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7 October 1987
SUPERSEDING
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2 January 1969

MILITARY SPECIFICATION

INDICATOR, ELAPSED TIME, ELECTROCHEMICAL

This specification is approved for use within the Naval Air Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense

1. SCOPE

1.1 Scope This specification covers design and performance requirements for lightweight, small and low resolution electrochemical elapsed time indicators.

2 APPLICABLE DOCUMENTS

2.1 Government documents

2 1.1 Specifications and standards The following specifications and standards form a part of this specification to the extent specified herein Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

STANDARDS

Military

MIL-STD-130 - Identification Marking of U S Military Property.

MIL-STD-143 - Standards and Specifications, Order of Precedence for the Selection of.

MIL-STD-202 - Test Methods for Electronic and Electric Component Parts

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to Commanding Officer, Naval Air Engineering Center, Systems Engineering and Standardization Department (Code 53), Lakehurst, NJ 08733-5100 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 6645

MIL-STD-704 - Aircraft Electric Power Characteristics.

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of.

MIL-STD-889 - Dissimilar Metals.

MIL-STD-45662 - Calibration Systems Requirements

MS3311 - Indicator, Elapsed Time, Electrochemical (Mercury Indicating Cell).

MS90373 - Indicator, Elapsed Time, Electrochemical (Copper), 115V AC or 28V DC.

MS90386 - Indicator, Elapsed Time, Electrochemical (Mercury), 115V AC 50/2400 Hz, 28V DC, or 5V DC.

(Copies of standards required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained

3. REQUIREMENTS

3.1 Qualification. The indicators furnished under this specification shall be products which are qualified for listing on the applicable Qualified Products List (QPL) at the time set for opening of the bids (see 4.4 and 6 4)

3.2 Materials. Materials shall conform to applicable specifications and shall be as specified herein Materials for which there are no applicable specifications, or which are not specifically described herein, shall be of the best quality, of the lightest practicable weight and suitable for the purpose intended

3 2 1 Fungus-proof materials Materials which are nutrients for fungi shall not be used

3.2.2 Non-magnetic materials. Non-magnetic materials shall be used for all parts of the indicator except where magnetic materials are necessary

3 2 3 Non-ferrous materials Non-ferrous materials shall be used for all parts of the indicator except where ferrous materials are essential.

3.2 4 Metals Metals shall be of the corrosion resistant type or suitably treated to resist corrosion due to fuels, salt spray or atmospheric conditions likely to occur in storage or normal service.

3.2 5 Dissimilar metals Dissimilar metals as defined in MIL-STD-889 shall not be used in intimate contact with each other unless protection against electrolytic corrosion is provided

3.2.6 Corrosive fumes. The materials, as installed in the indicator and under the service conditions specified herein, shall not liberate deleterious fumes.

3.2.7 Protective treatment. Finishes or protective coatings that will crack, chip or scale with age or extremes of climatic or environmental conditions shall not be used.

3.2 8 Selection of Government documents Specifications and standards for all materials, parts and Government certification and approval of processes and equipment, which are not specifically designated herein, and which are necessary for the execution of this specification, shall be selected in accordance with MIL-STD-143 except as described in 3.2.8 1.

3.2.8.1 Standard parts. Standard parts (MS or AN) shall be used wherever they are suitable for the purpose, and shall be identified on drawings by their part numbers. Commercial utility parts may be used provided they possess suitable properties and are replaceable by the standard parts (MS or AN) without alteration and provided the corresponding standard part numbers are referenced in the parts list and, if practicable, on the manufacturer's drawings. In the event there are not suitable corresponding standard parts in effect on the date of the invitation for bids, commercial parts may be used provided they conform to all requirements of this specification.

3 3 Design and construction. The indicator shall be in accordance with the applicable MS drawing and the requirements specified herein. The meter shall be constructed so that no part will work loose in service. It shall be built to withstand the strains, jars, vibrations and other conditions incident to snipping, storage, installation and service.

3.3.1 Size The outline dimensions shall be in accordance with the applicable MS drawing.

3.3.2 Indication. The type and characteristics of the indication of the elapsed time shall be in accordance with the applicable MS drawing

3.3 3 Sealing Unless otherwise specified herein, the indicating cell shall be hermetically sealed or fully encapsulated. The hermetic sealing or encapsulation shall be so accomplished that the seal will not be dependent upon materials which will be adversely affected by the action of any atmosphere to which the indicator may be subjected

3.3.4 Scale. The indicator scale shall be in accordance with the applicable MS drawing and 3.3 4.1 through 3.3 4.4

3.3 4 1 Scale visibility The scale shall be so designed that the full scale of the indicator can be easily read at a distance of 18 inches. There shall be no objectionable shadow on the graduated scale with general illumination and the indicating cell shall be free from defects that would prevent the indicator from being easily read Such defects include scratches, cracks and chips This requirement applies both before and after the tests specified herein.

3.3.4.2 Length. The scale length shall be as specified in the applicable MS drawing

3.3.4.3 Divisions. There shall be at least 10 scale divisions. There shall be a division marked at each point corresponding to 1/10th of the full scale length.

3.3.4.4 Numbering. Numbering shall be as specified in the applicable MS drawing.

3.3.5 Terminals. The terminals shall be solder type and shall be capable of carrying the applicable current and voltage The terminals shall meet the solderability requirements of MIL-STD-202, Method 208.

3.3 5.1 Polarity On all DC indicators and regulators, the symbol "+" shall be marked or stamped in a permanent, legible manner on, or as close to, the positive terminal as is practicable.

3.3.6 Finish. The indicator shall be finished in durable black color and shall not melt, crack, blister or scale as a result of the tests specified herein.

3 3.7 Identification of product. Meters, assemblies and parts thereof shall be marked for identification in accordance with MIL-STD-130 The indicator shall be identified in accordance with the applicable MS drawing.

3 3 7.1 Use of AN or MIL designations. AN or MIL designations shall not be applied to a product, except for qualification test samples, nor referenced to in correspondence until approval has been received from the qualifying activity.

3 3.7.2 Interchangeability All parts having the same manufacturer's part number shall be directly and completely interchangeable with each other with respect to installation and performance

3 3 8 Holder A mounting holder, when required, shall be in accordance with the applicable MS drawing

3.3 9 Input power. The indicator shall give specified performance from power sources having the characteristics conforming to MIL-STD-704.

3 3 10 Weight The total weight of the indicator or indicator assembly (indicator, holder and regulator), shall not exceed that as specified on the applicable MS drawing

3 4 Performance. The indicator shall give specified performance when subjected to any of the tests or combinations of tests specified in section 4.

3 4 1 Low temperature storage. The indicator shall meet the operational requirements of 3.4 8 after the test (see 4 6.12).

3 4.2 Dielectric strength The indicator shall be capable of withstanding application of 1500 Vrms, 60 Hz between terminals and case at sea level barometric pressure without damage, arcing or current leakage in excess of one milliampere (see 4 6.3).

3 4 3 Thermal shock Unless otherwise specified in the applicable MS drawing, the indicator shall operate without degradation through a range of -55 to +85°C ambient There shall be no warping, cracking or discoloration

which would adversely affect the performance of the indicator (see 4.6.4). The indicators shall maintain their specified accuracy during and after thermal shock.

3.4.4 Altitude. The indicator shall operate with barometric pressure ranging from 30 inches of mercury (sea level) down to 0.82 inch of mercury (80,000 feet elevation) and with pressure varying at a maximum rate of 0.5 inch of mercury per second (see 4.6.6).

3.4.5 Salt spray. The indicator shall meet the operational check requirements of 3.4.8 after being subjected to the tests specified in 4.6 7. There shall be no signs of corrosion of the metal parts after the test

3.4.6 Vibration. The indicator shall show no evidence of breakage, separation of electrolyte, permanent deformation or loosening of parts, and shall be operative during and after subjection to the vibration test specified in 4.6.8. Application of the vibration shall be in each of the three principal planes.

3.4 7 Shock. The indicator shall show no evidence of breakage, separation of electrolyte, permanent deformation or loosening of parts, and shall be operative after being subjected to the shock test specified in 4.6.9.

3.4.8 Operational check Each indicator shall meet the requirements specified in each individual MS drawing (see 4.6.2).

3.4.9 Hermetic seal The indicator shall give specified performance to the test specified in 4.6 5 There shall be no evidence of leakage of the electrolyte.

3.4.10 Power consumption. Power consumption at rated voltage shall be in accordance with the applicable MS drawing (see 4.6.11).

3.4 11 Life accuracy Unless otherwise specified in the applicable MS drawing, accuracy shall be within five percent of actual elapsed time when tested in accordance with 4 6 10 and 4.6.10 1

3 5 Workmanship The indicator, including all parts and accessories, shall be so constructed and finished that it shall be free from all defects which would affect proper functioning in service. Particular attention shall be given to freedom from blemishes, defects, burrs and sharp edges, accuracy of dimensions, radii of fillets and marking of parts and assemblies

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 as specified herein Except as otherwise specified in the contract or purchase order, the contractor may use his or any other facilities suitable for 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 assure supplies and services conform to prescribed requirements.

4 1.1 Responsibility for compliance. All items must 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 assuring all products or supplies submitted to the Government for acceptance comply with all requirements of the contract Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material

4.1.2 Test equipment and inspection facilities. Test equipment and inspection facilities shall be of sufficient accuracy, quality and quantity to permit performance of the required inspection The manufacturer shall establish calibration of inspection equipment to the satisfaction of the Government. Calibration of the standards which control the accuracy of inspection equipment shall be in accordance with MIL-STD-45662

4.2 Classification of inspections. Indicators covered by this specification shall be subjected to the following inspections to determine compliance with all applicable requirements:

a. Materials and design inspection (see 4.3)

b Qualificaton inspection (see 4.4)

c Periodic qualification inspection (see 4 4.2)

d. Quality conformance inspection (see 4.5)

4.3 Materials and design inspection Materials and design inspection shall consist of the certification that the materials used in fabricating the indicator as shown in 3.3 through 3 3 10 are in accordance with the applicable referenced standards, specifications or requirements prior to such fabrication This certification shall be supported by verifying data to be supplied with the initial qualification report

4 4 Qualification inspection Qualification inspection shall consist of the examinations and tests, specified in Table I and the applicable MS drawing, performed on the specified test samples. Tests shall be performed in the order shown in Table I. Failure of any indicator to pass all the tests is considered a failure of the qualification sample The cause of failure of the indicator shall be determined and corrected by the manufacturer. Failure mode and corrective action must be documented in the test report before the qualifying activity can consider the product for inclusion in the QPL. An initial request for authorization to begin testing shall be submitted to the qualifying activity prior to initializing a test program.

TABLE I. Qualification inspection requirements.

Test	Requirement	Method
Examination of product	3.3	4.6.1
Operational check	3.4 9	4.6 2

TABLE I. Qualification inspection requirements - Continued.

Power consumption	3.4.11	4.6.11
Dielectric strength	3.4.3	4.6.3
Thermal shock	3.4.4	4.6.4
Vibration	3.4.7	4.6.8
Shock	3.4.8	4.6 9
Salt spray	3.4.6	4.6.7
Altitude	3.4.5	4.6 6
Hermetic seal	3.4 10	4.6.5
Life accuracy	3.4 12	4.6.10
Low temperature storage	3.4.1	4.6.12

4 4.1 Qualification inspection sample Qualification inspection samples shall consist of three indicators for each voltage rating and each hour rating desired to be qualified. The indicators submitted for qualification inspection shall have been previously subjected only to the individual tests of 4.5 1 Samples for qualificaton inspection shall be manufactured by the applicant's routine production process Qualification samples for the manufacturer's tests and untested samples required by the qualifying activity shall be verified as production samples by the Government inspector.

4 4.2 Periodic qualification inspection. It shall be the responsibility of the qualified supplier to provide the Government periodic verification of ability of qualified products to meet the requirements of this specification Periodic verification shall be performed at two year intervals and shall consist of all the tests of Table II performed sequentially, unless otherwise designated by the qualifying activity The test sample shall be three indicators for each voltage rating and each hour rating qualified to each MS drawing Testing cannot begin until authorized by the qualifying activity (see 6 4).

TABLE II Periodic qualification test plan.

Test	Requirement	Method
Examination of product	3.3	4.6.1
Operational check	3.4.9	4.6 2
Dielectric strength	3.4.3	4.6 3
Thermal shock	3.4.4	4 6.4
Vibration	3.4.7	4.6.8
Shock	3.4.8	4 6 9
Altitude	3.4.5	4.6 6
Salt spray	3.4.6	4.6 7
Hermetic seal	3.4.10	4.6.5
Life accuracy	3 4.12	4 6 10 1

4 5 Quality conformance inspection The qualified supplier shall be responsible for accomplishing all the inspections Quality conformance

inspection shall be under the supervision of the Government quality control representative. Acceptance or approval of material during the course of manufacture shall in no case be construed as a guarantee of the acceptance of the finished product. Quality conformance inspection shall consist of the following tests:

a. Individual tests (see 4.5.1)

b. Sampling plan tests (see 4.5.2.1)

4.5.1 Individual tests. Each indicator submitted for acceptance shall be subjected to the individual tests. These tests shall determine the compliance with the requirements of material, workmanship and operational adequacy As a minimum, each indicator accepted shall have passed the following tests:

a. Examination of product (see 4.6.1)

b. Operational check (see 4.6.2)

4.5.2 Sampling plan. The sampling plan shall consist of the tests of 4.5.2.1 The test samples selected for sampling tests shall first have passed the individual tests.

Quantity Offered for Acceptance	Quantity to be Selected for Sampling Plan Tests
First 15	1
Next 50	1
Next 75	1
Next 100	1
Each additional 200 or fraction thereof	1

When a defective indicator is detected, no indicators from those still in stock or later produced shall be accepted until the extent and cause of failure have been determined and appropriately corrected In addition, when a failure occurs, shift to one sample out of the next 15 and proceed as indicated

4 5 2 1 Sampling plan tests. Each sample selected for sampling plan tests shall be subjected to the following tests in the order listed

a. Temperature cycling (see 4 6 4)

b Hermetic seal (see 4.6 5)

c Dielectric strength (see 4 6 3)

4.5 2 2 Disposition of tested indicators Indicators which have been subjected to quality conformance inspection sampling plan tests (see 4 5 2 1) may not be delivered on a contract specifying the military part number.

4 5 2.3 Rejection and retest Indicators which have been rejected may be reworked or have parts replaced to correct the defect and resubmitted for acceptance Before resubmitting, full particulars concerning previous rejection and the action taken to correct the defects found in the original

shall be furnished to the Government inspector and to the qualifying activity.

4.6 Test methods. The procedure specified herein may need to be supplemented by a procedure outlined in detail by the contractor. This procedure shall state the exact conditions under which measurements are to be made The procedure shall include details for test of all electrical, mechanical and performance characteristics as specified for the particular indicator, including provisions for indicating all variations in characteristics measured during the test procedure This procedure is subject to the approval of the qualifying activity (see 6.4).

4 6.1 Examination of product Each indicator shall be examined to determine conformance with workmanship, dimensions, markings, applicable drawings and other requirements not verified by specific performance tests.

4 6.2 Operational check (see 3.4.8).

4.6.2.1 Copper types

a. Indicator cell only. The indicating cell without the regulator shall be measured for resistance by means of an AC Wheatstone Bridge circuit (Caution Do not use a volt/ohm meter) at room ambient. The measured resistance shall not exceed 5000 ohms.

b. Complete indicator assembly (holder, indicating cell, regulator) The voltage-regulated 1000 hour indicators shall have a current flow of 70 $\pm$2 microamperes at room ambient when connected to the voltage sources designated in 3.3.9. A microammeter placed in series between the indicating cell anode and the regulator shall be used to measure the current. After any or all tests specified in 4.6.4 through 4 6 9, the current flow must be 70 $\pm$ 3 microamperes.

4 6 2.1.1 Test readings Unless otherwise specified herein, before a test reading is taken copper electrolyte indicators, in accordance with MS90373, may be either tapped lightly or may be vibrated using a vibrator set at 30, 60 or 120 Hz with a maximum amplitude of 0.002 inch.

4.6.2 2 Mercury types

a. Indicators regulated by current. The current regulated indicators (MS3311 type) shall be measured for voltage drop in accordance with the methods of the applicable MS drawing using a high impedance DC current source greater than one megohm. (Caution: Do not use a volt/ohm meter.) The maximum voltage drop ($V_{cellMax}$) at the design test current shall not exceed the values shown on the applicable MS drawing.

b. Indicators regulated by voltage. The voltage regulated indicators (MS90386 type) shall have their operation measured in accordance with the methods of the applicable MS drawing. Operation of the indicator cell and current source shall be as specified on the individual MS drawing

4 6 3 Dielectric strength. The indicator shall be tested in accordance with MIL-STD-202, Method 301. The indicator shall be tested at 1500 V, 60 Hz rms for one minute (see 3.4.2).

4.6 4 Thermal shock. The indicator shall be tested in accordance with MIL-STD-202, Method 107, Condition A. The voltage regulated indicator shall be operated during this test at rated voltage AC indicators shall be operated at 60 Hz (The current regulated indicators shall be energized at their operating current in accordance with the applicable MS drawing.) At the completion of the test, the indicator shall meet the operational requirements of 4 6.2 (see 3 4.3).

4 6 5 Hermetic seal (see 3 4.9).

4 6 5 1 Copper types. The liquid filled indicating cell of the indicator shall be tested for hermetic seal as follows: The cell shall be placed on white absorbent paper and the paper with cell(s) shall be put into an oven at 85 ±3°C for 1/2 hour. There shall be no evidence of staining of the paper (blue coloration) or the presence of blue salts around the end caps upon completion of this test.

4.6.5.2 Mercury types. After 1/2 hour exposure at 85 ±3°C, there shall be no microscopic evidence of mercury leakage or expulsion within the encapsulation.

4 6 6 Altitude The indicator shall be tested in accordance with MIL-STD-202, Method 105 except that the absolute pressure shall be 0.82 inch of mercury The indicator shall be operated for 10 minutes under these conditions at 128 volts for AC types, 29 volts for DC types, 5.5 volts for 5 volt types and at 110 percent of specified design current (in accordance with the applicable MS drawing) for current regulated indicators. At the completion of the test, the indicator shall be subjected to and shall meet the operational requirements of 4 6.2 (see 3.4.4).

4 6 7 Salt spray. The indicator shall be tested in accordance with MIL-STD-202, Method 101, Condition B No voltage shall be applied during the test. At the completion of the test, the indicator shall be subjected to and shall meet the operational requirements of 4 6 2 (see 3 4 5)

4 6 8 Vibration The indicator shall be tested in accordance with MIL-STD-202, Method 204, Condition D Application of the vibration shall be in each of the three principal planes. The indicator shall be rigidly mounted in the horizontal position The voltage regulated indicators shall be energized during this test at rated voltage AC indicators shall be energized at 60 Hz Current regulated indicators shall be energized at their operating current in accordance with the applicable MS drawing. At the completion of the test, the indicator shall be subjected to and shall meet the operational requirements of 4 6 2 (see 3 4.6).

4 6 9 Shock. The indicator shall be tested in accordance with MIL-STD-202, Method 213, Condition A, to an acceleration of 50 g's, half-sine wave, for 11 ±1 millisecond or to the peak g value and duration of the applicable MS drawing. At the completion of the test, the indicator shall be subjected to and shall meet the operational requirements of 4 6.2 (see 3 4.7)

4.6.10 Life accuracy (qualification) Each indicator type shall be tested for life accuracy for 1000 ±40 hours. The test shall be performed at the following conditions:

Temperature	Voltage	Elapsed time for test
Maximum rated	Maximum rated	200 ±8 hours
Maximum rated	Minimum rated	200 ±8 hours
Minimum rated	Maximum rated	200 ±8 hours
Minimum rated	Minimum rated	200 ±8 hours
Rated	Rated	200 ±8 hours

The maximum, minimum and rated operating temperatures and voltages are shown on the individual MS drawing. At the end of 1000 hours, the meters shall be checked for accuracy in accordance with the requirements of the individual MS drawing Accuracy is calculated as follows:

$$\text{Accuracy (\%)} = \frac{\text{(Measured Elapsed Time - Actual Elapsed Time)}}{\text{Actual Elapsed Time}} \times 100$$

Failure of one or more indicators is considered a failure of the entire sample. AC indicators shall be tested at 60 Hz (see 3.4.11).

4 6.10 1 Life accuracy (retention of qualification) Life accuracy shall be tested as described in 4.6.10 except that each step shall be 100 ±4 hours for a total of 500 ±20 hours (see 3 4.11).

4 6 11 Power consumption. Meters shall be checked for power consumption at the rated voltage in accordance with the applicable MS drawing, using the suitable measuring equipment (see 3 4.10).

4 6 12 Low temperature storage The indicator shall be placed in a chamber maintained at -80°C for 30 ±2 minutes. The temperature shall then be raised to -20°C +5°/-0°C and this cycling shall be repeated three times At the completion of this test the indicator shall be brought to room ambient and be subjected to the operational test of 4.6 2 (see 3.4.1).

5 PACKAGING

5 1 Packaging. All major units and parts of the indicator shall be preserved, packaged, packed and marked for the level of shipment specified in the contract or purchase order in accordance with MIL-STD-794 (see 6.2 1).

6. NOTES

6 1 Intended use The indicator covered by this specification is intended to accurately record the number of hours that equipment has operated in the environment described herein. These devices are suitable for use in aircraft.

6 2 Ordering data

6.2 1 Acquisition requirements Procurement documents should specify the folowing·

a. Title, number and date of this specification.

b. The quantity, MS part number and type number, if any, of the indicator desired.

c. Levels of preservation, packing and packaging desired and marking desired (see 5.1).

6.3 Definitions.

6 3 1 Voltage All AC voltages as used in this specification should be considered to be root mean square (rms) values.

6 3.2 Hermetic seal. A hermetic seal is defined as a perfectly closed and airtight seal made between either vitric, metallic or both materials A hermetic seal is not intended to include seals accomplished by gaskets, but vitric epoxy resin seals with epoxy resin encapulation are acceptable.

6.3.3 Indicator. The indicator is defined as a complete elapsed time indicator assembly. The assembly may be packaged with indicator cell and regulator in a single inseparable package, or may be a separable assembly consisting of regulator, holder and indicating cell.

6 3.3 1 Holder. Holder is defined as that part of a separable indicator assembly into which the indicating cell is inserted and its associated cap

6.3.3 2 Regulator. Regulator is defined as that portion of the indicator assembly, or as a separately packaged assembly, which controls the current to the indicator cell.

6.3.3 3 Indicating cell. Indicating cell is defined as the indicating part of the indicator from which elapsed time is read

6 3 3 4 Accuracy. The accuracy is a number which defines the limit of error expressed as a percentage of reading

6 3 3.5 Full scale value. The full scale value is equal to the largest value of the actuating quantity which can be indicated on the scale

6.3 4 Refurbished. Refurbished should mean that the indicator has been completely overhauled with all component parts meeting current parts standards, and the indicator should have been subjected to and have met all the requirements of a new indicator.

6.4 Qualification. With respect to products requiring qualification, awards would be made only for products which are, at the time set for opening of bids, qualified for inclusion in applicable Qualified Products List 81219 whether or not such products have actually been so listed by that date. The attention of the suppliers is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Naval Air Systems Command (Air 51122), Washington, DC and information pertaining to qualification of products may be obtained from the Naval Avionics Center, Code B/714, 6000 E 21st St , Indianapolis, IN 46219-2189

6.5 Precedence of documents. When the requirements of the contract, this specification or applicable subsidiary specifications conflict, the following precedence should apply:

a. Contract. The contract should have precedence over any specification.

b This specification This specification should have precedence over all applicable subsidiary specifications Any deviation from this specification, or from subsidiary specifications where applicable, should be specifically approved in writing by the acquiring activity

c. Referenced specifications Any referenced specification should have precedence over all applicable subsidiary specifications referenced herein.

6.6 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes

6 7 Subject term (key word) listing.

Indicator, electrochemical elapsed time
Aircraft
Hermetic seal
Indicating cell

Preparing activity:
Navy - AS

(Project No 6645-N380)

INSTRUCTIONS In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements All users of military standardization documents are invited to provide suggestions This form may be detached, folded along the lines indicated, taped along the loose edge *(DO NOT STAPLE)*, and mailed In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems Enter in block 6 any remarks not related to a specific paragraph of the document If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered

NOTE This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document*(s)* or to amend contractual requirements

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)* _____

b. ADDRESS *(Street, City, State, ZIP Code)*

5. PROBLEM AREAS

a. Paragraph Number and Wording

b. Recommended Wording

c. Reason/Rationale for Recommendation

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional

b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional

c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional

8. DATE OF SUBMISSION *(YYMMDD)*

DD FORM 82 MAR 1426

PREVIOUS EDITION IS OBSOLETE.