

INCH-POUND

MIL-D-62560(AT)
12 January 1990
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 an electrical distribution box, herein referred to as box, for use with a 28 volt (V) direct current (dc) vehicular electrical system to supply power to the complete electrical system in military vehicles.

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

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FSC 6110

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SPECIFICATION

FEDERAL

P-D-220 - Detergent, General Purpose.

STANDARDS

MILITARY

MIL-STD-130 - Identification Marking of US Military Property.
 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

12292086 - Distribution Box.
 12294742 - Electrical Installation.
 12350777 - Stress Screening Procedure for Electronic Parts and Assemblies.

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

2.2 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted 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).

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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D2000 - Rubber Products in Automotive Applications.

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

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

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, 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 First article. When specified (see 6.2), samples shall be subjected to first article inspection (see 6.3) in accordance with 4.4.

3.2 Materials. Materials shall be as specified herein and on applicable referenced standards, drawings, or specifications (see 4.6.1).

3.3 Design and construction. Design and construction shall conform to Drawing 12292086, and applicable standards and specifications (see 4.6.1.1).

3.3.1 Weight. Weight of the box shall be not more than 34 pounds (lb) (see 4.6.2).

3.4 Performance.

3.4.1. Compatibility with 28 V dc source. The box shall be capable of operating from a 28 V dc source (see 4.6.3).

3.4.1.1 Wiring continuity. Wiring continuity shall be in accordance with Drawing 12292086.

3.4.2 Relay functions. The coil voltage for the following shall be the 28 V dc source of 3.4.1 (see 4.6.4).

3.4.2.1 Cold start relay, K1. With coil voltage across J8-AZ, positive, and J8-E, negative, 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:

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- a. When 28-Vdc is applied to J2-J, J8-BR is connected to ground through a 1.0 Kohm, 5 percent, 1/4 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 ± 1.0 -Vdc, 125 ± 50 ms pulse is applied between J1-C (+) and E1 (-), the relay shall latch as indicated by the constant 28-Vdc source voltage at J8-BR.

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

- a. 28 to 30 Vdc - Applied across J8-AA, positive, and E1, negative.
- b. Control signal - Applied across J7-M and J7-N with J7-N externally connected to E1.
- c. Control signal characteristics - Sinusoidal wave of 2.0 V peak to peak (p - p) minimum amplitude with a source impedance greater than 100 ± 0.5 ohms.
- d. Critical control signal frequency - 575 to 1100 Hertz (Hz).
- e. Contact operation - For control signal frequencies less than critical value [575 to 1100 Hertz (Hz)], J8-BC shall be continuous with E1; for control signal frequencies more than critical value [575 to 1100 Hertz (Hz)], contact between J8-BC and E1 shall be open.

3.4.2.4 Lamp test relay, K4. With the coil voltage across J8-AF, J8-AA and J10-A, positive, and E1 negative, the following shall occur:

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

3.4.2.5 Slave power relay, K5.

3.4.2.5.1 Slave, proper polarity. With the coil voltage 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 the coil voltage 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 the coil voltage across J10-A, positive, and E1, negative, and switch S1 momentarily depressed, continuity shall exist between J10-A and J13 socket, and the green portion of diode DS-1 shall illuminate.

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3.4.2.6 Hydraulic pump motor relay, K7. With the coil voltage 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. With the 28 V dc source of 3.4.1 connected to J8-AA, positive, and E1, negative, 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 (see 4.6.5):

- a. Head phone signal at J8-C-signal of 760 ± 150 Hz, modulated at a rate of 1.5 ± 0.5 Hz. The signal shall persist until the ground is removed, K4 is de-energized, or J8-AC is grounded.
- b. Flasher signal at J8-AJ-signal of 1.5 ± 05 Hz. The signal shall persist until the ground is removed or K4 is de-energized.

3.4.4 Vehicle motion function. The input voltage for the vehicle motion circuitry shall be 23 ± 2.5 V dc, applied between J4-W, positive, and E1, negative. The input signal shall be applied between J9-M and J9-N. The output signal shall be between J4-K and E1. For input voltages less than the switch point, the output shall be not more than 2 V dc. For input voltages more than the switch point, the output shall be not less than 14 V dc. The box shall function with an input signal having the following functions (see 4.6.6):

- a. Sine wave - 5 to 70 Hz.
- b. Output resistance - 100 ± 20 ohms.
- c. Maximum amplitude - 25 V, root mean square (rms).
- d. Switch - Between 2.6 and 9.1 V rms.

3.4.5 STR M1/FVS - TMDR functions.

3.4.5.1 Top dead center (TDC) signal. With the 28 V dc source of 3.4.1 connected between J8-AA, positive, and E1, negative, the application of the following input shall result in the following output (see 4.6.7):

- a. Input signal
 - (1) Input signal contacts - J16-G and E1.
 - (2) Input signal amplitude - Positive 100 ± 10 millivolts (mV) and negative 100 ± 10 mV, square wave.
 - (3) Input signal frequency - 1.0 to 20 Hz.
- b. Output signal (TDC signal).
 - (1) Output signal contacts - J14-c and J15-c.
 - (2) Output signal characteristics - Open collector, normally switched to ground. For each input cycle, the output switch will be opened for 6 to 14 milliseconds (ms).

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3.4.6 Environmental conditions.

3.4.6.1 High temperature. The box shall meet the performance requirements of 3.4.1 through 3.4.5.1 after exposure to temperatures as high as 160 degrees Fahrenheit (°F) and during exposure to a temperature of 130°F (see 4.6.8.1).

3.4.6.2 Low temperature. The box shall meet the performance requirements of 3.4.1 through 3.4.5.1 after exposure to temperatures as low as - 70°F and during exposure to a temperature of - 65°F (except 3.4.4 shall be met at - 25°F during exposure) (see 4.6.8.2).

3.4.6.3 Humidity. The box shall meet the performance requirements of 3.4.1 through 3.4.5.1 after exposure to a warm, highly humid environment (see 4.6.8.3).

3.4.6.4 Steam and waterjet cleaning. The box shall meet the performance requirements of 3.4.1 through 3.4.5.1 following a steam and waterjet cleaning process which uses a cleaner conforming to P-D-220. Jet pressure shall be 100 to 110 pounds per square inch gage (psig) for steam cleaning and waterjet washing. The jet shall be applied perpendicular to the box surface from a distance of not more than one foot for steam cleaning and not more than five feet for waterjet washing, and moved at such a rate that the exposed surface is subjected to the jet at a rate of one square foot per minute (see 4.6.8.4).

3.4.6.5 Shock. The box shall meet the performance requirements of 3.4.1 through 3.4.5.1 after being subjected to shock pulses having an amplitude of 40 gravity units (g) sawtooth or 30 g half sine for a duration of 11 milliseconds (ms) (see 4.6.8.5).

3.4.6.6 Vibration. The box shall meet the performance requirements of 3.4.2.1 through 3.4.11 after being subjected to sinusoidal vibration at 1.0 inch with a peak vibration level of 4 g in a sweep frequency range of 5 to 500 to 5 Hz with a sweep time of 15 minutes. Except the horizontal axis vibration shall be .4 g at frequencies of 7 to 20 to 7 Hz, whichever is less (see 4.6.8.6).

3.4.6.7 Environmental stress screening (ESS). Boxes shall withstand physical and climatic stress (see 6.7) and subsequently no flaws in design, workmanship or material which will result in failure shall be observed (see 4.6.1.2).

3.5 Identification marking.

3.5.1 Part identification. Part identification shall be marked in accordance with Drawing 12292086 and MIL-STD-130 (see 4.6.2).

3.6 Workmanship. All parts and components of the box shall be free from dirt and other extraneous material and from defects of workmanship that impair performance. Workmanship shall be in accordance with MIL-STD-454, requirement 9 (see 4.6.2).

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4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order (see 6.2), 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 (see 6.2), 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.

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 responsibilities of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as a part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspection:

- a. First article inspection (see 4.4).
- b. Quality conformance inspections (QCI) (see 4.5).

4.3 Inspection conditions. Unless otherwise specified herein, all inspections shall be conducted under the following standard (room) ambient conditions:

- a. Temperature: $73 \pm 18^{\circ}\text{F}$.
- b. Relative humidity: Uncontrolled room ambient.
- c. Atmospheric pressure: Site pressure.

4.4 First article inspection. When first article is required (see 3.1), first article inspection shall be performed on first article samples (see 6.2 and 6.3). Unless otherwise specified (see 6.2), first article inspection shall include the inspections specified in table I.

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TABLE I. . Classification of inspections.

Title	Requirement	Inspection	First article	Quality conformance	
				Examination	Test
<u>Group A:</u>					
Materials and construction	3.2 thru 3.2.3	4.6.1	X	X	
Design	3.3 thru 3.3.3	4.6.1.1	X		X
Defects (see Table II)	3.3.4 3.5, 3.6 and 5.1	4.6.2	X	X	
<u>Group B (Performance):</u>					
Compatibility with 28 V dc source	3.4.1	4.6.3	X		
Relay functions	3.4.2	4.6.4	X		X
Cold start relay, K1	3.4.2.1	4.6.4	X		X
Fire suppressant relay, K8	3.4.2.2	4.6.4	X		X
Start cutout relay, K3	3.4.2.3	4.6.4	X		X
Lamp test relay, K4	3.4.2.4	4.6.4	X		X
Slave power relay, K5	3.4.2.5	4.6.4	X		X
Slave, proper polarity	3.4.2.5.1	4.6.4	X		X
Slave, reverse polarity	3.4.2.5.2	4.6.4	X		X
Master	3.4.2.5.3	4.6.4	X		X
Hydraulic pump motor relay, K7	3.4.2.6	4.6.4	X		X
Warning signal function	3.4.3	4.6.5	X		X
Vehicle motion function	3.4.4	4.6.6	X		X
STE-MI/FVS-TDME functions	3.4.5	4.6.7	X		
TDC signal	3.4.5.1	4.6.7.1	X		X

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TABLE I. Classification of inspections - Continued.

Title	Requirement	Inspection	First article	Quality conformance	
				Examination	Test
<u>Group C (Environmental):</u>					
High temperature	3.4.6.1	4.6.8.1	X		
Low temperature	3.4.6.2	4.6.8.2	X		
Humidity	3.4.6.3	4.6.8.3	X		
Steam and waterjet cleaning	3.4.6.4	4.6.8.4	X		
Shock	3.4.6.5	4.6.8.5	X		
Vibration	3.4.6.6	4.6.8.6	X		
ESS	3.4.6.7	4.6.8.7	X		X

4.5 QCI. Quality conformance inspection shall include the examination of 4.5.1 and the tests of 4.5.2 (see 6.2).

4.5.1 Examination. The boxes shall be examined for the defects specified in Table II.

TABLE II. Classification of defects.

Category	Defect	Method of examination
<u>Minor</u>		
201	Weight not as specified (see 3.3.4).	SIE 1/
202	Improper identification marking (see 3.5.1 and 3.5.2).	Visual
203	Faulty workmanship (see 3.6).	Visual
204	Preparation for delivery not as specified (see 5.1).	Visual

1/ SIE = Standard Inspection Equipment.

4.5.2 QCI tests. The boxes shall be subjected to the tests specified in table I (see 6.2).

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4.6 Methods of inspection. Test specimens shall be stabilized at standard ambient conditions (see 4.3) one hour before tests are begun.

4.6.1 Materials and construction. Conformance to 3.2 through 3.2.3, shall be determined by inspection of contractor records providing proof or certification that design, construction, processing and materials conform to requirements. Applicable records shall include drawings, specifications, receiving inspection records, processing and quality control standards, industry standards, and test reports.

4.6.1.1 Design. Conformance to 3.3 and 3.3.1 shall be verified by visual and functional demonstration in accordance with referenced drawings and specifications.

4.6.1.2 RSS. The contractor shall provide certification that RSS has been performed in accordance with 12350777 for each inspection lot.

4.6.2 Defects. Conformance to 3.3.1, 3.5, 3.6 and 5.1 shall be determined by examination for the defects listed in table II. Examination shall be visual, tactile, or by measurement with SIR.

4.6.3 Compatibility with 28 V dc source. Conformance to 3.4.1 shall be demonstrated by successful completion of the tests specified in 4.6.4 through 4.6.7.

4.6.4 Relay functions. To determine conformance to 3.4.2 through 3.4.2.6, the relay functions shall be verified.

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

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

4.6.7 TDC Signal. To determine conformance to 3.4.5.1, the TDC signal function shall be verified with J14-c connected to an external voltage source of 3 to 12 V dc through a resistor that will limit the current to 2.0 ± 0.2 milliamperes (mA).

4.6.8 Environmental tests.

4.6.8.1 High temperature. To determine conformance to 3.4.6.1, the box shall be tested as follows:

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- a. Install the box in the test chamber.
- b. The internal chamber temperature shall be raised to a storage temperature of 160°F and maintained for 48 hours while ensuring relative humidity is not greater than 15%.
- c. The internal chamber temperature shall be adjusted to 130°F, the highest operating temperature at which the box is designed to operate. The 130°F environment shall be maintained until a change of less than 2°F over a five minute time period.
- d. When stabilization at the highest operating temperature, 130°F, is maintained, the box shall be subjected to the tests specified in 4.6.3 through 4.6.7.
- e. The box shall be returned to nonoperating ambient room conditions (see 4.3) and allowed to stabilize.

4.6.8.2 Low temperature. To determine conformance to 3.4.6.2, the box shall be tested as follows:

- a. Install the box in the test chamber in a manner simulating service usage.
- b. The internal chamber temperature shall be lowered to a storage temperature of -70°F and maintained for a period of 24 hours after temperature stabilization.
- c. The internal chamber temperature shall be adjusted to -65°F, the lowest operating temperature the box is designed to operate. The -65°F environment shall be maintained until temperature stabilization is reached.
- d. When stabilization at the lowest operating temperature, -65°F, is maintained, the box shall be subjected to the tests specified in 4.6.3 through 4.6.7 (except 4.6.6). Vehicle motion function, 4.6.6, shall be tested at -25°F.
- e. The box shall be returned to nonoperating ambient room conditions (see 4.3) and allowed to stabilize.

4.6.8.3 Humidity. To determine conformance to 3.4.6.3, the box shall be tested as follows:

- a. The box shall be installed in a manner simulating service usage in a chamber trap-vented to the atmosphere to prevent the buildup of total pressure. No condensation shall be permitted to drip on the box. Relative humidity shall be determined from dry bulb-wet bulb thermometer comparison method or an equivalent method approved by the procuring activity. Air velocity flowing across the wet bulb shall be not less than 900 feet per minute (ft/min). Provision shall be made for controlling the flow of air throughout the internal chamber test space where the velocity of air shall not exceed 50 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 box by the test facility.

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- b. After having been dried for 24 hours at 129°F, the box shall be conditioned at 73°F and $50 \pm 10\%$ relative humidity for 24 hours. Raise the internal chamber temperature to 86°F and relative humidity to $94 \pm 4\%$. Expose the box to five continuous 48-hour cycles in accordance with figure 1.
- c. After completion of cycling, the box shall be conditioned for 24 hours at 73°F and $50 \pm 10\%$ relative humidity. Accumulated moisture may be removed by turning the box upside down or shaking. Wiping is not permitted. At the conclusion of the humidity test, the box shall be subjected to the tests specified in 4.6.3 through 4.6.7.

4.6.8.4 Steam and waterjet cleaning. To determine conformance to 3.4.6.4, the box shall be subjected to normal steam cleaning and waterjet washing with receptacles connected to appropriate cable assemblies or dummy mating connectors. During this test, bottom and back surfaces of the box shall not be sprayed. The box shall be subjected to steam cleaning and, afterward, waterjet washing. The box shall then be subjected to the tests specified in 4.6.3 through 4.6.7.

4.6.8.5 Shock. To determine conformance to 3.4.6.5, the box shall be:

- a. Mounted in accordance with 12294742 or hard mount the box to the test fixture.
- b. Three shocks in each direction shall be applied along three mutually perpendicular axes (total of 18 shocks). The area of applied shock shall be at the interface of box shock mounts and primary structure. The pulse shape shall be in accordance with applicable figure 2 or 3.
- c. At the conclusion of the test, the box shall be tested in accordance with 4.6.3 through 4.6.7.

4.6.8.6 Vibration. To determine conformance to 3.4.6.6, the box shall be:

- a. Mounted in accordance with 12294742, or hard mount the box to the test fixture.
- b. The box shall be subjected to sinusoidal vibration along each axis in accordance with figure 4. The sweep time shall be 15 minutes for the sweep frequency range of 5 to 500 to 5 Hz. The frequency of applied vibration shall be swept over the specified range logarithmically in accordance with figure 5. The specified sweep time is that of an ascending plus descending sweep and is twice the ascending time shown in figure 5 for the specified range. Request time for sweep frequency range of 7 to 20 to 7 Hz of the horizontal axis.
- c. The area of applied vibration shall be at the interface of box shock mounts and the primary structure.
- d. After vibration testing, the box shall be tested in accordance with 4.6.3 through 4.6.7.

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5. PACKAGING

5.1 Preservation, packaging, packing, and marking. Preservation packaging, packing, and marking for the desired level shall be in accordance with the applicable packaging requirements specified by the contracting authority (see 6.2).

6. NOTES

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

6.1 Intended use. The box manufactured in accordance with this specification is intended to transmit electrical power to the complete electrical system on the Bradley Fighting Vehicle Systems.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of the specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. Drawing number of the box.
- d. If responsibility for inspection, and the place of inspection, is other than specified (see 4.1).
- e. If first article is required (see 3.1).
- f. First article inspection if other than as specified (see 4.4).
- g. Government's rights and conditions for waiving first article inspection (see 6.3).
- h. First article inspection categories and sample size for each category (see 6.3.1).
- i. Arrangement for first article inspection, approval of test results and disposition of first article (see 6.3.1).
- j. QCI examination and tests (see 4.5).
- k. If ESS is not required (see 4.6.8.7).
- l. QCI acceptance criteria, defective items/lots (see 6.4).
- m. Applicable levels of preservation, packaging, packing, and marking (see 5.1).

6.3 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerers whether the item should be preproduction sample, a first article sample, a first production item, a sample selected from the first production items, a standard production item from the contractor's current inventory (see 3.1), and the number of items to be tested as specified in 4.4. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should

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provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.3.1 Guidance for the contracting officer on applying first article When a first article sample is required, three initial production samples from the first lot manufactured and/or two preproduction samples manufactured under production conditions, should be subjected to first article inspection as specified in 4.4.

6.4 Inspection. The following information is presented as guidance for the contracting officer in specifying sampling and acceptance for QCI in acquisition documents.

6.4.1 Sampling for examination. Samples for quality conformance examination should be selected in accordance with general inspection level II of MIL-STD-105.

6.4.1.1 Lot formation. A lot should consist of all the boxes of one type or identification number, from an identifiable production period, from one manufacturer, submitted at one time for acceptance.

6.4.1.2 Examination.

6.4.1.2.1 Acceptable quality level. Each sample selected in accordance with 6.4.1 should be examined to determine conformance to the following AQL's on the basis of percent defective:

<u>Classification</u>	<u>AQL</u>
Major	2.5
Minor	4.0

6.4.1.3 Tests. Each box shall be subjected to the QCI tests specified in table I.

6.5 Supersession data. This military specification supersedes Drawing 19207-12292164 revision M dated 8 August 1988.

6.6 Item definition. The box performs the following functions:

- a. Relay control of vehicle functions.
- b. Connection of extra-vehicle master/slave power transfer.
- c. Warning signal generation.
- d. Vehicle critical motion switching.
- e. Connection of extra-vehicle test equipment-Simplified Test Equipment/M1 Fighting Vehicle Systems (STE M1/FVS) and Test Module Diagnostic Equipment (TMDE).
- f. Overload protection of 28 V dc source.
- g. Distribution of vehicle wiring.

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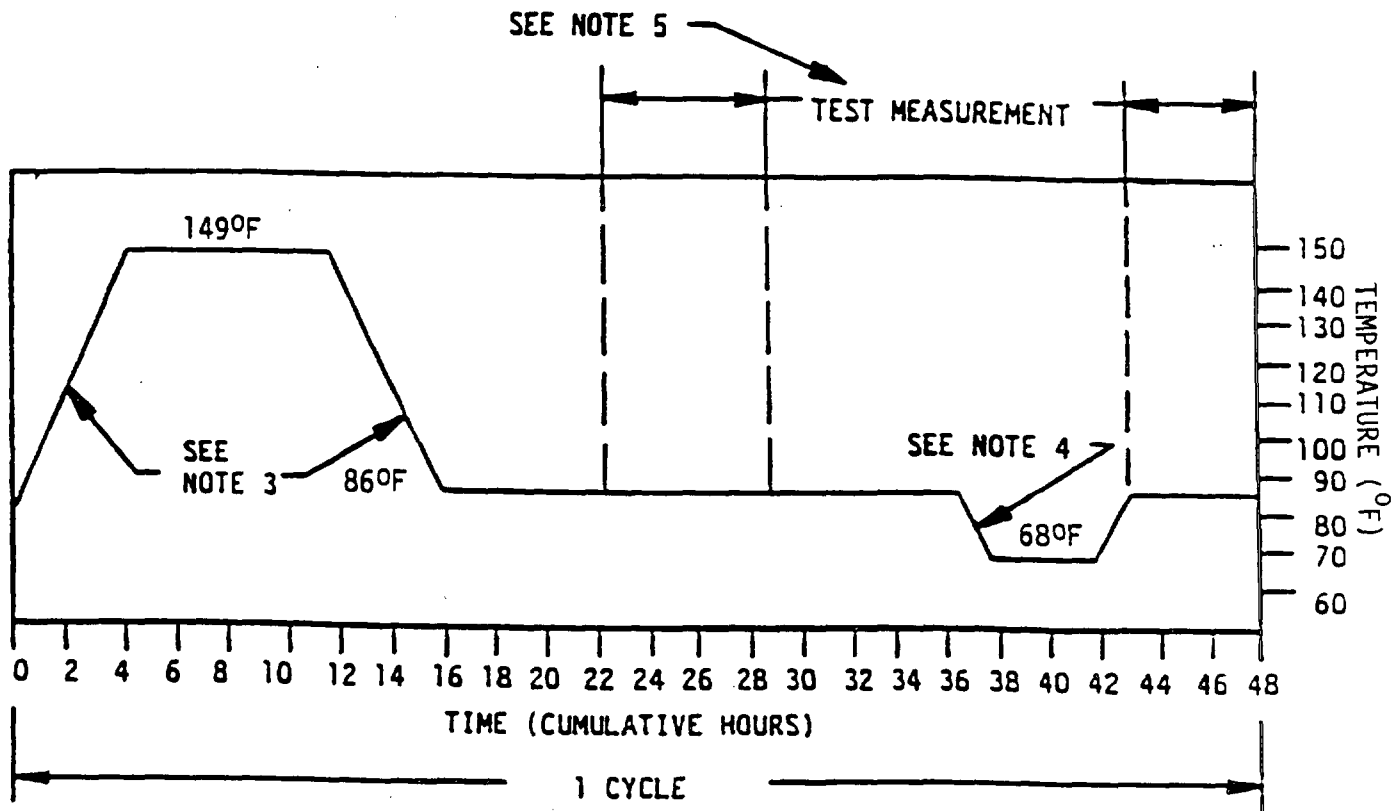
6.7 Environmental stress screening (ESS). Environmental stress screening (ESS) is a process that subjects devices to physical and climatic stress (or combinations thereof). This stress forces flaws which are not ordinarily apparent into observable failures which can be removed. Flaws are defects in design,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

6.8 Subject term (key word) listing.

Power supply, vehicular

Warning signal and relay control of vehicle functions

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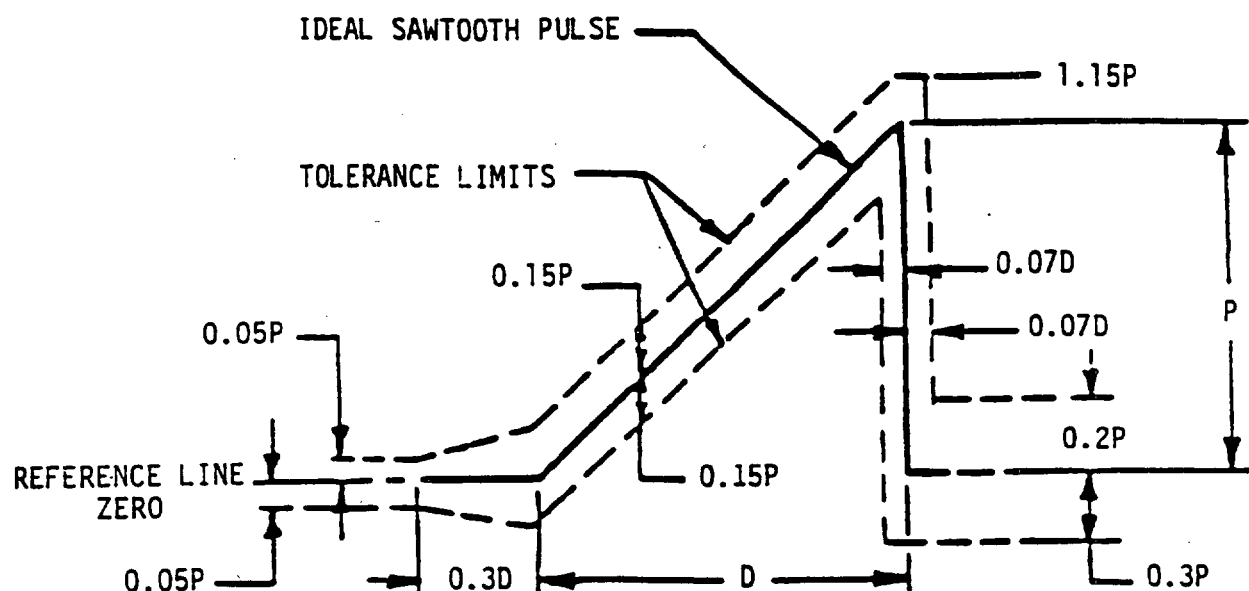


NOTES:

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.
5. Test measurements shall be taken only at the period specified in the applicable equipment or system specification.

FIGURE 1. Humidity cycle.

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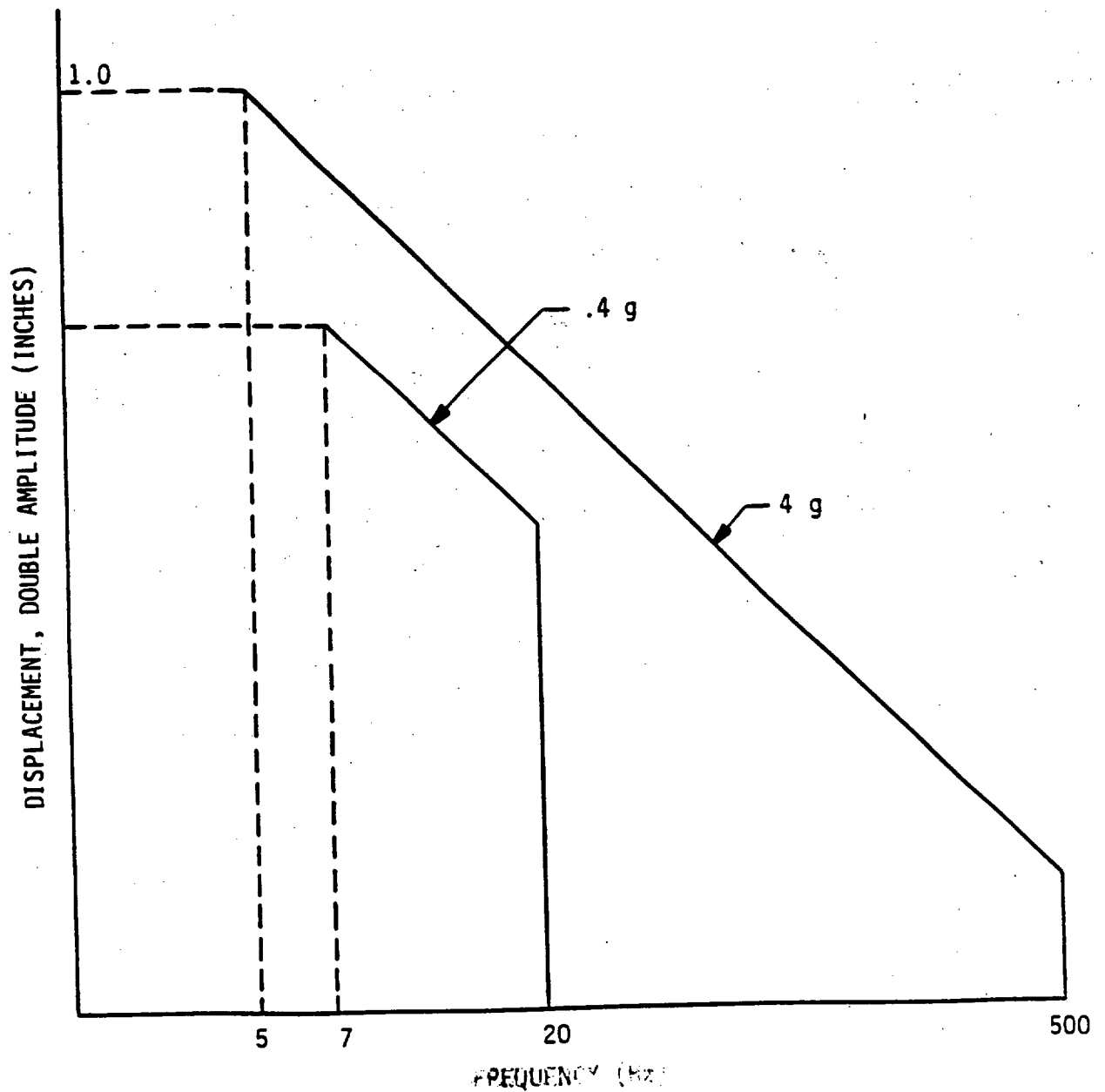


P = Peak value = 40 g
 D = Nominal duration = 11 ms

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 $0.1 D$ after the pulse.

FIGURE 3. Terminal-peak sawtooth shock pulse configuration and tolerance limits.

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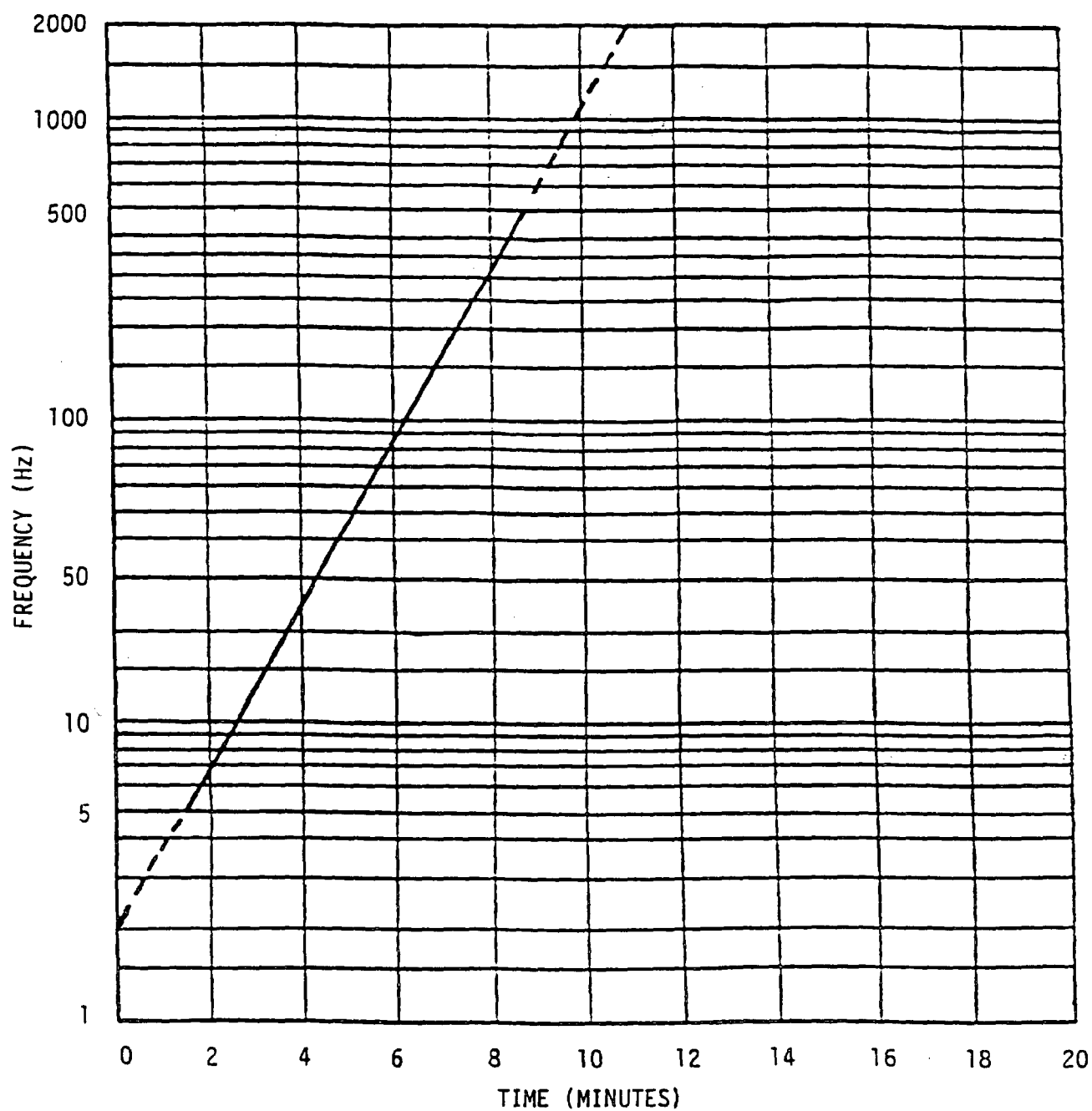


NOTE:

1. Acceleration levels: $\pm 4 g$.
2. The curve shall be extended to 2 Hz when test item resonances below 5 Hz are expected.

FIGURE 4. Vibration test curves.

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FIGURE 5. Logarithmic sweep.

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