

[METRIC]  
A-A-52525A  
October 7, 1996  
SUPERSEDING  
A-A-52525  
September 26, 1995  
(see 7.3)

## COMMERCIAL ITEM DESCRIPTION

### HORNS AND BUZZERS, AIR- AND ELECTRICALLY-ACTUATED

The General Services Administration has authorized the use of this commercial item description (CID) for all federal agencies.

1. **SCOPE.** This CID covers horns and buzzers used in 12- or 24-volt (V) direct current (dc) circuits as warning signals in tactical vehicles, combat vehicles, and other equipment operating under severe and extreme conditions of shock, vibration, and climate.

2. **CLASSIFICATION.** Horns and buzzers are of the following types and classes:

- Type I - Horn, air-actuated, electrically controlled.
- Type II - Horn, electrically-actuated.
- Type III - Buzzer, electrically-actuated.
- Type IV - Horn, electrically-actuated (12 V dc), non-waterproof.
- Class 1 - 24 V dc.
- Class 2 - 12 V dc.

### 3. SALIENT CHARACTERISTICS

3.1. Materials. Unless otherwise specified (see 7.2), materials shall conform to the manufacturer's specifications/standards. The use of recycled or reclaimed materials is acceptable provided that all other requirements of this CID are met (see 4.1).

3.2 Design and construction. Type I, II, and IV horns shall be designed and constructed in accordance with figures 1, 2, and 4, respectively. Type III buzzers shall be designed and constructed in accordance with figure 3.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data which may improve this document should be sent by letter to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000.

AMSC N/A

FSC 2590

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3.3 Performance requirements. Unless otherwise specified, horns and buzzers shall conform to all performance requirements of this CID at an ambient temperature of  $25 \pm 8$  degrees Celsius ( $^{\circ}\text{C}$ ).

3.3.1 Sound performance. Before determining conformance to the sound performance requirements, horns shall be mounted not less than 1.5 meters (m) from, and on the centerline with, the sound pick-up and shall be not less than 1.2 m from the floor and 3 m from any wall surface. Buzzers shall be suspended freely on a wire with the sound pick-up positioned not less than 102 millimeters (mm) from the face of, and on the centerline with, the buzzer. Ambient noise levels shall conform to SAE J377, paragraph 4.2.2.d, when all measurements are taken.

3.3.1.1 Sound intensity.

- a. Horns. Horns shall conform to the sound intensity level, direct current, and airflow requirements of table I when operated at the nominal voltage, design voltage, and air pressure specified in table I. Type I horns shall produce sound within 5 decibels (A Weighted System Response [db(A)]) of the intensity level specified in table I when operated at air pressures of 415, 485, and 550 kilopascals (kPa) at the design voltage and nominal voltage.
- b. Buzzers. Buzzers shall conform to the sound intensity level and direct current requirements of table I when operated at the design voltage and at a nominal voltage of 18 V dc for class 1 buzzers and 9 V dc for class 2 buzzers.

TABLE I. Sound performance requirements.

Type	Class	Nominal Voltage (V dc)	Design Voltage (V dc)	Air Pressure (kPa)	Minimum Sound Intensity Level [db(A)] <u>3/</u>	Maximum Direct Current (A) <u>1/</u>	Maximum Airflow ( $\text{m}^3/\text{s}$ ) <u>2/</u>
I	1	24	28.8	620	125	3	0.004
	2	12	14.4	620	125	6	0.004
II	1	24	28.8	-	109	3	-
	2	12	14.4	-	109	6	-
III	1	24	28.8	-	90	3	-
	2	12	14.4	-	90	6	-
IV	2	12	14.4	-	109	6	-

NOTES:

1/ Ampere (A)

2/ Cubic meters per second ( $\text{m}^3/\text{s}$ )

3/ Horns and buzzers shall produce sound within 5 db(A) of this intensity level when operated at the nominal voltage.

### 3.3.1.2 Sound quality.

- a. Horns. Horns shall have a fundamental frequency between 100 and 500 Hertz (Hz) and the major noise-producing harmonic shall not be greater than 3500 Hz.
- b. Buzzers. Buzzers shall have a fundamental frequency between 105 and 185 Hz.

3.3.2 Operating performance. Horns and buzzers shall be mounted as in intended use and shall be allowed to return to ambient air temperature after operation before determining conformance to the operating requirements.

3.3.2.1 Continuous operation. Horns and buzzers shall be continuously operated for 15 minutes and then shall meet the following requirements:

- a. Horns. Horns shall conform to the sound performance requirements with a sound intensity deviation of not more than 5 db(A) of the intensity level specified in table I after continuous operation. Conformance to the sound intensity level at the nominal voltage is not required.
- b. Buzzers. Buzzers shall conform to the sound performance requirements with no deviation from the sound intensity level specified in table I after continuous operation. Conformance to the sound intensity level at the nominal voltage is not required.

3.3.2.2 Intermittent operation. Horns and buzzers shall conform to the continuous operation requirements after 100 000 cycles of operation, where one cycle shall consist of 1 second "on" (energized) and 2 seconds "off".

3.3.3 Insulation resistance. The electrical insulation on the horns and buzzers shall evidence no cracking, charring, loosening, burning, smoking or other damage when a 500 volt root-mean-square (rms) voltage at a frequency of 60 Hz is applied. The voltage shall be applied for 1 minute between each terminal and ground, with the internal grounds disconnected.

### 3.3.4 Environmental performance.

3.3.4.1 Temperature. Horns and buzzers shall produce sound within 10 db(A) of the intensity level specified in table I when operated at the design voltage and air pressure under the following conditions:

- a. The temperature of the ambient air and horn or buzzer shall be stabilized at 71°C.
- b. The temperature of the ambient air and horn or buzzer shall be stabilized at -54°C.

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3.3.4.2 Waterproofness. Horns (type I and II only) and buzzers shall be completely submerged at least 25.4 mm below the surface of a 5% by weight solution of sodium chloride contained in a sealed chamber. Horns and buzzers shall show no evidence of bubbles escaping from the interior while operated at the design voltage and air pressure specified in table I for 30 minutes with the chamber pressure at 42 kPa above and below atmospheric pressure. Bubbles created from entrapped air on the exterior surfaces of the horns and buzzers shall be disregarded. After submergence in the saline solution, horns and buzzers shall meet the following requirements:

- a. Water shall not be present on the interior surfaces or components.
- b. Evidence of insulation breakdown or other damage detrimental to the mechanical or electrical operation shall not be present after withstanding three 5-hour periods of dry operation at the design voltage and air pressure specified in table I.
- c. All sound performance requirements shall be subsequently met.

3.3.4.3 Connector and terminal strength. Horns and buzzers shall conform to the waterproofness requirements after the connectors and terminals are subjected to a 220 Newton (N) pull for 15 minutes, first in a direction normal to and then in a direction parallel to their respective longitudinal axes. The normal axes pull shall be made from their mating ends.

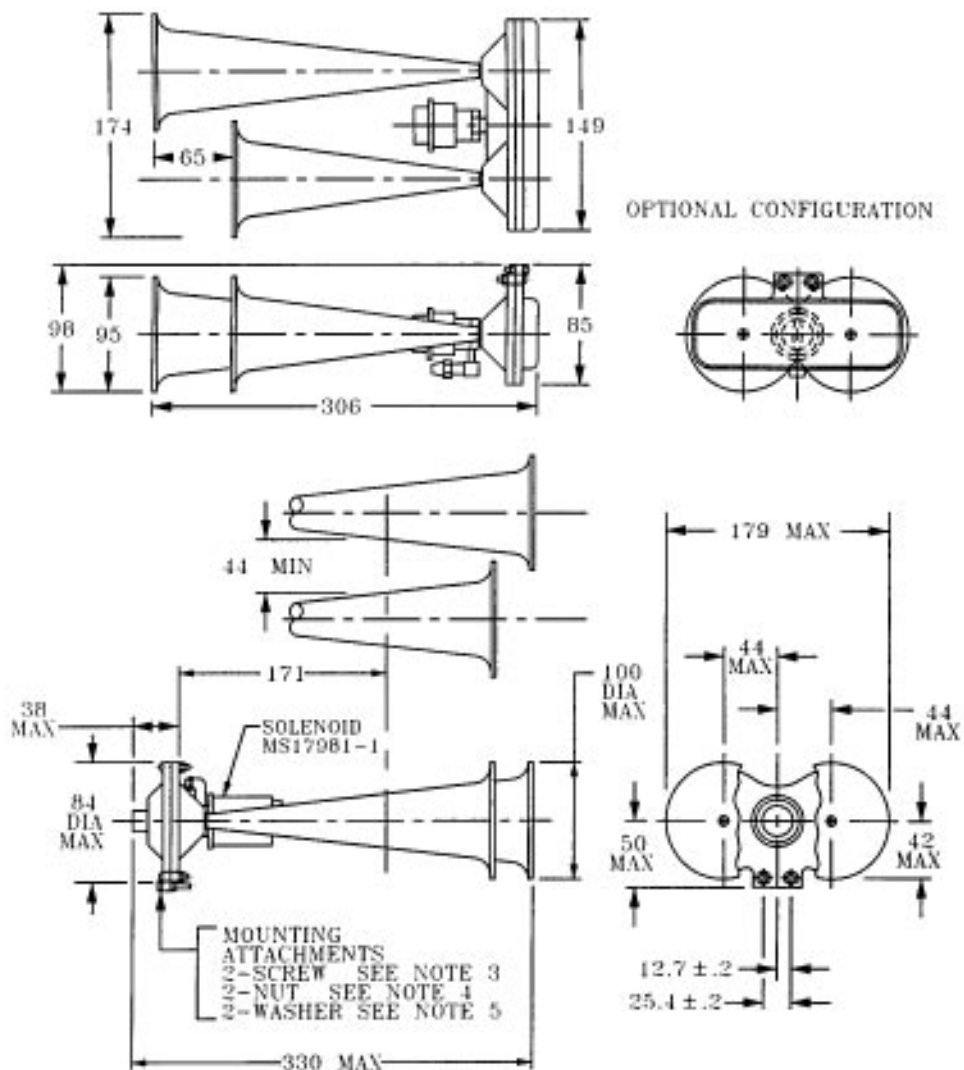
3.3.4.4 Valve airtightness. Type I horns shall show no evidence of bubbles escaping past the air valve from the air valve enclosure while connected to a 620 kPa air source, with control disconnected, and submerged in water for 10 minutes with the projector opening directed towards the air-water boundary. Type I horns shall conform to this requirement before and after continuous and intermittent operation.

3.3.4.5 Salt fog. Horns and buzzers shall conform to the sound performance requirements and shall evidence no corrosion after exposure to a salt fog atmosphere in accordance with ASTM B117 for 200 hours.

3.3.4.6 Fungus. Horns and buzzers shall show no evidence of fungus growth affecting operation and shall conform to the sound performance requirements after exposure to conditions favorable to fungus growth as specified in the contract or order (see 7.2). Duration of exposure shall be 90 days.

3.3.4.7 Vibration. Horns and buzzers shall show no evidence of disintegration of component materials or assemblies and shall conform to the sound performance requirements after being subjected to a simple harmonic motion having an amplitude of 0.8 mm and a frequency that is uniformly varied from 10 to 55 Hz and back to 10 Hz in approximately 1 minute. Motion shall be applied for at least 1 hour in the direction of each of the three major axes. Type I horns shall also conform to the valve airtightness requirement after being subjected to the simple harmonic motion.

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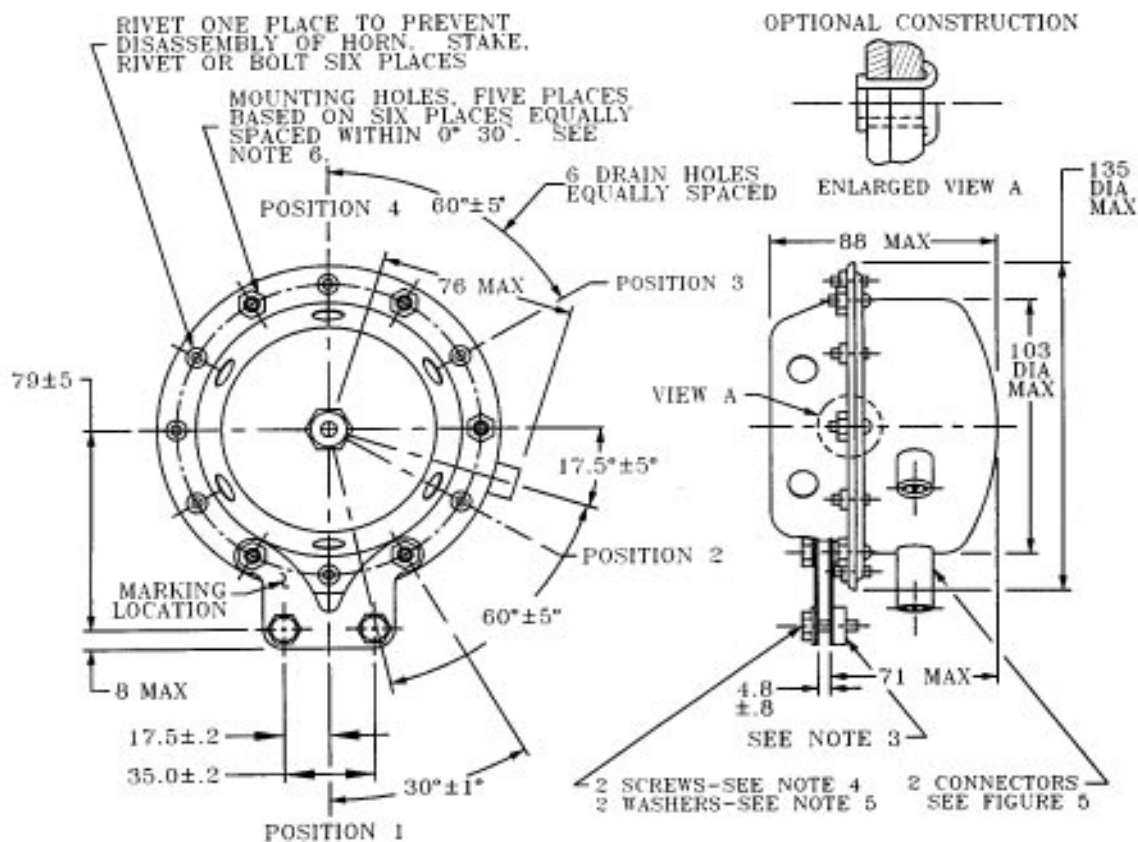


- NOTES:
1. Dimensions are in millimeters.
  2. Unless otherwise specified, tolerances are  $\pm 1$  mm.
  3. Screw, 6 mm, cap, hexagon head, 30 mm long, steel, SAE Grade 5.
  4. Nut, 6 mm, plain, hexagon, carbon steel, SAE Grade B.
  5. Washer, 6 mm, lock, flat-internal tooth, carbon steel.

Former MS Part Number	Nominal Voltage	Superseding PIN Number
MS51301-1	24 V dc	AA52525-11
MS51301-2	12 V dc	AA52525-12

FIGURE 1. Type I horns.

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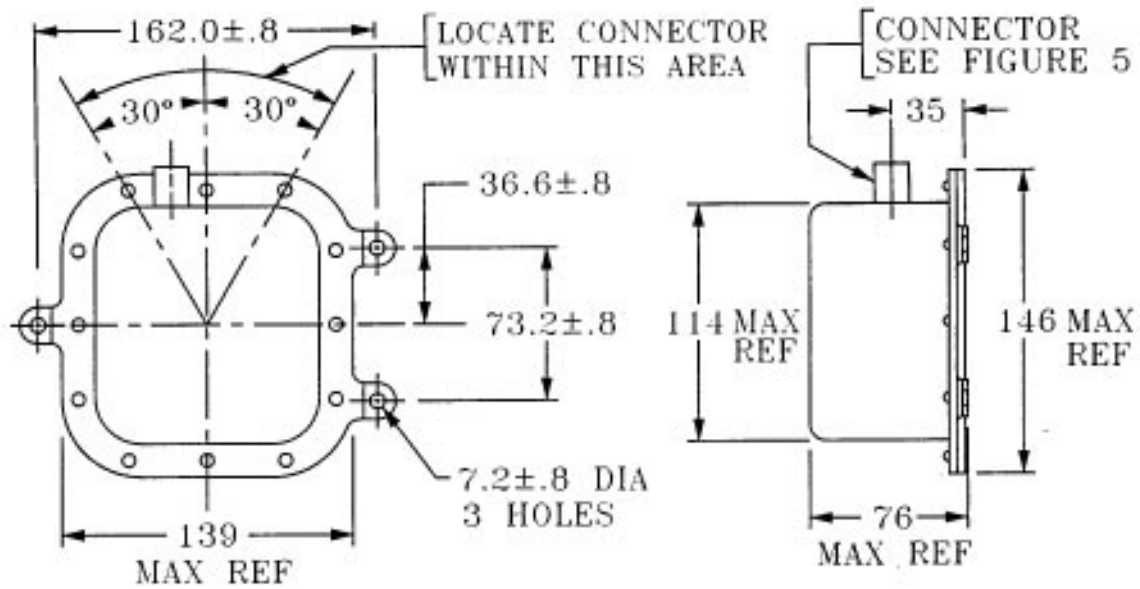


- NOTES:
1. Dimensions are in millimeters.
  2. Unless otherwise specified, tolerances are  $\pm 1 \text{ mm}$ .
  3. Plate,  $51 \times 14 \times 4 \text{ mm}$ , steel, carbon, sheet or strip, with two  $6 \text{ mm}$  tapped holes, shall be spot welded to mounting bracket.
  4. Screw,  $6 \text{ mm}$ , cap, hexagon head,  $20 \text{ mm}$  long, steel, SAE Grade 5.
  5. Washer,  $6 \text{ mm}$ , lock, flat-internal tooth, carbon steel.
  6. There are four bracket positions: 1, 2, 3, and 4, as indicated. The mounting bracket shall be capable of being located at any of these positions by removing the nuts and/or screws and repositioning.
  7. Unless otherwise specified (see 7.2), the horn shall be furnished with mounting bracket located at position "1".

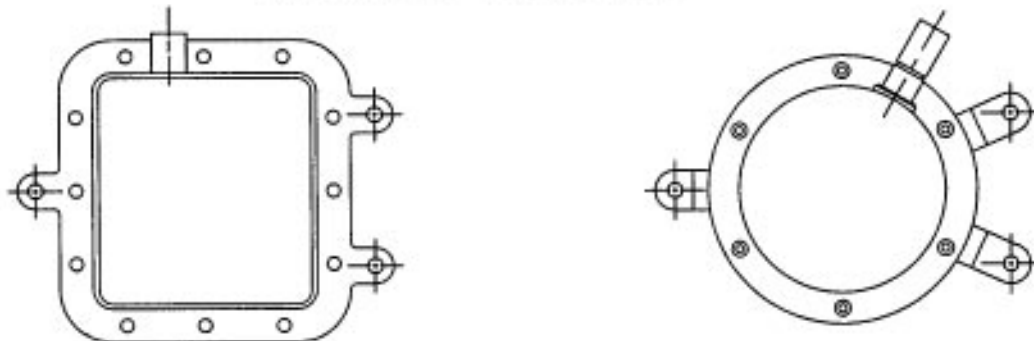
Former MS Part Number	Nominal Voltage	Superseding PIN Number
MS51074-1	24 V dc	AA52525-21
MS51074-2	12 V dc	AA52525-22

FIGURE 2. Type II horns.

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## MOUNTING &amp; CLEARANCE DIMENSIONS



## OPTIONAL CONFIGURATION

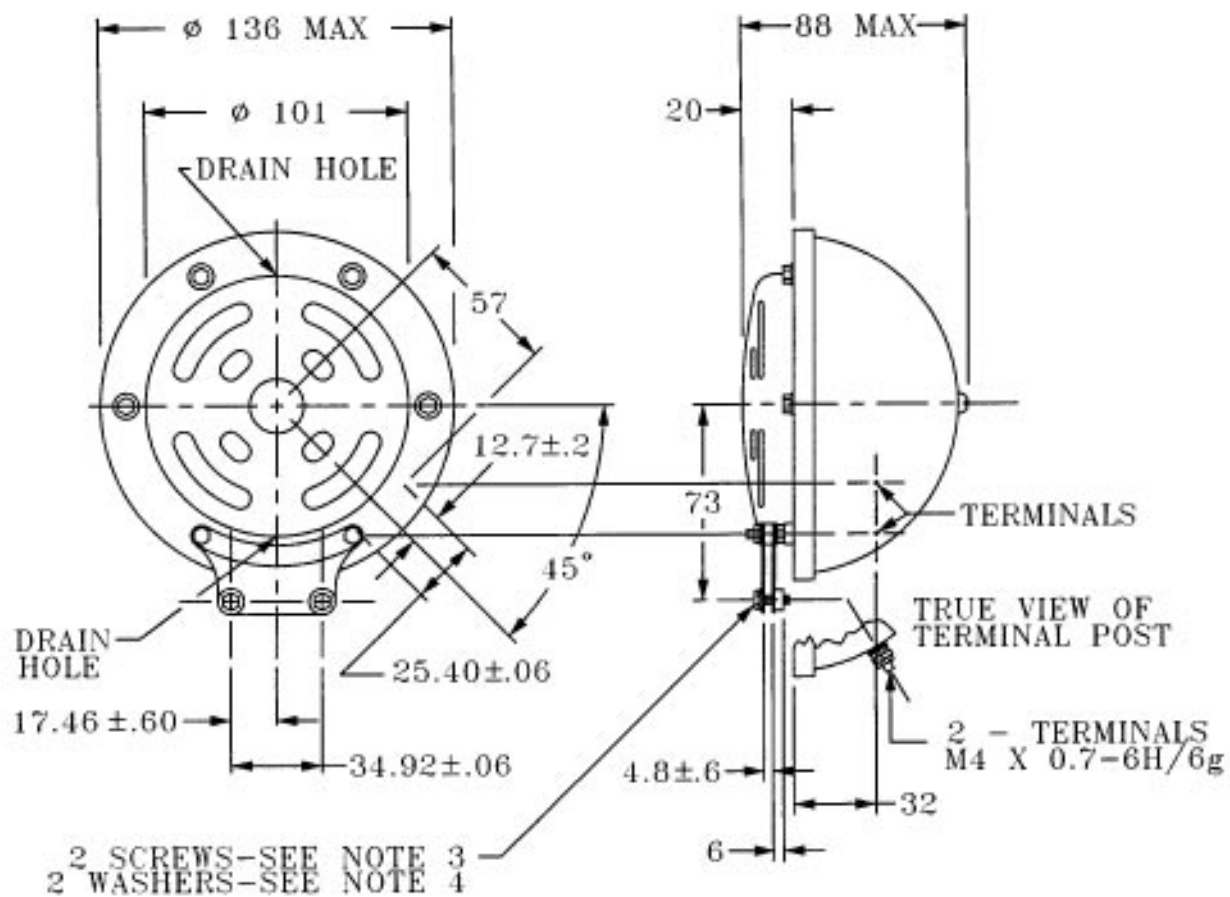
- NOTES:
1. Dimensions are in millimeters.
  2. Unless otherwise specified, tolerances are  $\pm 1$  mm and  $\pm 1^\circ$ .

Army Part Number	Nominal Voltage	Superseding PIN Number
8675930	24 V dc	AA52525-31
8675930	12 V dc	AA52525-32

FIGURE 3. Type III buzzers.



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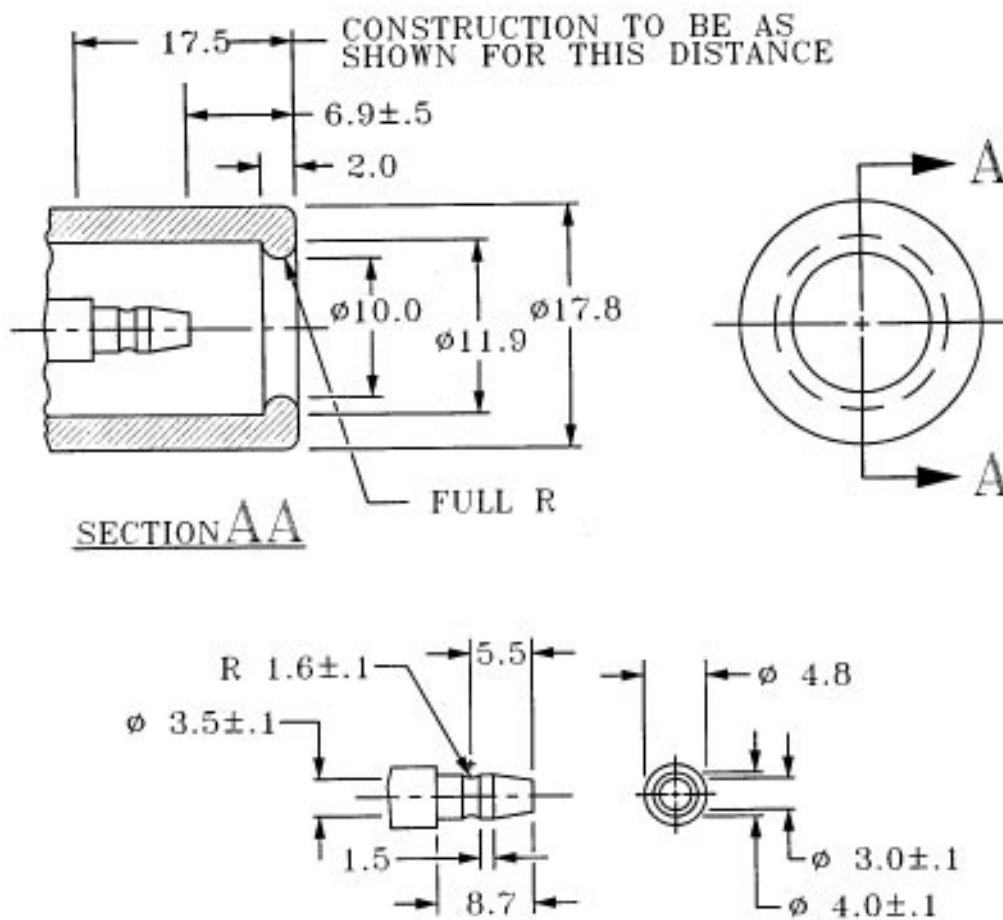


- NOTES:
1. Dimensions are in millimeters.
  2. Unless otherwise specified, tolerances are  $\pm 1$  mm and  $\pm 0.5^\circ$ .
  3. Screw, 6 mm, cap, hexagon head, 16 mm long, steel, SAE Grade 5.
  4. Washer, 6 mm, lock, flat-internal tooth, carbon steel.

Army Part Number	Nominal Voltage	Superseding PIN Number
7728528	12 V dc	AA52525-42

FIGURE 4. Type IV horns.





- NOTES:
1. Dimensions are in millimeters.
  2. Unless otherwise specified, tolerances are  $\pm 0.1$  mm,  $\pm 1^\circ$ , and  $\pm 0.4$  mm for rubber products.
  3. Material
    - (a) Shell: Rubber, Grade SC615, A1 C1 E3 F2, in accordance with ASTM D2000.
    - (b) Terminal: Brass, Unified Numbering System (UNS) No. C26000-C28000, C33000-C34200, C35000-C36000, C37000, or C46400-C48500, temper halfhard minimum.
  4. Protective Finish: Terminal shall be silver plated to a minimum thickness of 0.006 mm in accordance with ASTM B700, Type I, II, or III, Grade D, Class S.
  5. When conductors are coupled, the voltage drop shall not exceed 20  $\pm 1$  millivolt when operated in a 28 V dc circuit.

FIGURE 5. Connector.

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3.3.4.8 Shock. Horns and buzzers shall conform to the sound performance requirements after being subjected to two induced shock pulses conforming to figure 6, applied along each of the three mutually perpendicular axes of the horns and buzzers. Type I horns shall also conform to the valve airtightness requirement after being subjected to the shock pulses. Horns and buzzers shall be mounted as in intended operation before determining conformance to these requirements.

3.4 Finish. Horns and buzzers shall be cleaned, treated, primed, and coated as specified in the contract or order. Coating shall be a chemical agent resistant coating (CARC) conforming to color green 383, chip number 34094. Coating composition shall be as specified in the contract or order (see 7.2).

3.5 Identification and markings. Unless otherwise specified (see 7.2), identification and markings shall be permanent and legible and shall include, as a minimum, the part identification number (PIN) and the manufacturer's CAGE code and part number.

#### 4. REGULATORY REQUIREMENTS

4.1 Recovered materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

#### 5. QUALITY ASSURANCE PROVISIONS

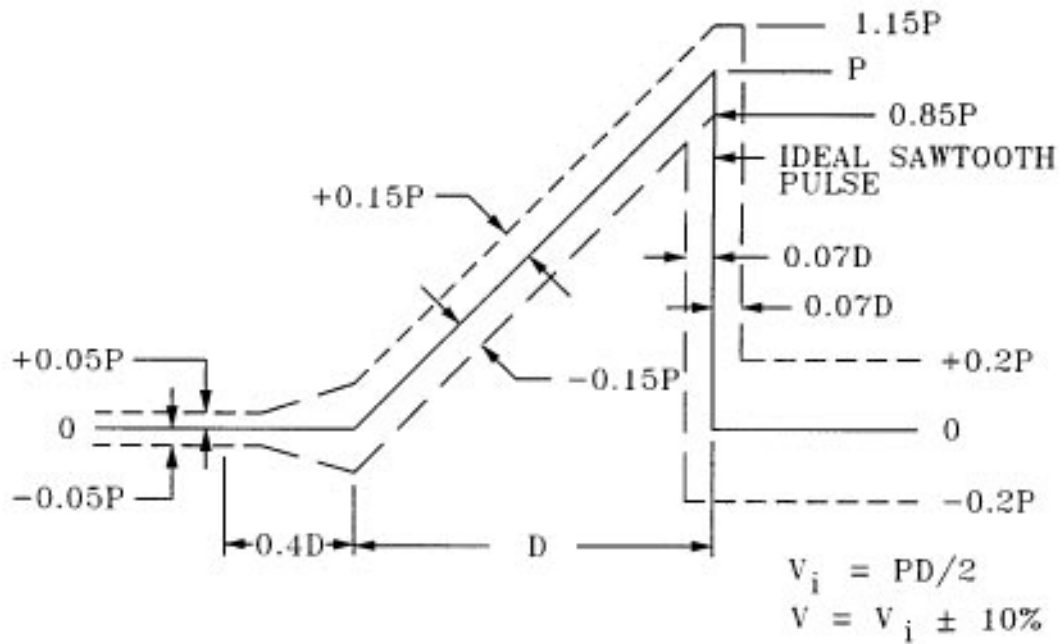
5.1 Responsibility for inspection. The contractor is responsible for the performance of all inspections (examinations and tests).

5.2 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

5.3 Market acceptability (MA). The contractor shall provide products which have a proven market record based on the number of items sold, length of time the product has been on the market, and reliability and performance of the products as required under the contract or solicitation (see 7.2).

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order (see 7.2).

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Type	Peak Value (g's) <u>1/</u>	Normal Duration (D) ms <u>2/</u>	Velocity Change (Vi) m/s <u>3/</u>
I, II, and III	100	6	2.96
IV	50	6	2.96

## NOTES:

- 1/ Gravitational acceleration (g).
- 2/ Millisecond (ms).
- 3/ Meter per second (m/s).
- 4/ The oscillogram should include a time about  $3D$  long with the pulse approximately in the center. The integration to determine the velocity change should extend from  $.4D$  before the pulse to  $.1D$  beyond the pulse. The peak acceleration magnitude of the sawtooth pulse is  $P$  and its duration is  $D$ . Any measured acceleration pulse which can be contained between the broken line boundaries is a nominal terminal-peak sawtooth pulse of nominal peak value,  $P$ , and nominal duration,  $D$ . The velocity-change associated with the measured acceleration pulse is  $V$ .

FIGURE 6. Tolerances for shock pulse.

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## 7. NOTES

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

### 7.1. Addresses for obtaining copies of referenced documents.

7.1.1 Government documents. Copies of MS17981 "Solenoid, Electrical - Horn, 24 Volt DC" are available from Defense Printing Service Detachment Office, Bldg. 4D (Customer Service), 700 Robbins Avenue, Philadelphia, PA 19111-5094.

7.1.2 Non-Government documents. Copies of ASTM B117 "Standard Practice for Operating Salt Spray (Fog) Apparatus" (DoD Adopted), ASTM B700 "Standard Specification for Electrodeposited Coatings of Silver for Engineering Use", and ASTM D2000 "Standard Classification System for Rubber Products in Automotive Applications" (DoD Adopted) are available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. Copies of SAE HS1086 "Metals and Alloys in the Unified Numbering System" and SAE J377 "Performance of Vehicle Traffic Horns" are available from the Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001.

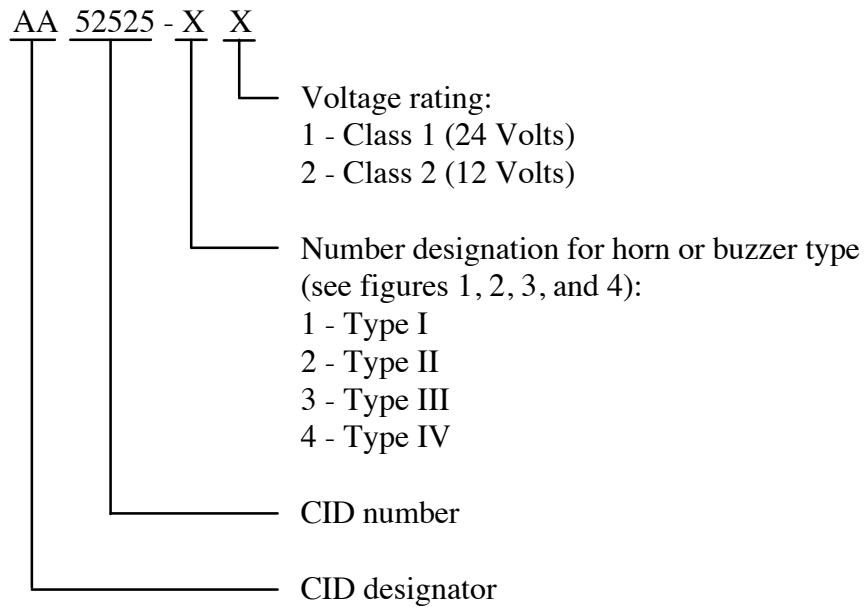
### 7.2 Ordering data. Acquisition documents must specify the following:

- a. Title, number, and date of this CID.
- b. Issue of Department of Defense Index of Specifications and Standards (DoDISS) to be cited in the solicitation, and if required, the specific issue of individual documents referenced.
- c. Type, class, PIN, and quantity required.
- d. If specific materials are required.
- e. Applicable test method for fungus growth.
- f. Cleaning, treating, priming, and coating methods and coating composition.
- g. If special marking is required.
- h. If mounting bracket on type II horns should be positioned other than as specified.
- i. Market acceptability requirements.
- j. Selection of applicable packaging requirements.

7.3 Supersession and cross-reference. This CID supersedes MIL-H-10201J, dated 26 March 1990; MS51074E, dated 19 April 1988; and MS51301G, dated 4 May 1989. Horns and buzzers conforming to this CID are interchangeable/substitutable with horns and buzzers conforming to MIL-H-10201J, MS51074E, and MS51301G.

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7.4 Part Identification Number (PIN). The PINs to be used for horns and buzzers acquired by this CID are created as follows:



#### MILITARY INTERESTS:

##### Custodians:

Army - AT  
Navy - MC  
Air Force - 99

##### Review Activities:

Air Force - 84  
DLA - CS

#### CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

##### Preparing Activity:

Army - AT

(Project 2590-0247)