



**NOTES:**

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is  $\pm .02$  for two place decimals and  $\pm .005$  for three place decimals.
3. For design feature purposes, this standard takes precedence over procurement documents referenced herein.
4. Referenced documents shall be of the issue in effect in date of invitation for bid.
5. Optional radius applies to all corners and edges.
6. Exposed tin plate on this surface of mounting flange only. per MIL-T-10727, to provide an electrical ground for the case.
- ⑦ 7. Marking surface is optional. Marking must not be obscured by mounting bracket.
- ⑦ 8. Polarity marking (+) near positive terminal of this surface.

(F) DENOTES CHANGE

P.A. AF-11	International Interest	TITLE METER, TIME TOTALIZING HERMETICALLY SEALED 28 V dc	MILITARY STANDARD
Other Cust			MS 21341 (USAF)
Procurement Specification MIL-M-7793		SUPERSEDES:	PAGE 1 OF 5

DD FORM 672 (LIMITED COORDINATION)  
1 SEP 83

6645- F 302

This standard has been approved by A F - 11  
Department of the A F and is mandatory for use by that activity.  
All other military activities are required to employ this standard  
where suitable.

APPROVED 5 MARCH 1971 REVISED 6 APRIL 1972 (F) 17 August 1973

FED. SUP CLASS  
6645

Requirements: In accordance with MIL-M-7793, except upper voltage limit shall be 32 instead of 29.

Dimensions: See figure.

Electrical: At 23°C.

Range: 0 to 10,000 hours, meter will read 9999 hours maximum.

Scale designator: Hours.

Mounting flange: Surface shall be tin plated per MIL-T-10727, .0002 to .0004 inch thick to provide means for electrical ground of the case (see figure).

- (F) Input power: 1.0 watt nominal, 1.5 watts maximum.
- (F) Input voltage: Meter must operate satisfactorily and maintain accuracy of  $\pm 1\%$  when subjected to the ripple requirement of Para 5.2.2, 5.2.2.1 and Figure 7 of MIL Standard 704A, August 9, 1966.
- (F) Accuracy:  $\pm 1$  percent over the temperature range of -65°C to 125°C and the voltage range from 23 V to 32 V.
- (F) Operational Check: Unit shall operate on direct current potentials ranging from 23 to 32 Volts. At 28 volts the meter shall register correct time within  $\pm 1\%$  over the temperature range of -65°C to 125°C.

Weight: 1.5 oz. maximum.

Transient protection: No temporary or permanent degradation or other malfunction shall be produced in the time totalizing meter if the input voltage should increase to the maximum values shown in MIL-STD-704, Fig. 17 and Fig. 9-curve 1 (600 volts and 80 volts, respectively).

Case finish: Lusterless black, No. 37038 per FED-STD-595.

Marking: Unit shall remain clearly and legibly marked with the following information after subjection to the environmental requirements:

- (A) Part number, MS 21341 (and dash number from table 1)
- (B) Source and date code per MIL-STD-1285.
- (F) (C) 28 Vdc nominal voltage.

Table I. Dash numbers and dimensions.

Dash number	Dim. A $\pm .015$	Dash number	Dim. A $\pm .015$
-01	.0	-14	.406
-02	.031	-15	.438
-03	.062	-16	.469
-04	.094	-17	.500
-05	.125	-18	.531
-06	.156	-19	.562
-07	.188	-20	.594
-08	.218	-21	.625
-09	.250	-22	.656
-10	.281	-23	.688
-11	.312	-24	.719
-12	.344	-25	.750
-13	.375	-26	.781

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Quality conformance inspection: The following tests, run in the order shown on all meters, supersede the individual tests and sampling Plan A and B specified in MIL-M-7793. The maximum meter reading at the time of delivery shall be 0001.

(A) Examination of product.

(B) Operational check. Ten operations for instant starting at 23°C. Five of these ten operations at 23 Vdc and the other five operations at 32 Vdc.

(C) Thermal shock per MIL-STD-202, method 107, test condition B is modified as follows:

Test Conditions

1. The meter shall be operated at 32 Vdc during Step 1.
2. The meter shall be operated at 23 Vdc during Step 2.

Measurements during Cycling

The meter shall show no evidence of damage and shall not malfunction.

(D) Operation at 23°C and 28 Vdc for 20 hours.

(E) Hermetic seal.

(F) Insulation resistance.

(G) Sea level dielectric stress (600 Vrms). (2 to 5 seconds)

(H) All meters failing one or more of these quality conformance inspection test shall be rejected.

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In addition to the above tests, three sample meters total (any part number) shall be subject to the following tests every twelve months. These test shall be conducted at a government approved laboratory.

Salt Spray

Vibration

Shock

Life:

High voltage at high temperature (100 hours)

Low voltage at high temperature (100 hours)

High voltage at low temperature (100 hours)

Low voltage at low temperature (100 hours)

28 volts dc at room ambient (100 hours)

500 hours

Voltage rise time as follows:

(1) Apply a voltage rising from zero to 32 Vdc in:

(a) 3 milliseconds maximum

(b)  $2 \pm .5$  seconds

(2) Repeat both (a) and (b) tests five times.

(3) The meter shall start in each case.

Meter reading at the conclusion of these tests must be within specified accuracy. The test report and test samples shall be forwarded to the qualifying activity.

#### Qualification Test

Qualification tests are to be conducted in accordance with MIL-M-7793 except that four sample meters (designated 1, 2, 3 and 4) shall be submitted to Group 1 tests (see Table II). Samples designated 1 and 2 shall be submitted to Group 2 tests and samples designated 3 and 4 shall be submitted to Group 3 tests.

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F TABLE II. Qualification Tests.

Test	Requirement Paragraph	Test Paragraph
<u>Group 1</u>		
Examination of product	3.3.2	Visual examination (4.6.1)
	3.3.3	
	3.3.4	
	3.3.11	
	3.5	
	3.9	
Operational check	3.10	4.6.2
	3.7.12	
<u>Group 2</u>		
Power supply tolerance	3.7.12.1	4.6.3
Insulation resistance	3.3.9	4.6.4
Dielectric stress	3.3.8	4.6.5
Altitude	3.7.7	4.6.6
Temperature cycling	3.7.6	4.6.7
Time to come to synchronism	3.7.5	4.6.8
Moisture resistance	3.7.8	4.6.9
Salt spray	3.7.9	4.6.10
Vibration	3.7.10	4.6.11
Shock	3.7.11	4.6.12
Hermetic seal	3.7.12	4.6.13
<u>Group 3</u>		
Life	3.7.1	4.6.14
Electromagnetic compatibility	3.6	4.6.15

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