

INCH-POUND

MIL-DTL-7793G

19 October 2012

SUPERSEDING

MIL-M-7793F

15 September 1983

DETAIL SPECIFICATION

METER, TIME TOTALIZING

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

Reactivated after 19 October 2012 and may be used for new and existing designs and acquisitions.

1. SCOPE

1.1 Scope. This specification covers the general requirements for hermetically sealed, time totalizing meters.

1.2 Classification. The meters covered by this specification are of the types specified in the applicable specification sheets.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 or 4 of this specification. This section does not include documents cited in the other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 or 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 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 cited in the solicitation or contract.

Comments, suggestions, or questions on this document should be addressed to the Naval Air Systems Command, (Commander, Naval Air Warfare Center Aircraft Division, Code 4L8000B120-3, Highway 547, Lakehurst, NJ 08733-5100) or emailed to michael.sikora@navy.mil . Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil .

MIL-DTL-7793G

DEPARTMENT OF DEFENSE SPECIFICATIONS

- | | | |
|--------------|---|--|
| MIL-DTL-5541 | - | Chemical Conversion Coatings on Aluminum and Aluminum Alloys |
| MIL-A-8625 | - | Anodic Coatings for Aluminum and Aluminum Alloys |

(See ASSIST database for list of specification sheets.)

DEPARTMENT OF DEFENSE STANDARDS

- | | | |
|--------------|---|--|
| MIL-STD-130 | - | Identification Marking of U.S. Military Property |
| MIL-STD-202 | - | Electronic and Electrical Component Parts |
| MIL-STD-461 | - | Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment |
| MIL-STD-889 | - | Dissimilar Metals |
| MIL-STD-1285 | - | Marking of Electrical and Electronic Parts |

(Copies of these documents are available online at <https://assist.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASTM INTERNATIONAL

- | | | |
|-----------|---|--|
| ASTM-B545 | - | Standard Specification for Electrodeposited Coatings of Tin |
| ASTM-B633 | - | Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel |

(Copies of these documents are available from www.astm.org or ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.)

SAE INTERNATIONAL

- | | | |
|------------------|---|-----------------------------------|
| SAE AMS-QQ-N-290 | - | Nickel Plating (Electrodeposited) |
| SAE AMS2404 | - | Plating, Electroless Nickel |

(Copies of these documents are available from www.sae.org or SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

MIL-DTL-7793G

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specified 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 Qualification. Meters furnished under this specification shall be products that are authorized by the qualifying activity for listing on the applicable qualified products list before contract award (see 4.2 and 6.3).

3.3 Materials and components. The materials and components shall conform to applicable specifications and standards required herein or in detail specifications. If no specific materials or components are specified, the contractor shall select materials and components capable of meeting all of the operational and environmental requirements specified herein.

3.3.1 Non-magnetic materials. Non-magnetic materials shall be used for all parts except where magnetic materials are essential.

3.3.2 Metals. Metals used on the exterior of the meter shall be of the corrosion resistant type or suitably treated to resist corrosion due to fuels, salt spray or atmospheric conditions likely to be met in normal service or storage.

3.3.3 Dissimilar metals. Dissimilar metals as defined in MIL-STD-889 shall not be used in intimate contact with each other, unless suitably protected against electrolytic corrosion by means of protective coatings.

3.3.4 Aluminum alloy parts. Aluminum alloy parts shall be covered with an anodic film conforming to MIL-A-8625, except for internal components contained in a hermetically sealed enclosure or when any of the following conditions prevail:

- a. Small holes and case inserts.
- b. Aluminum alloys that do not anodize satisfactorily shall be coated with a chemical film in accordance with MIL-DTL-5541.
- c. To provide a paint base, chemical treatments in accordance with MIL-DTL-5541 may be used in lieu of anodizing.

3.3.5 Iron and steel parts. Iron and steel parts shall be nickel plated (per SAE AMS-QQ-N-290 or SAE AMS2404) or tin (per ASTM-B545) or zinc (per ASTM-B633) plated. Plating is

MIL-DTL-7793G

not required on parts made from corrosion resisting steel or contained in a hermetically sealed enclosure.

3.4 Vacuum impregnation. Coils need not be impregnated when specified performance can be met without impregnation.

3.5 Protective treatment. Finishes and protective coatings which will crack, chip or scale during normal service life, or are affected by extremes of atmospheric or environmental conditions shall not be used.

3.6 Fungus-proof materials. Materials that are nutrients for fungi shall not be used.

3.7 Design and construction. The meter shall be in accordance with the applicable specification sheet and the requirements specified herein. In the event of any conflict between the requirements of this specification and the applicable specification sheet, the latter shall govern. It shall be built to withstand the strains, jars, vibrations and other conditions incident to shipping, storage, installation and service.

3.7.1 Counting mechanism. The indicator counting mechanism shall have a digital readout as specified in the applicable specification sheets and shall be incapable of being reset.

3.7.2 Meter faceplate. The meter faceplate shall have a dull black finish. The hours numerals shall be white on a dull black background. Meters with a 1/10th hour readout shall have the tenths place numeral colored red on a white background. The words "HOURS" or "HOURS AND TENTHS", as applicable, shall appear on the faceplate, as may the manufacturer's name or trademark. The meter shall have an operational indicator visible through the faceplate that demonstrates the meter is operating when power is applied.

3.7.3 Enclosure. The case shall be in accordance with the applicable specification sheet and shall provide a hermetically sealed enclosure for the internal mechanism of the instrument. The hermetic sealing shall be so accomplished that the seal will not be dependent upon materials which will be affected by the action of any atmosphere to which the meter may be subjected.

3.7.3.1 Finish. The case shall be finished in a durable, dull or semi-gloss black color.

3.7.4 Filling medium. The filling medium shall be at least 98 percent purity and free of dust particles. The filling medium may not contain more than 0.006 milligram of water vapor per liter (dew point -65 °C or -85 °F maximum) at the filling pressure. The filling medium shall consist of 100 percent helium (preferred), a mixture of 88 to 92 percent nitrogen and the remainder of helium or a mixture of inert noble gasses (such as argon and helium). The absolute pressure of the filling medium in the case shall be a minimum of one atmosphere.

3.7.5 Coils. The coils shall be properly insulated from the case and other grounded parts.

MIL-DTL-7793G

3.7.5.1 Coil temperature. The coil temperature rise shall be left to the discretion of the manufacturer, but shall be considered additive to the maximum operating temperature specified herein.

3.7.6 Terminals. All terminals used for soldered connections shall be of the “hook-type” and shall be hot-tin dipped or tin plated in accordance with ASTM-B545. The terminals shall meet the solderability requirements of MIL-STD-202, Method 208, Test Method C. Each terminal shall accommodate one wire sized 22 AWG or smaller.

3.7.7 Operating position. The indicator shall be designed to operate in any position.

3.7.8 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.

3.7.9 Identification of product. Meters and assemblies and parts thereof shall be marked for identification in accordance with MIL-STD-130.

3.7.9.1 Nameplate. The following nameplate data shall appear on the outer surface of the enclosure:

Manufacturer’s name or trademark
Manufacturer’s model number
Nominal voltage and frequency (if applicable)
Nominal power (watts)
Military part number
Coded date (Week and Year) in accordance with MIL-STD-1285

3.7.9.2 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 notice of approval has been received from the activity responsible for qualification.

3.7.10 Mounting flange. Meter flanges shall be in accordance with the applicable specification sheet. Fixed flanges shall be tin-plated on the specified mount surface to provide a case ground for the meter. Tin-plate shall be 0.0002 inch minimum thickness and shall be in accordance with ASTM-B545.

3.8 Performance. The meter shall perform as specified in this section when tested in accordance with 4.4.

3.8.1 Examination of product. The meter shall conform to the dimensions, workmanship, marking and configuration requirements of this specification (see 4.4.1).

3.8.2 Operation. As evidenced by the operational indicator, the meter shall start and operate normally within 40 seconds after applying the specified voltage (see 4.4.2). (Note: This

MIL-DTL-7793G

test verifies normal meter operation under short-term conditions. It is not a practical medium to measure the meter's compliance with accuracy requirements.)

3.8.3 Power consumption. The average power consumption at rated voltage shall be as specified on the applicable specification sheets (see 4.4.3).

3.8.4 Power supply tolerance. The meter shall be capable of withstanding the voltage and frequencies specified in 4.4.3 or the individual specification sheet. The meter shall meet the operational requirements of 3.8.2 after the test (see 4.4.4).

3.8.5 Insulation resistance. The insulation resistance between terminals and case shall exceed 100 megohms. The meter shall not be damaged by the test potential (see 4.4.5).

3.8.6 Dielectric strength. There shall be no damage, arcing, or current leakage in excess of 1.0 milliamperes (see 4.4.6).

3.8.7 Altitude. The meter shall operate normally at specified voltages and barometric pressure, with no evidence of damage after the test (see 4.4.7).

3.8.8 Thermal shock. The meter shall operate through a range of -65 °C to +125 °C unless otherwise specified in the applicable specification sheet. The meter shall not show any signs of electrical or mechanical damage after the test (see 4.4.8).

3.8.9 Moisture resistance. The meter shall meet the requirements of 3.8.2 after the test. There shall be no signs of moisture in the face of the meter nor signs of corrosion (see 4.4.9).

3.8.10 Salt spray. The meter with mounting flange or removable faceplate attached shall meet the requirements of 3.8.2 after being subjected to the test of 4.4.10. There shall be no signs of moisture inside the face of the meter after the test.

3.8.11 Vibration. The meter shall meet the requirements of 3.8.2 and shall show no evidence of mechanical damage and operate correctly during and after subjected to the vibration test as specified in 4.4.11.

3.8.12 Shock. The meter shall meet the requirements of 3.8.2 and shall show no evidence of mechanical damage and operate correctly after subjected to the shock tests (see 4.4.12).

3.8.13 Hermetic seal. The meter shall operate satisfactorily after being subjected to the gross leak or fine leak test. The meter face shall show no evidence of the presence of moisture intrusion. Any leakage, as evidenced by bubbles, is considered a failure of the MIL-STD-202, Method 104, Test condition A, gross leak test (see 4.4.13.1). The leak rate shall be not greater than .01 micron ft³/hr for the fine leak test (see 4.4.13.2).

3.8.14 Life accuracy. Unless otherwise specified, when tested in accordance with 4.4.14, the meters shall have the following minimum accuracy:

MIL-DTL-7793G

- a. 28 VDC meters $\pm 1.0\%$
- b. 60 Hz AC meters $\pm 0.1\%$
- c. 400 Hz AC meters $\pm 0.1\%$

3.8.15 Electromagnetic compatibility. The meter shall conform to the electromagnetic compatibility requirements CE102 and RE102 of MIL-STD-461 (see 4.4.15).

3.8.16 Terminal stress. Each terminal shall withstand a 4.5 pound (20.0 Newton) axial force without loosening or being damaged (see 4.4.16).

3.8.17 Low temperature storage. The meter shall meet the operational requirements of 3.7.2 during the last -50°C step of the test (see 4.4.17).

3.9 Workmanship. The meter, including all parts and accessories shall be fabricated and finished in a thoroughly workmanlike manner. The meter shall be free of blemishes, defects, burrs and sharp edges; accuracy of dimensions, radii of fillets and marking of parts and assemblies. Soldering, welding, brazing, painting, wiring, riveting and alignment of parts and tightness of assembly screws and bolts shall be thorough.

3.9.1 Cleaning. The meter supplied shall be thoroughly cleaned by the supplier. Loose, spattered or excess solder, metal chips and other foreign material shall be removed during and after final assembly.

3.9.2 Riveting. Riveting operations shall be carefully performed to ensure that the rivets are tight and satisfactorily headed.

4. VERIFICATION

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

- a. Qualification inspection (see 4.2).
- b. Conformance inspection (see 4.3).

4.2 Qualification inspection. Qualification inspection shall consist of the examinations and tests, specified in table I and the applicable specification sheets, to be performed on the specified test samples. The test sample size shall consist of three meters for Group I of table I and any additional meters as required for Group II and the applicable specification sheet. Tests shall be performed in the order specified for all tests within Group I of table I. Failure of any meter to pass all the tests is considered failure of the qualification sample. The cause of failure of the meter shall be determined and corrected by the supplier. Failure mode and corrective action must be documented in the qualification test report before the qualifying activity can consider the products for listing on the QPL.

MIL-DTL-7793G

TABLE I. Qualification inspection.

Group	Test	Requirement	Method
I	Examination of product	3.7.1 3.7.2 3.7.3 3.7.6 3.9 3.9.1	Visual examinations (4.4.1)
	Operation	3.8.2	4.4.2
	Power consumption	3.8.3	4.4.3
	Power supply tolerance	3.8.4	4.4.4
	Insulation resistance	3.8.5	4.4.5
	Dielectric strength (altitude)	3.8.6	4.4.6.1
	Altitude	3.8.7	4.4.7
	Thermal shock	3.8.8	4.4.8
	Moisture resistance	3.8.9	4.4.9
	Salt spray	3.8.10	4.4.10
	Vibration	3.8.11	4.4.11
	Shock	3.8.12	4.4.12
	Hermetic seal (gross leak test)	3.8.13	4.4.13
	Life accuracy	Spec. Sheet	4.4.14
II	Electromagnetic compatibility	3.8.15	4.4.15
	Terminal stress	3.8.16	4.4.16
	Low temperature storage	3.8.17	4.4.17
	Transient protection (when required)	Spec. Sheet	Spec. Sheet
	Transient generation (when required)	Spec. Sheet	Spec. Sheet

4.2.1 Qualification test samples. Samples for qualification tests shall be manufactured by the contractor's routine production process.

4.2.2 Verification of qualification. Every 24 months, the manufacturer shall provide to the preparing activity verification of the ability of qualified products to meet the requirements of this specification when requested.

MIL-DTL-7793G

TABLE II. Periodic inspection.

Test	Requirement	Method
Examination of product	3.8.1	4.4.1
Operation	3.8.2	4.4.2
Power supply tolerance	3.8.4	4.4.4
Dielectric strength (alt)	3.8.6	4.4.6.1
Thermal shock	3.8.8	4.4.8
Salt Spray	3.8.10	4.4.10
Vibration	3.8.11	4.4.11
Shock	3.8.12	4.4.12
Hermetic seal (gross leak)	3.8.13	4.4.13.1
Life accuracy	3.8.14	4.4.14

4.3 Conformance inspection. Conformance inspection shall consist of the following tests:

- a. Individual tests (see 4.3.1).
- b. Sampling plan tests (see 4.3.2.1)

4.3.1 Individual tests. All meters delivered under this specification shall comply with the following tests performed in the order shown, except that the order is optional for the hermetic seal test. Meters shall show 0 ± 1 hour at the time of delivery.

- a. Examination of product (see 4.4.1).
- b. Operation (see 4.4.2).
- c. Insulation resistance (see 4.4.5).
- d. Dielectric strength (see 4.4.6).
- e. Hermetic seal (see 4.4.13.1) (gross leak only).

4.3.2 Sampling plan. Unless otherwise specified in the applicable specification sheet, sampling plan tests shall be performed on each lot of meters supplied under this specification. The meters selected for a sampling test shall first have passed the individual tests. The test samples (meters) which have passed sampling plan tests shall not be delivered on contract unless refurbished and re-verified to comply with all the individual tests of 4.3.1.

MIL-DTL-7793G

<u>Production quantity</u>	<u>Sampling plan quantity</u>
1 - 15	1
16 - 50	2
51 - 120	3
121 - 200	4
Each additional 100	Add one meter for each 100 produced

4.3.2.1 Sampling plan tests. Meters selected in accordance with the 4.3.2 sampling plan shall comply with the following tests performed in the order shown:

- a. Thermal shock (see 4.4.8, unless otherwise specified in the applicable specification sheet).
- b. Power supply tolerance (see 4.4.4).
- c. Hermetic seal (see 4.4.13.2) (fine leak only).

4.3.2.2 Rejection and retest. When one item selected from a production run fails to meet specification requirements, items still on hand or produced later will not be accepted until the extent and cause of failure is determined. After corrections have been made, all necessary tests shall be repeated. Individual tests may continue for operational and production reasons, pending the results of the investigation of a sampling test failure. Final acceptance of items on hand or later produced shall not be made until it has been determined that the items meet all the requirements of this specification.

4.4 Test methods and conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions of MIL-STD-202 and at the rated voltage (and frequency, if applicable) from the applicable specification sheet.

4.4.1 Examination of product. The meter shall be examined visually for conformance to dimensions, markings, workmanship and other requirements not verified by specific performance tests (see 3.8.1).

4.4.2 Operation. Operating power shall be applied to the meter to check for normal operation under each of the following conditions from the meters' individual specification sheets (see 3.8.2).

<u>DC Meter</u>	<u>AC Meters</u>
Minimum rated voltage	Minimum rated voltage, minimum Hz
Maximum rated voltage	Minimum rated voltage, maximum Hz
	Maximum rated voltage, minimum Hz
	Maximum rated voltage, maximum Hz

MIL-DTL-7793G

4.4.3 Power consumption. Meters shall be checked for power consumption at the rated voltage shown on the applicable specification sheet (see 3.8.3).

4.4.4 Power supply tolerance. The meter shall be subjected to steady energization for 30 ± 1 minutes as specified on the applicable specification sheets for each of the following conditions:

<u>DC meter</u>	<u>400 Hz meter</u>	<u>60 Hz meter</u>
Minimum voltage	Rated voltage, 300 Hz	Rated voltage, 50 Hz
Maximum voltage	Maximum voltage, 500 Hz	Maximum voltage, 70 Hz

Upon completion of the power supply tolerance test, the meters shall be subjected to the operational check test specified in 4.4.2 (see 3.8.4).

4.4.5 Insulation resistance. The insulation resistance shall be measured between the terminals connected together and the meter case. The test method shall be in accordance with Method 302, Test Condition B of MIL-STD-202 (see 3.8.5).

4.4.6 Dielectric strength. The meters shall be subjected to Method 301 of MIL-STD-202 under conditions specified in 4.4.6.1 and 4.4.6.2. Test voltage shall be applied between the terminals connected together and the case (see 3.8.6).

4.4.6.1 Dielectric at altitude. Apply the applicable specification sheet's test voltage (altitude) for 60 ± 5 seconds to the meter under barometric pressure conditions required as follows for the meter under test:

- a. DC and 400 Hz - 0.82 inch Hg (80,000 feet)
- b. 60 Hz - 20.58 inch Hg (10,000 feet)

4.4.6.2 Dielectric at room ambient. For conformance testing only, apply the applicable specification sheet's test voltage (room) for two to five seconds to the meter at room ambient altitude and temperature.

4.4.7 Altitude. The meter shall be subjected to Method 105 of MIL-STD-202, except that the absolute pressure shall be .82 inch of mercury (80,000 feet altitude) for the 400 Hz and 28 VDC types and 20.58 inches of mercury (10,000 feet altitude) for 60 Hz types. The meter shall be energized for 10 ± 1 minutes under these conditions, with the maximum voltage and frequency specified on the applicable specification sheet (see 3.8.7).

MIL-DTL-7793G

4.4.8 Thermal shock. The meter shall be subjected to Method 107, Condition B of MIL-STD-202. The meter shall be energized as follows for each step of the test cycle (see 3.8.8):

Step 1 - Maximum rated voltage (and minimum frequency for AC meters)

Step 2 - Rated voltage (and rated frequency for AC meters)

Step 3 - Minimum rated voltage (and maximum frequency for AC meters)

Step 4 - Rated voltage (and rated frequency for AC meters)

NOTE: Energization of the meters is optional during steps 2 and 4 at room ambient temperature.

4.4.9 Moisture resistance. The unenergized meter shall be subjected to Method 106 of MIL-STD-202. The meter shall be mounted with the digital display in the vertical position. The meter shall be subjected to the operational check (see 4.4.2) after completion of the moisture resistance test (see 3.8.9).

4.4.10 Salt spray. The unenergized meter, with mounting flange or removable faceplate attached, shall be tested in accordance with Method 101, Condition B of MIL-STD-202. The meter shall be subjected to the operational check (see 4.4.2) after completion of the test (see 3.8.10).

4.4.11 Vibration. The 400 Hz and 28 VDC meters shall be tested in accordance with Method 204, Condition D of MIL-STD-202. The 60 Hz meters shall be tested in accordance with Method 201 of MIL-STD-202. The meter shall be energized with the rated voltage and frequency, if applicable. The meter shall be rigidly mounted to the vibration table. The vibration shall be applied in each of the three principal axes. The meter shall be subjected to the operational check (see 4.4.2) after the vibration test (see 3.8.11).

4.4.12 Shock. The unenergized meter shall be tested in accordance with MIL-STD-202, Method 213, Test Condition I, to an acceleration of 100 g's, sawtooth wave, for 6 ± 1 milliseconds (see 3.8.12). The meter shall be subjected to the operation check (see 4.4.2) after completion of the shock test.

4.4.13 Hermetic seal. The gross leak or fine leak test shall be performed as specified below. Upon completion, the meter shall be visually checked for internal moisture inside of the faceplate. The operation test (see 3.8.13) shall then be performed.

4.4.13.1 Gross leak. The test shall be performed in accordance with MIL-STD-202, Method 104, Condition A. The meter shall be checked for bubble leaks. (Note: Leaks will normally be from the faceplate area or the rear end.)

4.4.13.2 Fine leak. The meter shall be checked for fine leaks with a mass spectrometer-type helium leak detector which can measure leak rates up to 0.01 micron ft³/hr.

MIL-DTL-7793G

4.4.14 Life accuracy. The test shall be performed at the applicable specification sheet's temperature and voltage for each step in the sequence listed below. Test A is to be performed for initial qualification and Test B is to be performed for periodic qualification. The nominal rated frequency shall be used during all steps for the AC meters (see 3.8.14):

Step	Temperature	Voltage	Test A (hr)	Test B (hr)
1	maximum	maximum	200 ±8	100 ±4
2	maximum	minimum	200 ±8	100 ±4
3	minimum	maximum	200 ±8	100 ±4
4	minimum	minimum	200 ±8	100 ±4
5	room ambient	rated	200 ±8	100 ±4
			1000 ±40	500 ±20

The maximum and minimum temperatures and voltages, and the rated voltages and temperatures are listed on the individual specification sheet. At the end of the specified time, the meters shall be checked for accuracy in accordance with the requirements of 3.8.14 or the applicable specification sheet. Accuracy is calculated as follows:

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

4.4.15 Electromagnetic compatibility. Radiated and conducted interference control tests shall be conducted in accordance with MIL-STD-461, Test Methods CE102 and RE102 (see 3.8.15).

4.4.16 Terminal stress. Each terminal shall be tested in accordance with MIL-STD-202, Method 211, Test Condition A (see 3.8.16).

4.4.17 Low temperature storage. The meter shall be placed in a chamber maintained at -80 ± 5 °C for 30 ± 2 minutes. The temperature of the meter shall be raised to -50 ± 5 °C for 30 ± 2 minutes. This test procedure shall be repeated three times. At the completion of the test, the meter shall be subjected to the operational test of 4.4.2 while at -50 °C (see 3.8.17).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contract personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

MIL-DTL-7793G

6. NOTES

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

6.1 Intended use. The time totalizing meters covered by this specification are intended for use in equipment where there is a requirement for accurately recording the number of hours which the equipment has operated. These meters are available for use in aircraft.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Number of applicable specification sheet.
- c. Packaging requirements (see 5.1).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Products List QPL No. 7793 whether or not such products have actually been so listed by that date. The attention of the contractors 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. Information pertaining to qualification of products may be obtained from the Naval Air Systems Command (Commander, Naval Air Warfare Center Aircraft Division, Code 4L8000B120-3, Highway 547, Lakehurst, NJ 08733-5100). An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at <https://assist.dla.mil>.

6.4 Definitions.

6.4.1 Voltage. All alternating current voltages as used in this specification will be considered to be root mean square (rms) values.

6.4.2 Hermetic seal. A hermetic seal is defined as a perfectly closed and airtight seal made between either vitric or metallic, or both materials. A hermetic seal is not intended to include seals accomplished by gaskets. Other materials may be used to effect a hermetic seal, provided the criteria of 3.8.13 and 4.4.13 are met.

6.5 Mounting. Meters are designed to be visibly mounted in equipment so that the readout is parallel to the bottom surface of the equipment.

MIL-DTL-7793G

6.6 Subject term (key word) listing.

Aircraft
Equipment hour measurement
Hermetic seal

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

Custodians:

Army - AR
Navy - AS
Air Force - 99

Preparing activity:

Navy - AS
(Project 6645-2012-002)

Review activities:

Army - CR, CR4, MI
DLA - GS1

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST online database at: <https://assist.dla.mil>.