 Sound powered jack. The sound powered jack, panel mount, H-27A, shall be in accordance with MIL-J-24649.

3.5.8 Sound powered telephone. The sound powered telephone, handset, H203, shall be in accordance MIL-T-15514.

3.5.9 Sound powered telephone holder. The sound powered telephone, handset holder, Z-33, shall be in accordance with MIL-J-24649.

3.6 Call signal station, requirements.

3.6.1 Call signal station. The call signal station shall consist of an enclosure, audio transducer, generator, selector switch, sound powered jack (see 3.4.7), sound powered telephone (see 3.4.8), and sound powered telephone holder (see 3.4.9). The call signal station shall operate without the use of external power.

3.6.2 Degree of enclosure. The degree of enclosure shall be watertight when tested in accordance with 4.6.9, with or without the sound powered jack cover in place. Upon completion of the test the enclosure shall show no evidence of liquid penetration.

3.6.2.1 Entrance plate. Enclosures with wall thickness of 4.78 millimeters (mm) or greater shall be provided with a cable entrance plate on the top of the enclosure. The cable entrance plate shall preserve the degree of enclosure specified.

3.6.3 Audio transducer. The output of the audio transducer shall be at least 95 dBA sound pressure level at a distance of 61 centimeters (cm). An intensity control, internal to the enclosure, shall vary the output of the transducer from 50 dBA to 95 dBA.

3.6.4 Generator. The generator output shall be 12 ± 1.2 volts a.c., 1000 ± 100 Hz, 250 ± 25 milli-amperes, at 150 revolutions per minute of the hand crank when tested in accordance with 4.6.10.

3.6.4.1 Starting torque. The generator starting torque shall not exceed seven inch pounds in either the clock-wise or counter clock-wise rotation of the hand crank.

3.6.4.2 Generator switch. The generator shall be provided with a centri-fugal or electronic rate switch which operates at approximately 9.6 ± 0.96 volts alternating current (Vac). The switch shall also provide protection to the generator from ringing current of another generator.

3.6.4.3 Generator noise. The generator output shall not induce noise into adjacent sound powered telephone circuits.

3.6.5 Selector switch. The selector switch shall have a contact resistance of 0.010 ohm or less, life expectancy of 100,000 operations. The selector switch shall have a positive detente or indexing mechanism, a break before make (non-shorting) configuration, and an environmental-proof seal.

3.6.6 Identification plate. An identification plate shall be provided on the outside of the enclosure. The identification plate shall be in accordance with MIL-P-15024 and the applicable specification sheet for the call signal station.

3.6.7 Station plate. A station plate suitable for engraving shall be provided. The station plate shall be in accordance with MIL-P-15024 and the applicable specification sheet for the call signal station.

3.7 IC/D, detailed design.

3.7.1 Call signal station. The call signal station, type IC/D, shall provide 16 selective ring circuits and one common talk circuit, each circuit shall consist of a twisted wire pair. The common talk circuit shall be separate from the selective ring circuits. The call signal station shall be in accordance with MIL-C-15306/1.

3.7.2 Audio transducer. The output of the audio transducer shall be a 1000 Hz audible tone in accordance with 3.5.3.

3.7.3 Selector switch. The selector switch shall be a two pole, 16 position rotary selector switch in accordance with 3.5.5.

3.7.3.1 Pointer and scale. The selector switch shall be provided with a moving pointer and a fixed scale. The pointer and scale shall be in accordance with ASTM F 1166. The scale shall be labeled one through 16 in accordance with MIL-C-15306/1.

3.8 TA-974 and TA 975, detailed design.

3.8.1 Call signal station. The call signal station shall provide 144 selective ring, selective talk circuit, using 12 active wire pairs through line sharing. The call signal station shall be able to conduct conferencing and net operations. Net operations shall not have ring capability.

3.8.2 Audio transducer. The output of the audio transducer shall be a warble tone of 1000 Hz in accordance with 3.5.3, interrupted at 0.1 second or 0.2 second intervals, selectable internal to the call signal station enclosure by either a switch or shorting bar.

3.8.3 Selector switch. The selector switches shall be single pole, 12 position, bi-directional, thumb wheel actuated, with J pin terminations. The switch position read out shall be labeled 0 through 9, A-B. The selector switch shall be a one of 12 code. The selector switch shall be in accordance with 3.5.5.

3.8.4 Call-answer switch. The call-answer switch shall be a double pole, double throw standard toggle switch. The call-answer switch shall be in accordance with 3.5.5.

3.8.5 Instruction plate. An instruction plate shall be mounted on the face of the enclosure. The instruction plate shall define the operating procedures of the call signal station. The instruction plate shall be in accordance with MIL-P-15024 and the applicable specification sheet for the call signal station.

3.8.6 TA-974/WTC-2, call signal station. The TA-974/WTC-2, call signal station shall be in accordance with MIL-C-15306/2.

3.8.7 TA-975/WTC-2, call signal station. The TA-975/WTC-2, call signal station shall be in accordance with MIL-C-15306/3.

3.8.8 Talk demonstration. The call signal station shall be subjected to the talk demonstration in accordance with 4.6.11. Upon completion of the test the call signal station shall have demonstrated the ability to selectively call other stations and provide clear and understandable two-way communications between the stations.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and test) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the government to accept defective material.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First Article inspection (see 4.4).
b. Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in 4.6.1

4.4 First article inspection. The call signal stations subjected to first article inspection shall be tested in accordance with 4.6. Examinations and tests shall be performed in general, in the order listed.

4.5 Quality conformance inspection. Quality conformance inspection shall be as specified in table I (see 6.3).

TABLE I. Quality conformance inspection.

Inspection	Requirement paragraph	Test paragraph
Group A		
First article	3.2	4.4
Insulation resistance	3.3.8	4.6.6
Workmanship	3.3.10	4.6.8
Group B		
First article	3.2	4.4
Insulation resistance	3.3.8	4.6.6
Connection resistance	3.3.9	4.6.7
Generator	3.5.4	4.6.10
Talk demonstration	3.7.8	4.6.11
Group C		
Temperature	3.3.4	4.6.2
Vibration	3.3.5	4.6.3
Shock	3.3.6	4.6.4
Salt fog	3.3.7	4.6.5
Degree of enclosure	3.5.2	4.6.9

4.6 Test procedures.

4.6.1 Test conditions. All measurements and test shall be made at a temperature of 23°C ± 2°C (73 degrees Fahrenheit (°F) ± 4°F), air pressure of 650 to 800 millimeters of mercury and relative humidity of 50% ± 2%.

4.6.2 Temperature. The call signal station shall be subjected to the high temperature test of MIL-STD-810, method 501.1 procedure II, and low temperature test of MIL-STD-810, method 502.1. The call signal station shall be mounted in its normal operating position on the test platform. Connection resistance (see 4.6.7) shall be monitored during this test. Upon completion of the above test the call signal station shall comply with 3.3.4.

4.6.3 Vibration. The call signal station shall be subject to the type I vibration test in accordance MIL-STD-167-1. The call signal station shall be mounted in its normal operating position on the test platform. Connection resistance (see 4.6.7) shall be monitored during this test. Upon completion of the above test the call signal station shall comply with 3.3.5.

4.6.4 Shock. The call signal station shall be subjected to the shock test in accordance with MIL-S-901. The call signal station shall be mounted in its normal operating position on the test platform. Connection resistance (see 4.6.7) shall be monitored during this test. Upon completion of the above test the call signal station shall comply with 3.3.6.

4.6.5 Salt fog. The call signal station shall be subjected to the salt fog test in accordance with procedure II of MIL-STD-2036. The call signal station shall be mounted in its normal operating position on the test platform. Upon completion of the above test the call signal station shall comply with 3.3.7.

4.6.6 Insulation resistance. The call signal station shall be subjected to the insulation resistance test. Insulation resistance of the call signal station shall be measured with a high quality 50 volts direct current (Vdc) megger. The measurement shall be made between each conductor and ground, and between conductors. The insulation resistance shall comply with 3.3.8.

4.6.7 Connection resistance. The call signal station shall be subjected to the connection resistance test during the temperature test (see 4.6.2), the vibration test (see 4.6.3), and the shock test (see 4.6.4). Resistance measurements shall be made across the input and output of the call signal station. Upon completion of the above test the call signal station shall comply with 3.3.9.

4.6.8 Workmanship. Workmanship shall conform to requirement 9 of MIL-STD-454 (see 3.3.10).

4.6.9 Watertight. The call signal station shall be subjected to the watertight test in accordance with MIL-STD-108. Upon completion of the above test the call signal station shall comply with 3.5.2.

4.6.10 Generator output. The generator shall be operated for 24,000 continuous cycles. Each cycle shall consist of bringing the generator crank up to 150 revolutions per minute (rpm) in three seconds, the speed shall be maintained for 10 seconds, stopping the generator in three seconds, with a period between cycles of three seconds. The output of the generator shall be connected to a 50 ohm, five watt resistive load during this test. The torque, voltage, frequency, and noise output of the generator shall comply with 3.5.4.

4.6.11 Talk demonstration. The call signal station shall be subjected to the talk demonstration test. Ten percent of the sound powered circuits shall be randomly selected. One person shall transmit a randomly selected phrase or words, the listener shall repeat the phrase or words accurately upon completion of the transmission. Upon completion of the test the call signal station shall comply with 3.7.8.

4.7 Preparation for delivery. The packaging, packing, and marking shall be inspected for compliance in accordance with ASTM D 4169.

5. PREPARATION FOR DELIVERY

(This preparation for delivery requirements specified herein apply only for direct Government procurements. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in section 2, see 6.2).

5.1 Preservation-packaging, packing and marking. The equipment and accessories, repair parts, manuals and information shall be preserved-packaged in accordance with ASTM D 3951 or as specified (see 6.2).

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The call signal stations covered by this specification is intended for use as a shipboard interior communications system.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number and date of this specification.
b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1 and 2.2).
c. Type of call signal station (see 1.2).
d. Quantity of each type of call signal station.
e. Whether first article inspection is required (see 3.2).

6.3 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contact. The applicable Data Item Description (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To insure correct contractural application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DoD FAR Supple-ment 27.475-1 exempts the requirements for a DD Form 1423.

Referenced paragraph	DID Number	DID Title	Suggested Tailoring
4.5	DI-NDTI-80809	Test Reports	----

The above DID's were those cleared as of the date of this specification. The current issue of DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.

6.4 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a preproduction sample, a first article sample, a first production item, a sample selected from the first 25 production items, a standard production item from the contractor's current inventory, and the number of items to be tested as specified in 4.3. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples of first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.4.1 First article samples. First article samples that have passed the first article inspection specified in 3.2 are not to be considered for shipboard installation regardless of the degree of refurbishment required. Unless otherwise directed by NAVSEA, the passed first article samples are to be retained by the first article test facility for future reference.

6.5 Drawings. Prospective suppliers of call signal station under this specification shall submit drawings, in accordance with the requirements of MIL-T-31000, for each type of call signal station for which approval is desired. When approval under this specification is granted, corrected drawings disclosing the equipment as approved, shall be forwarded to the command or agency concerned for information and retention. Any subsequent change approved for the equipment shall be reflected in the modification of these drawings.

6.6 Technical manuals. The requirement for technical manuals should be considered when this specification is applied on a contract. If technical manuals are required military specification and standards that have been cleared and listed in DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL) must be listed on a separate Contract Data Requirements List (DD Form 1423), which is included as an exhibit to the contract. The technical manuals must be acquired under separate contract line item in the contract.

6.7 Provisioning. Provisioning Technical Documentation (PTD), spare parts, and repair parts shall be furnished as specified in the contract.

6.7.1 Spare parts. When ordering spare parts or repair parts for the equip-ment covered by this specification, the contract should state that such spare parts and repair parts should meet the same requirements and quality assurance provisions as the spares used in the manufacture of the equipment. Packaging for such parts should also be specified.

6.8 Subject term (key word) listing.

Audio transducer
Terminal
Wire dressing

6.9 Changes from previous issues. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

User interest:
Navy - MC

Preparing activity:
Navy - SH
(Project 5805-0050)