

| INCH-POUND |

MIL-D-62560A(AT)  
14 August 1992  
SUPERSEDING  
(see 6.5)

MILITARY SPECIFICATION  
DISTRIBUTION BOX, ELECTRICAL

This specification is approved for use by US Army Tank-Automotive Command, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the performance, test, manufacture and acceptance requirements for the distribution box, electrical, shown on Drawing 19207-12292086, herein referred to as the EDB (see 6.4.1).

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: US Army Tank-Automotive Command, ATTN: AMSTA-GDS, Warren, MI 48397-5000, 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 6110

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## MIL-D-62560A(AT)

### SPECIFICATIONS

#### FEDERAL

P-D-220 - Detergent, General Purpose.

#### MILITARY

MIL-E-17555 - Electronic and Electrical Equipment, Accessories, and Provisioned Items (Repair Parts): Packaging of.

### STANDARDS

#### MILITARY

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

MIL-STD-889 - Dissimilar Metals.

MIL-STD-1275 - Characteristics of 28 Volt DC Electrical Systems in Military Vehicles.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

### DRAWINGS

#### ARMY

19207-12292086 - Distribution Box (1A1)  
 19207-12309756 - FVS Memory Module  
 19207-12354501 - Operator Interface Unit, OIU

(Copies of specifications, standards, handbooks, drawings and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

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

ASTM Standard D2000

- Rubber Products in Automotive Applications.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103. This document 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 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 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.4.

3.2 Materials. Materials shall be in accordance with the drawings, parts lists, and other documents specified on Drawing 19207-12292086.

3.2.1 Dissimilar metals. Except where necessary to complete an electrical circuit, compatibility of dissimilar couplings shall be in accordance with MIL-STD-889.

3.3 Design and construction. The design and construction of the EDB shall be as specified herein and in accordance with Drawing 19207-12292086.

3.3.1 Rubber components. Rubber components, subject to ozone attack and where function and durability are impaired by the effect of ozone, shall conform to ASTM D2000 C12 requirements. Rubber components shall be resistant to petroleum oils and lubricants, servicing fluids, and cleaning fluids where their intended use requires it.

3.3.2 Environmental stress screening (ESS). Unless otherwise specified (see 6.2), EDB shall be subjected to ESS (see 6.4.2) in accordance with Drawing 19207-12292086.

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3.4 Performance.

3.4.1 Compatibility with 28-volt direct current (vdc) source (see 4.6.1.1).  
The EDB shall be capable of operating from a 28-vdc source, with characteristics as specified in MIL-STD-1275, except that temperature extremes shall be as specified herein.

NOTE: Unless otherwise specified herein, "28 vdc" shall refer to nominal 27.5 to 28.5 vdc (see 4.6.1.1); "ground" shall refer to pin E1; and "momentarily" shall refer to a time duration of 90 to 200 milliseconds (ms).

3.4.2 Relay functions (see 4.6.1.2).

3.4.2.1 Cold start relay, K1. With 28 vdc applied across J8-AZ (+) and J8-E (-), continuity shall exist between J10-A and J7-A and between J10-A and J7-B.

3.4.2.2 Fire suppressant relay, K8. Operation of K8 relay shall be as follows:

- a. When 28 vdc is applied across J2-J and ground, J8-BR is connected to ground through a 1.0-Kilohm, 5-percent, 0.25-watt resistor, and toggle switch S2 is momentarily activated, the voltage at J8-BR shall be less than 0.5 vdc.
- b. When 28 vdc is applied to J2-J and a  $10.0 \pm 1.0$  vdc, and a  $125 \pm 50$  ms pulse is applied between J1-C and ground, the relay shall latch as indicated by the constant 28-vdc source voltage at J8-BR, referenced to ground.

3.4.2.3 Start cutout relay, K3. The operation of K3 shall be as follows:

- a. 28 vdc is applied across J8-AA and ground.
- b. Control signal is applied across J7-M and J7-N, with J7-N externally connected to ground.
- c. Control signal characteristic is a sinusoidal wave of  $2.5 \pm 0.5$  vdc peak-to-peak (p-p) minimum amplitude with a source impedance greater than 100 ohms.
- d. Critical control signal frequency is 575 to 1100 hertz (Hz).
- e. For control signal frequencies less than critical value, J8-BC shall be continuous with ground; for control signal frequencies greater than critical value, contact between J8-BC and ground shall be open.

3.4.2.4 Lamp test relay, K4. With 28 vdc applied to J8-AF, J10-A, and J8-AA, and E1 grounded, the following shall occur:

- a. The voltage at J8-AE and J8-H shall be within 1.0 vdc of J10-A.
- b. The voltage at J8-T shall be within 1.0 vdc of ground.
- c. The warning signals of 3.4.3 shall occur.

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3.4.2.5 Slave power relay, K5.

3.4.2.5.1 Slave, proper polarity. With 28 vdc applied across J13 socket (positive) and J13 shell (negative), continuity shall exist between J13 socket and J10-A, and the green portion of diode DS-1 shall illuminate.

3.4.2.5.2 Slave, reverse polarity. With 28 vdc applied across J13 socket (negative) and J13 shell (positive), continuity shall not exist between J13 socket and J10-A, and the red portion of diode DS-1 shall illuminate.

3.4.2.5.3 Master. With 28 vdc applied across J10-A and ground, and switch S1 momentarily depressed, continuity shall exist between J10-A and J13 socket, and the green portion of diode DS-1 shall illuminate.

3.4.2.6 Hydraulic pump motor relay, K7. With 28 vdc applied across J8-U or J3-C (positive) and J8-BD (negative), continuity shall exist between J10-A and J17-A.

3.4.3 Warning signal function (see 4.6.1.3). With 28 vdc applied across J8-AA and ground, the grounding of J4-X, J7-R, J7-S, J7-U, J7-a, J7-c, J7-T, or the energizing of relay K4 as specified in 3.4.2.4 shall cause the following signals:

- a. Head phone signal at J8-C is a signal of  $760 \pm 150$  Hz, interrupted at a rate of from 0.5 to 1.0 seconds. The signal shall persist until the ground is removed, K4 is de-energized, or J8-AC is grounded.
- b. Flasher signal at J8-AJ is a signal of  $1.5 \pm 0.5$  Hz. The signal shall persist until ground is removed or K4 is de-energized.

3.4.4 Vehicle motion function (see 4.6.1.4). The input voltage for the vehicle motion circuitry shall be  $23 \pm 2.5$  vdc, applied across J4-W and ground. The input signal shall be applied between J9-M and J9-N. The output signal shall be between J4-K and ground. For input voltages less than the switch point, the output shall be not greater than 2.0 vdc. For input voltages greater than the switch point, the output shall be not less than 14.0 vdc. The EDB shall function with an input signal having the following functions:

- a. Sine wave: 5 to 70 Hz.
- b. Output resistance:  $100 \pm 20$  ohms.
- c. Maximum amplitude: 25 volts, root mean square.
- d. Switch: Between 2.6 and 9.1 volts, root mean square.

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3.4.5 STE/ICE - TMDE functions.

3.4.5.1 Terminations (see 4.6.1.5.1). Resistor terminations and diode terminations of contacts in connectors J14 and J15 shall be in accordance with Drawing 19207-12292086.

3.4.5.2 Top dead center (TDC) signal (see 4.6.1.5.2). When the following inputs are present, the resultant signal at J15-c shall be a 6 to 20-ms pulse, as shown in figure 1, with an amplitude within 1.5 vdc of the voltage source used in step b. (One pulse shall be generated for each negative-going transition of the input signal at J16-G.)

- a. 28 vdc is applied across J8-AA and ground.
- b. A voltage source between 5.0 and 12.0 vdc is applied to J14-c through a resistor that will limit the current to  $2.2 \pm 0.3$  milliamperes (mA).
- c. A  $2.0 \pm 0.5$  vdc p-p square-wave signal symmetrical with respect to ground with a frequency from 1 to 20 Hz applied to J16-G.

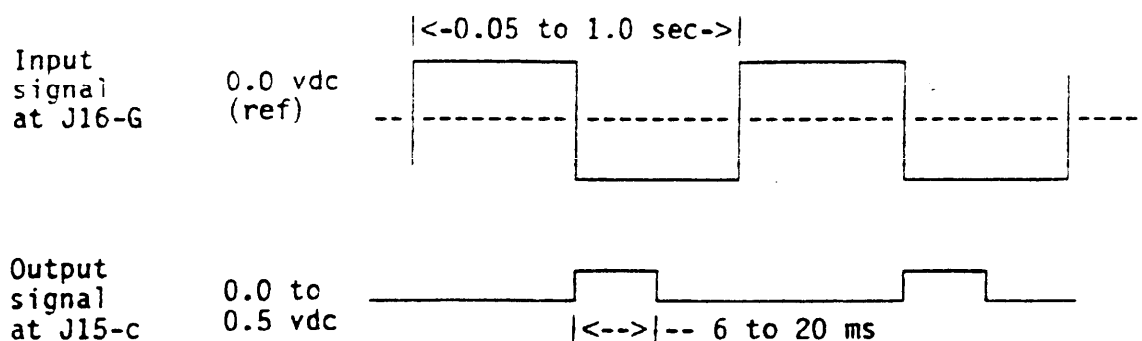


FIGURE 1. Top dead center signal.

3.4.6 Overload protection (see 4.6.1.6). Overload protection of the 28-vdc source shall be in accordance with Drawing 19207-12292086.

3.4.7 Wiring continuity (see 4.6.1.7). Wiring continuity shall be in accordance with table I.

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TABLE I. Continuity.

From connector pin	To connector pin
J1-B	J8-B5
J1-H	J7-F
J2-A	J15-a
J2-C	E7
J2-G	J15-Z
J2-L	J8-Y
J3-C	J8-U
J3-E	J7-F
J3-K	J4-B
J3-L	J8-AD
J4-D	J3-P
J4-E	J3-R
J4-F	J11-C
J4-L	J11-G
J4-Y	J8-AM
J4-Z	J6-R
J4-j	J6-M
J5-A	J4-V
	J12-A
J5-B	J4-S
	J12-B
J5-C	J4-J
	J12-C
J5-D	J4-M
	J12-D
J5-E	J4-H
	J12-E
J5-F	J4-U
	J12-F
J5-G	J4-N
	J12-G
J5-H	J4-P
	J12-H
J5-J	J4-R
	J12-J
J5-K	J4-T
	J12-K
J5-L	J4-b
	J12-L
J5-M	J4-c
	J12-M
J5-N	J4-G
	J12-N
J5-P	J4-a
	J12-P

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TABLE I. Continuity - continued.

From connector pin	To connector pin
J6-A	J7-F
J6-D	J7-F
J6-G	J8-M
J6-H	J7-F
J6-J	J6-W
J6-K	J6-H
J6-L	J7-F
J6-U	J6-X
J6-V	J7-F
J7-A	J7-B
J7-F	E2
J7-G	J7-F
J7-f	J8-b
J8-A	J3-F
J8-B	J7-P
J8-D	J11-B
	E2
J8-K	J7-n
J8-M	J6-G
J8-T	J3-X
J8-V	J7-L
J8-AT	J7-H
J8-AV	J7-V
J8-BA	J3-d
J8-BC	J15-L
J8-BE	J3-A
J8-BF	J3-B
J8-BH	J3-b
J8-BJ	J3-a
J8-BK	J3-c
J8-BM	J3-Z
J8-BN	J11-A
J8-BT	J3-H
J9-A	J8-AW
J9-B	J8-J
J9-C	J8-AX
J9-D	J8-AY
J9-E	J8-BL
J9-F	J8-BU
J9-G	J8-L
J9-H	J8-AL
J9-J	J8-BV
J9-K	J8-A
J11-B	J8-D



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TABLE I. Continuity - continued.

From connector pin	To connector pin
J11-C	J4-F
J11-E	J11-F
	J3-K
J11-F	J11-K
J11-G	J4-L
J11-K	J11-L
J12-A	J5-A
J12-B	J5-B
J13(-)	E1
J14-E	J14-V
J14-M	J16-F
J14-N	J16-C
J14-O	J16-P
J14-P	J16-E
J14-S	J7-E
J14-T	J16-T
J14-V	J8-BN
J14-W	J2-C
J14-X	J2-B
J14-Y	J14-W
J14-Z	J2-E
J14-a	J2-F
J14-b	J2-F
J14-c	J15-c
J14-f	J16-a
J14-g	J16-b
J14-k	J16-h
J14-m	J16-g
J14-n	J16-L
J14-p	J16-J
J14-s	J16-S
J14-u	J16-N
J14-v	J16-M
J14-w	J16-e
J14-x	J16-f
J14-y	J16-B
J14-z	J16-A
J14-AC	J14-g
J15-E	J8-BN
J15-S	J8-BT

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TABLE I. Continuity - continued.

From connector pin	To connector pin
J15-T	J16-D
J15-V	J17-A
J15-W	J2-C
J15-X	J15-g
J15-a	J15-b
J15-c	J14-c
J15-g	J16-X
J15-k	J16-Y
J15-m	J16-Z
J15-n	J15-g
J15-u	J16-V
J15-v	J16-U
J15-w	J15-n
J15-y	J15-w
J15-z	J2-G
J15-AA	J15-y
J15-AC	J15-AA
J15-AG	J16-c
J16-A	J14-z
J16-D	J7-F
J16-F	J15-M
J16-K	J14-AG
J16-L	J14-n
J16-U	J15-v
J16-V	J15-u
J16-W	J15-f
J16-Y	J15-k
J16-Z	J15-m
J16-b	J14-g
J16-c	J15-AG

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3.5 Environmental conditions.

3.5.1 Low temperature (see 4.6.2.1). The EDB shall demonstrate no performance degradation and show no evidence of damage or deformation when stored and operated at temperatures down to -60 degrees Fahrenheit (°F).

3.5.2 High temperature (see 4.6.2.2). The EDB shall demonstrate no performance degradation and show no evidence of damage or deformation when stored at temperatures up to 160°F and operated at temperatures up to 130°F.

3.5.3 Shock (see 4.6.2.3). The EDB shall demonstrate no performance degradation and show no evidence of damage or deformation after being exposed to sawtooth shock pulses of 40 gravity units (g) for 11 milliseconds (ms) time duration applied along each of the three major axes.

3.5.4 Vibration (see 4.6.2.4). The EDB shall demonstrate no performance degradation and show no evidence of damage or deformation after being subjected to vibration levels, in each of the three major axes, of 1.5 and 4.2 g in the frequency range of 5 to 500 to 5 Hz with a sweep time of 15 minutes, except the horizontal axis vibration level shall be 0.4g at frequencies of 7 to 20 Hz.

3.5.5 Humidity (see 4.6.2.5). The EDB shall demonstrate no performance degradation and show no evidence of damage or deformation after being exposed to a relative humidity ranging from 0 to 98 percent.

3.5.6 Steam and waterjet cleaning (see 4.6.2.6). The EDB shall demonstrate no performance degradation and show no evidence of damage or deformation after being subjected to steam cleaning, using high pressure steam and cleaner conforming to P-D-220, followed by waterjet cleaning.

3.6 Identification marking. Part identification shall be as specified on Drawing 19207-12292086.

3.7 Workmanship. Workmanship shall be in accordance with MIL-STD-454, requirement 9.

## 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 tests) 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 this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

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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 determine 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.

4.1.2 Materials and manufacturing processes. The contractor shall maintain, and make available for Government review upon request, documentation verifying that materials and processes used in manufacture of the EDB conform to specified requirements. As a minimum, documentation shall confirm the following:

- a. Materials as specified in 3.2.
- b. Rubber components as specified in 3.3.1.
- c. ESS as specified in 3.3.2.

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 conducted under the following standard (room) ambient conditions:

- a. Temperature:  $77 \pm 18^{\circ}\text{F}$
- b. Relative humidity: uncontrolled room ambient
- c. Atmospheric pressure: site pressure

4.4 First article inspection (see 6.3). Three EDBs produced in accordance with 3.1 shall be subjected to first article inspection.

4.4.1 Inspection routine. The first article sample shall be subjected to the inspections specified in table II.

4.4.2 First article failure. Inability of the first article samples to pass any examination or test shall constitute a failure. Failure of a sample to pass any examination or test shall be cause for refusal to grant first article approval. Such failure may, at the option of the procuring activity, be cause for refusal to allow additional examinations or tests until causes of faults have been corrected and the corrective action approved by the procuring activity.

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**4.4.3 Retention of first article approval.** Unless extended by the procuring activity to other contracts, first article approval is valid only on the contract under which it is granted.

**4.4.3.1 Changes to processes, procedures, or location.** Whenever a change is made in the manufacturing processes, procedures, or facility location used in the production of EDBs, the procuring activity shall be notified to determine whether the supplier must requalify for first article approval.

TABLE II. First article inspection.

Inspection	Requirement Paragraph	Inspection Method	Sample		
			1	2	3
100 percent	table III	table III	X	X	X
Compatibility with 28-vdc source	3.4.1	4.6.1.1	X	X	X
Low temperature	3.5.1	4.6.2.1	X	X	X
High temperature	3.5.2	4.6.2.2	X	X	X
Shock	3.5.3	4.6.2.3	X	X	X
Vibration	3.5.4	4.6.2.4	X	X	X
Humidity	3.5.5	4.6.2.5	X	X	X
Steam and waterjet cleaning	3.5.6	4.6.2.6	X	X	X

**4.4.4 Disposition of samples.** Samples that have been subjected to first article inspection shall be indelibly marked "Test Equipment" and shall not be delivered as new equipment under the contract.

#### **4.5 Quality conformance inspection.**

**4.5.1 Inspection of product for delivery.** Inspection of product for delivery shall consist of the 100 percent inspection.

**4.5.1.1 100 percent inspection.** The 100 percent inspection shall consist of the inspections specified in table III.

**4.5.1.1.1 Failure.** The supplier may rework a rejected EDB to correct the defect(s) and resubmit it for inspection. Rework shall be within the confines of drawing and specification requirements.

**4.5.2 Inspection of packaging.** The sampling and inspection of packaging shall be in accordance with 5.1.

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TABLE III. 100 percent inspection. 1/

Inspection	Requirement Paragraph	Inspection Method
Relay functions	3.4.2	4.6.1.2
Warning signal functions	3.4.3	4.6.1.3
Vehicle motion functions	3.4.4	4.6.1.4
Terminations	3.4.5.1	4.6.1.5.1
TDC signal	3.4.5.2	4.6.1.5.2
Overload protection	3.4.6	4.6.1.6
Wiring continuity	3.4.7	4.6.1.7
Identification marking	3.6	Visual
Workmanship	3.7	Visual

1/ The tests of 4.6.1.2 through 4.6.1.7 can be performed using the FVS Memory Module (Drawing 19207-12309756) and the Operator Interface Unit (Drawing 19207-12354501), subassemblies of the Direct Support Electrical Systems Test Set (DSESTS).

#### 4.6 Methods of inspection.

4.6.1 Performance tests. Either of the following methods of inspection is acceptable for satisfying the requirements of 3.4:

- a. DSESTS test equipment Drawing 19207-12309756 and Drawing 19207-12354501.
- b. The methods specified in 4.6.1.2 through 4.6.1.7

4.6.1.1 Compatibility with 28-vdc source (see 3.4.1). To determine conformance to 3.4.1, the EDB shall be functionally tested with the 28-vdc supplies adjusted and tested at high (29.5 to 30.0 vdc) and low (18.0 to 18.5 vdc) voltage limits, in addition to nominal (27.5 to 28.5 vdc).

4.6.1.2 Relay functions. To determine conformance to 3.4.2, the relay functions shall be verified.

4.6.1.3 Warning signal function. To determine conformance to 3.4.3, the warning signal function shall be verified.

4.6.1.4 Vehicle motion function. To determine conformance to 3.4.4, the vehicle motion function shall be verified.

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4.6.1.5 STE/ICE - TMDE.

4.6.1.5.1 Terminations. To determine conformance to 3.4.5.1, the STE/ICE - TMDE resistor and diode terminations shall be verified.

4.6.1.5.2 TDC signal. To determine conformance to 3.4.5.2, the TDC signal function shall be verified.

4.6.1.6 Overload protection. To determine conformance to 3.4.6, the overload protection function shall be verified.

4.6.1.7 Wiring continuity. To determine conformance to 3.4.7, the wiring continuity shall be verified.

4.6.2 Environmental tests. The following methods of inspection are acceptable for verifying compliance with 3.5. Prior to and at the conclusion of each of the environmental tests, the EDB shall be operated under stabilized standard ambient conditions (see 4.3) to determine conformance with the performance requirements specified in table III, and examined for evidence of deformation or damage.

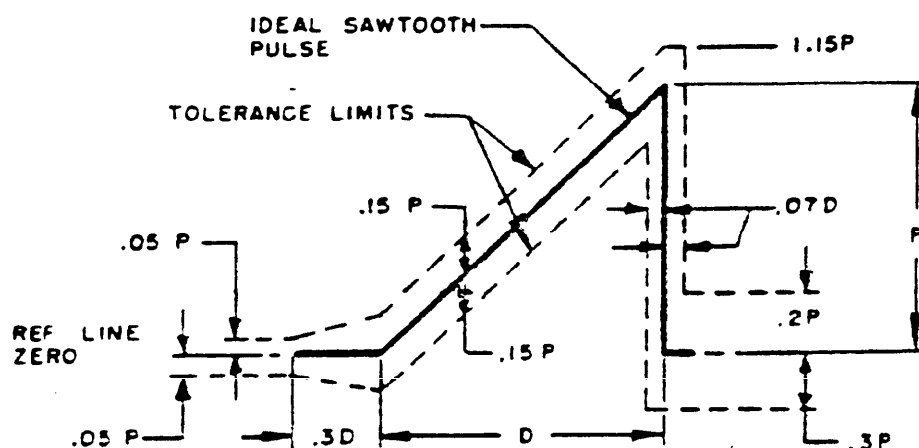
4.6.2.1 Low temperature (see 3.5.1). The EDB shall be placed in a temperature chamber in a manner simulating service usage. Lower the internal chamber temperature to -60°F and maintain for a period of 24 hours after test temperature stabilization (see 6.4.3). Verify conformance with the performance requirements specified in table III while chamber is at -60°F, except the performance requirements of 3.4.4 shall be met at -25°F.

4.6.2.2 High temperature (see 3.5.2). The EDB shall be placed in a temperature chamber in a manner simulating service usage. Raise the internal chamber temperature to 160°F and maintain for a period of 48 hours with a relative humidity not greater than 15 percent. Adjust the internal chamber temperature to 130°F and maintain until temperature stabilization of the EDB is achieved. When raising or lowering the temperature of the chamber, the rate of temperature change shall be not greater than 18°F per minute. Verify conformance to the performance requirements specified in table III while the chamber is at 130°F.

4.6.2.3 Shock (see 3.5.3). The EDB shall be rigidly mounted to a shock table and subjected to three sawtooth shocks of 40g for a time duration of 11 ms (see figure 2) in each direction along the three mutually perpendicular axes of the EDB for a total of 18 shocks. No performance testing shall be required during shock.

4.6.2.4 Vibration (see 3.5.4). The EDB shall be rigidly mounted to a vibration fixture and vibrated along each of the three mutually perpendicular axes in accordance with the vibration levels specified in figure 3, except that the horizontal (side-to-side as viewed from front of EDB) vibration level shall be 0.4g at frequencies of 7 to 20 Hz. The sweep time shall be 15 minutes for the sweep frequency range of 5 to 500 to 5 Hz. The test time shall be for not less than 2.5 hours and not greater than 3 hours in each axis. The frequency of applied vibration shall be swept over the specified range logarithmically in accordance with figure 4. The specified sweep time is that of an ascending plus a descending sweep and is twice the ascending sweep time shown in figure 4 for the specified range. When EDB resonances below 5 Hz are measured, the test curve shall be extended to 2 Hz and sweep time shall be 18 minutes (2 to 500 to 2 Hz). No performance testing shall be required during vibration.

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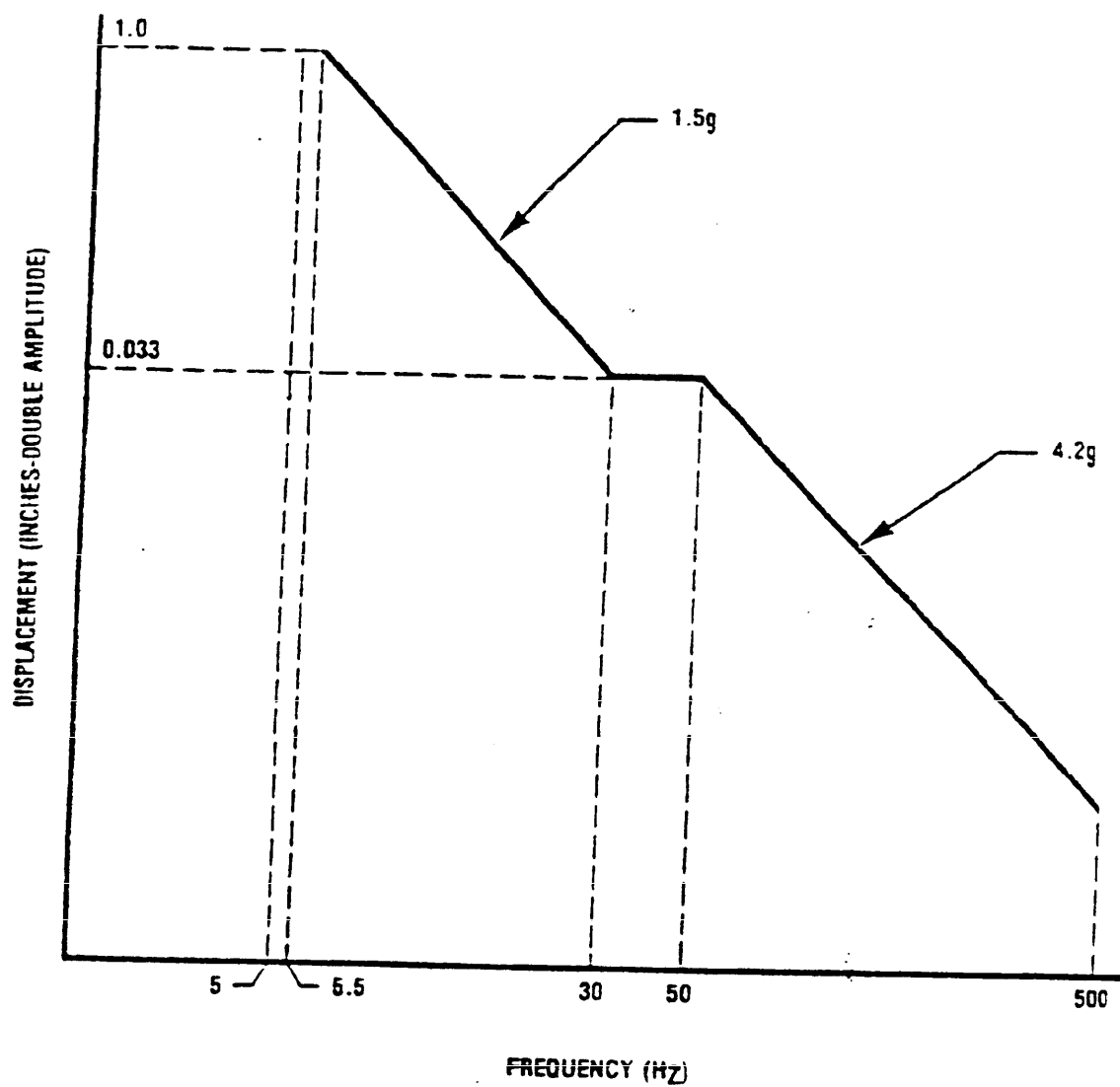
$P$  = Peak value = 40 g  
 $D$  = Nominal duration = 11ms

NOTE: The oscillogram shall include a time about  $3D$  long with a pulse located approximately in the center. The peak acceleration magnitude of the sawtooth pulse is  $P$  and its duration is  $D$ . The measured acceleration pulse shall be contained between the broken line boundaries, and the measured velocity change (which may be obtained by integration of the acceleration pulse) shall be within the limits of  $V_i \pm 0.1 V_i$ , where  $V_i$  is the velocity-change associated with the ideal pulse which equals  $0.5 PD$ . The integration to determine velocity change shall extend from  $0.4D$  before the pulse to  $0.1D$  after the pulse.

FIGURE 2. Terminal-peak sawtooth shock pulse configuration and tolerance limits.



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NOTES:

1. Acceleration levels:  $\pm$  g (peak).
2. The curve shall be extended to 2 Hz when test item resonances below 5 Hz are expected.

FIGURE 3. Vibration test curve.

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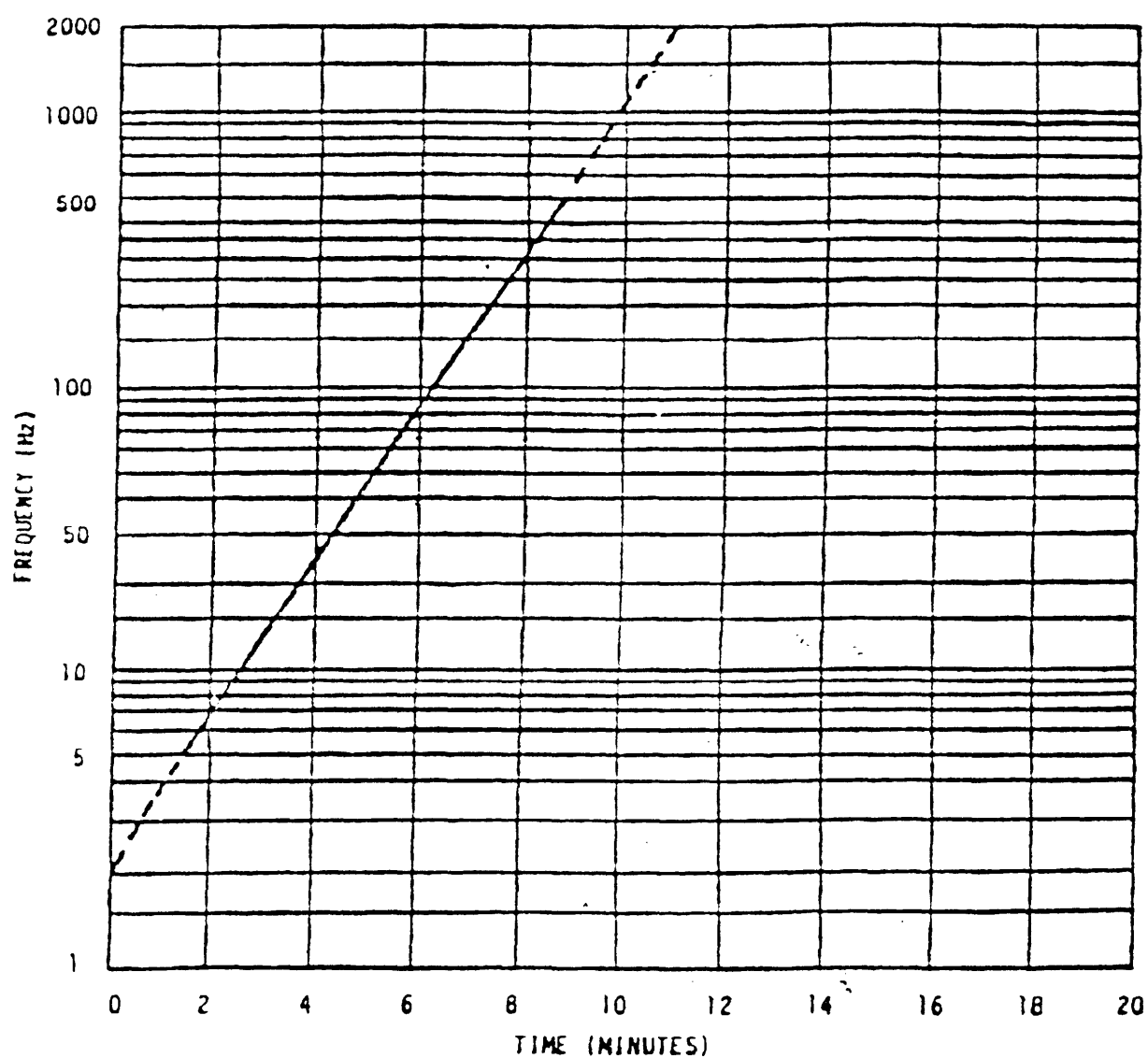


FIGURE 4. Logarithmic sweep.

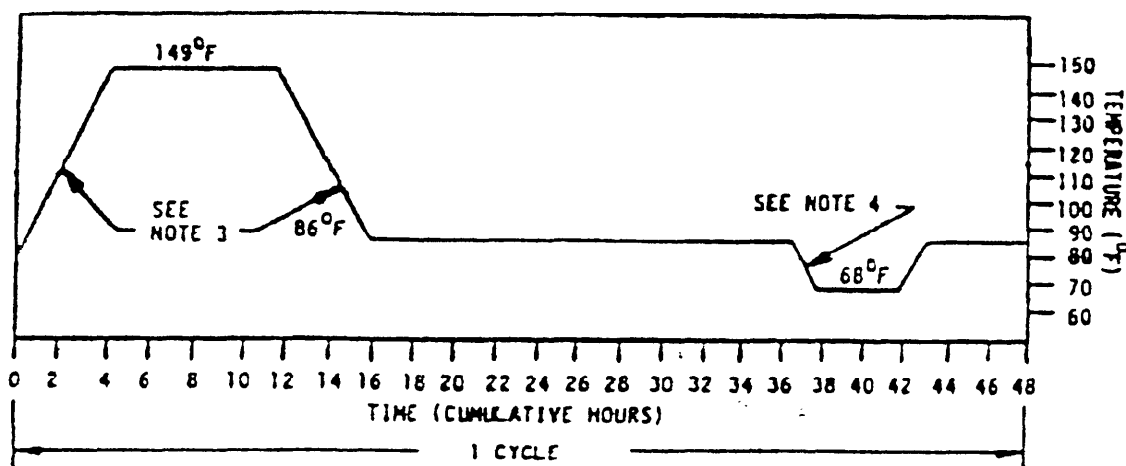
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4.6.2.5 Humidity (see 3.5.5).

- a. The EDB shall be placed in a chamber trap-vented to the atmosphere to prevent the build up of total pressure. No condensation shall be permitted to drip on the EDB. Relative humidity shall be determined from dry bulb/wet bulb thermometer comparison method or an equivalent method approved by the Government. Air velocity flowing across the wet bulb shall be not less than 900 feet per minute (ft/min). Provisions shall be made for controlling the flow of air throughout the internal chamber test space where the velocity of air shall be not greater than 150 ft/min. Steam or distilled, demineralized, or deionized water having a hydrogen ion concentration (PH) between 6.0 and 7.2 at 73°F shall be used to obtain the specified humidity. No rust or corrosive contaminants shall be imposed on the EDB by the test facility.
- b. After having been dried for 24 hours at  $129 \pm 3^\circ\text{F}$ , the EDB shall be conditioned at  $73 \pm 3^\circ\text{F}$  and  $50 \pm 10$  percent relative humidity for 24 hours. Take initial measurements of the performance requirements specified in table III.
- c. Raise the internal chamber temperature to  $86 \pm 3^\circ\text{F}$  and relative humidity to  $94 \pm 4$  percent. Expose the EDB to 5 continuous 48-hour cycles in accordance with figure 5. During the fifth humidity cycle and at the conclusion of humidity exposure, the EDB shall meet the performance requirements specified in table III.

4.6.2.6 Steam and waterjet cleaning (see 3.5.6). The EDB shall be subjected to steam cleaning, followed immediately by waterjet cleaning as follows. The jet shall be applied perpendicular to the surface being cleaned at a distance of not greater than 1 foot for steam cleaning, and not greater than 3 feet for waterjet cleaning. The jet pressure shall be  $105 \pm 5$  pound-force per square inch gage (psig) for steam cleaning and  $50 \pm 5$  psig for waterjet cleaning. The jet shall be moved at such a rate that the exposed surface of the EDB is subjected to the jet at the rate of 1 square foot per minute for 2 to 3 minutes. Prior to and within 1 hour (unless otherwise directed by the Government) after completing the steam and waterjet cleaning, the EDB shall meet the performance requirements specified in table III. No performance testing is required during steam and waterjet exposure. Moisture inside the EDB shall not be considered a failure.

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- NOTES:
1. Tolerance during temperature change shall be not greater than 5°F.
  2. Relative humidity shall be maintained at  $94 \pm 4\%$  at all times, except that during the descending temperature period, the relative humidity may be permitted to drop as low as 85%.
  3. Rate of temperature change between 86 and 149°F shall be not less than 14.4°F per hour.
  4. The temperature increase in this portion of the curve shall be not less than 18°F.

FIGURE 5. Humidity cycle.

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## 5. PACKAGING

5.1 Preservation, packaging and marking. Unless otherwise specified (see 6.2), the minimum level of preservation, packaging and marking shall be commercial in accordance with MIL-E-17555.

## 6. NOTES

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

6.1 Intended use. EDBs manufactured in accordance with this specification are intended for use on military tracked vehicles in the Bradley Fighting Vehicle (BFV) Family.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, revision, and date of this specification.
- b. Title, number, revision, and date of part drawing.
- c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1).
- d. First article inspection, if required (see 3.1).
- e. ESS, if other than as specified herein (see 3.3.2).
- f. Responsibility for inspection, if other than as specified herein (see 4.1).
- g. Level of packaging, if other than as specified herein (see 5.1).
- h. Any deviation from this specification.

6.3 First article. The acquisition document should include specific instructions regarding the arrangements for examinations; approval of first article test results and disposition of first articles. Invitations for bids should provide that the procuring activity reserves the right to waive first article inspection, or any portion thereof, to those bidders offering a product which has been previously acquired or tested by the procuring activity. Bidders offering such products should furnish evidence with the bid that prior first article approval is presently appropriate for the pending contract.

6.4 Definitions.

6.4.1 Electrical distribution box. The EDB performs the following functions:

- a. Relay control of vehicle functions.
- b. Connection of vehicle master/slave power transfer.
- c. Warning signal generation.

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- d. Vehicle critical motion switching.
- e. Connection of vehicle Simplified Test Equipment/Internal Combustion Engine (STE/ICE) and Test Module Diagnostic Equipment (TMDE).
- f. Overload protection of 28-vdc source.
- g. Distribution of vehicle circuits.

6.4.2 Environmental stress screening. ESS is a process that subjects devices to physical and climatic stress (or combinations thereof). This stress forces flaws that are not ordinarily apparent into observable failures which can then be removed. Flaws are defects in design, workmanship or material that will eventually result in the failure of the device prior to its normal life expectancy.

6.4.3 Test temperature stabilization. Test temperature stabilization is the point at which the test sample will not vary more than 3.6°F per hour.

6.5 Supersession data. This specification supersedes MIL-D-62560(AT) dated 12 January 1990 and FMC Drawing 19207-12292164 revision N, dated 12 January 1990.

6.6 Subject term (key word) listing.

Cold start  
Continuity  
Fire suppressant  
Overload  
Relay  
TDC signal  
Warning signal

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 extensiveness of the changes.

Custodian:  
Army - AT

Preparing activity:  
Army - AT

(Project 6110-A373)

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of 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.

<b>I RECOMMEND A CHANGE:</b>	<b>1. DOCUMENT NUMBER</b> MIL-D-62560A(AT)	<b>2. DOCUMENT DATE (YYMMDD)</b> 92/08/14
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**3. DOCUMENT TITLE**  
Distribution Box, Electrical

**4. NATURE OF CHANGE** (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

**5. REASON FOR RECOMMENDATION**

<b>6. PREPARING ACTIVITY</b>	<b>7. ORGANIZATION</b>
<b>a. NAME</b>	<b>b. TELEPHONE (Include Area Code)</b>
<b>c. ADDRESS (Include Zip Code)</b>	<b>(1) Commercial</b>
	<b>(2) AUTOVON</b>
	<b>(3) DATE SUBMITTED (YYMMDD)</b>

<b>8. PREPARING ACTIVITY</b>	<b>b. TELEPHONE (Include Area Code)</b>
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	<b>(2) AUTOVON</b>
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Commander	Defense Quality and Standardization Office
U.S. Army Tank-Automotive Command	5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466
ATTN: AMSTA-GDS	Telephone (703) 756-2340 AUTOVON 289-2340
Warren, Michigan 48397-5000	

