

INCH-POUND

MIL-PRF-26542/4E  
12 September 2012  
SUPERSEDING  
MIL-PRF-26542/4D  
16 July 2002

### PERFORMANCE SPECIFICATION SHEET

#### MICROPHONE ELEMENT, M-101/AIC

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

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-26542.

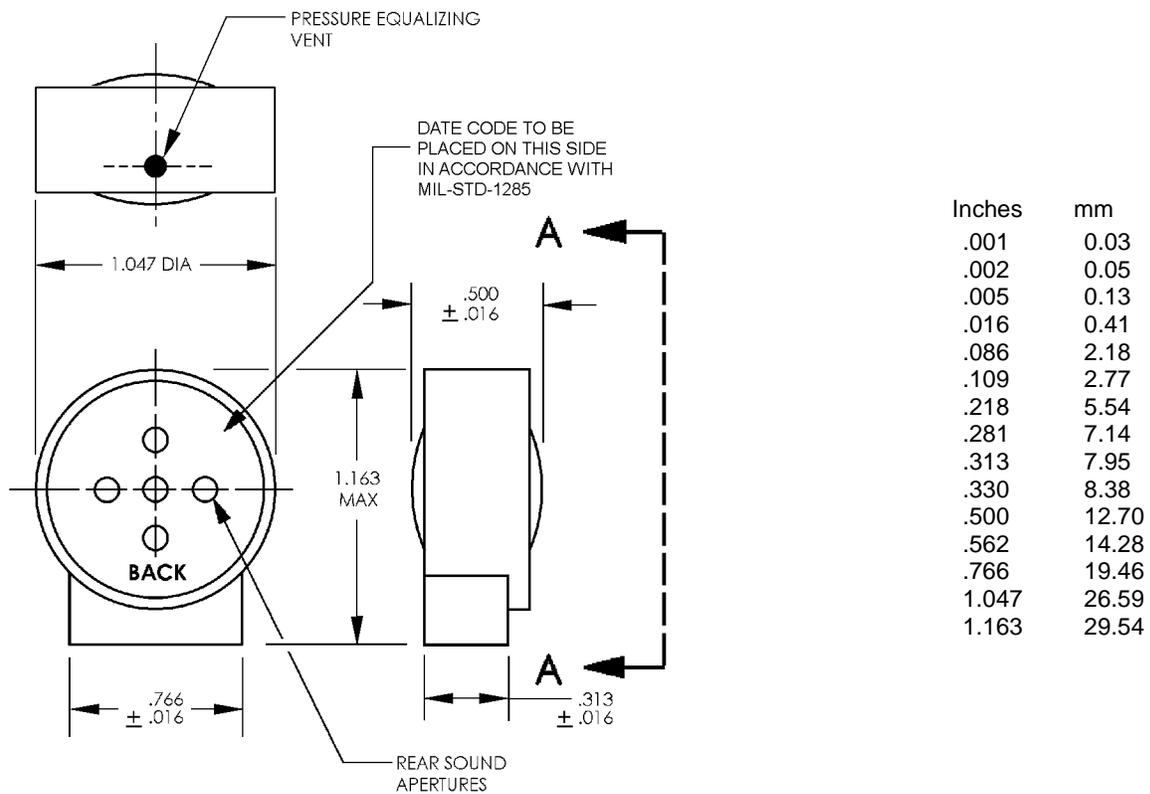
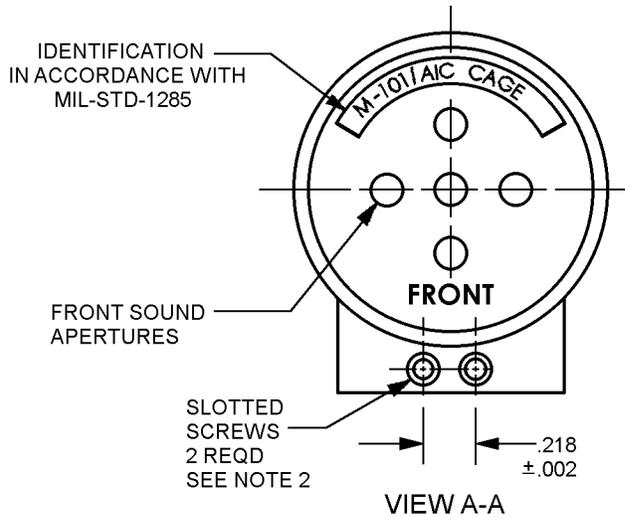
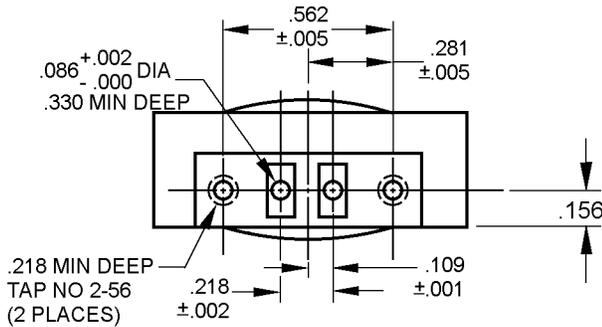


FIGURE 1. Microphone element M-101/AIC.

MIL-PRF-26542/4E



Inches	mm
.001	0.03
.002	0.05
.005	0.13
.086	2.18
.109	2.77
.156	3.96
.218	5.54
.281	7.14
.330	8.38
.562	14.27

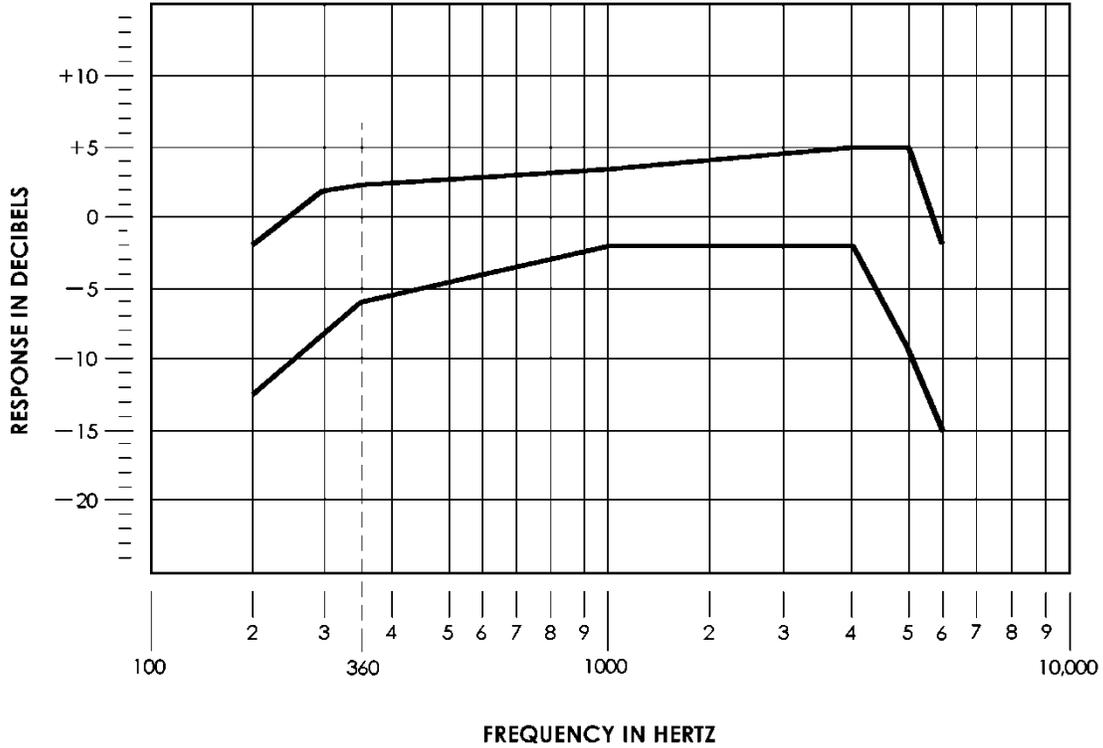


NOTES:

1. Dimensions are in inches. Unless otherwise specified, tolerance is  $\pm .015$  (0.38 mm).
2. Set-screws shall hold the part securely to the bracket, shall be slotted (for interchangeability of spares among manufacturers and tri-Service applications), and recessed (see NASM565, Part or Identifying Number (PIN) AN565DC2-1 or equal).
3. Dimensions of microphone are intended to provide interface to a variety of tri-Service brackets, including the US Air Force PIN MT-2189 (M100/AIC, in accordance with MIL-PRF-26542/3), as well as various US Army mask brackets.
4. Hole depths shall be as specified in order to provide a secure bracket connection, which does not compromise the mechanical stability of the microphone base.
5. Sound aperture location and configuration are optional, provided that frequency response, environmental and performance requirements are met as specified.
6. Metric equivalents are given for general information only and are based upon 1 inch = 25.4 mm.

FIGURE 1. Microphone element M-101/AIC – Continued.

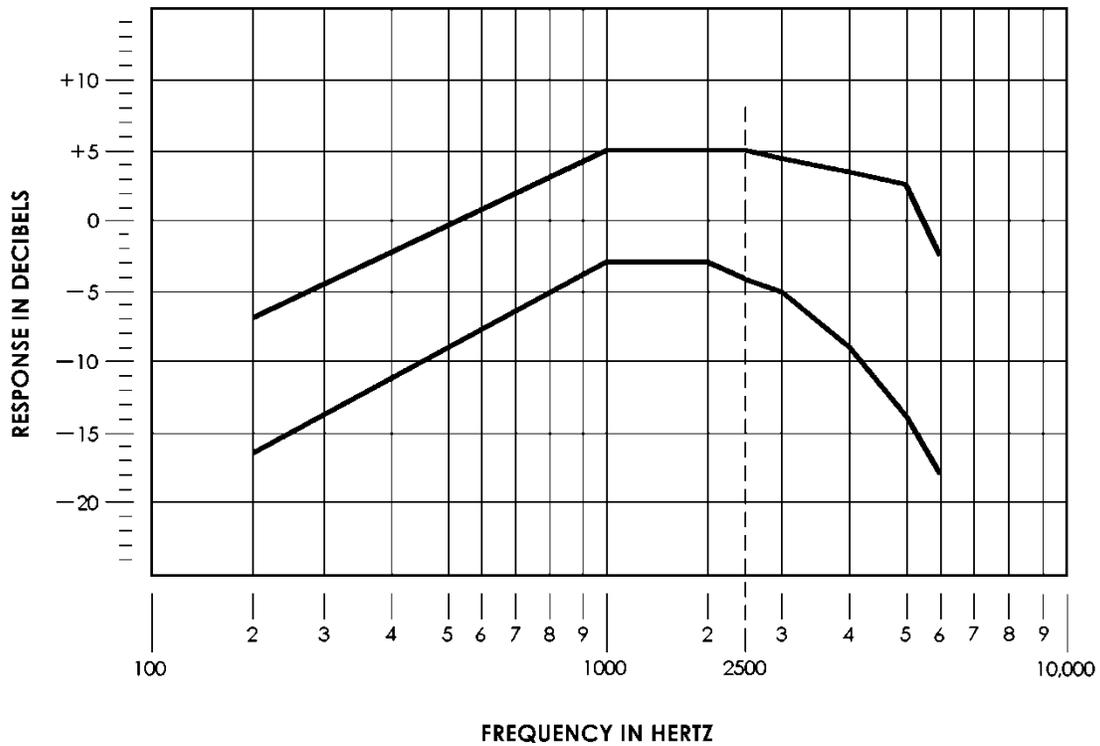
MIL-PRF-26542/4E



Frequency points (Hz)	200	300	360	1,000	4,000	5,000	6,000
Upper limits (dB)	-2.0	2.0	(2.21) <u>1/</u>	(3.40) <u>1/</u>	5.0	5.0	-2.0
Lower limits(dB)	-12.5	(-8.01) <u>1/</u>	-6.0	-2.0	-2.0	(-9.17) <u>1/</u>	-15.0

1/ dB limits between key break point are calculated.

FIGURE 2. Frequency response envelope for microphone element M-101/AIC at ground level.



Frequency points (Hz)	200	1,000	2,000	2,500	3,000	4,000	5,000	6,000
Upper limits (dB)	-7.0	5.0	5.0	5.0	(4.34) <u>1/</u>	(3.31) <u>1/</u>	2.50	-2.50
Lower limits(dB)	-16.50	-3.0	-3.0	(-4.10) <u>1/</u>	-5.0	-9.0	(-13.96) <u>1/</u>	-18.0

1/ dB limits between key break point are calculated.

FIGURE 3. Frequency response for microphone element M-101/AIC at 25,000 feet.

MIL-PRF-26542/4E

REQUIREMENTS:

Component parts: See figure 1.

Weight: 16 grams, maximum.

Performance:

Sensitivity at ground level: 36.90 dB - 42.92 dB (re 1  $\mu$ V) or 69.98  $\mu$ V – 139.63  $\mu$ V with a SPL input of 2.8 Pascal's (28 dynes/cm<sup>2</sup>) at 1 kHz, when tested with the microphone sound port 0.187 inch  $\pm$  0.015 inch (4.75 mm  $\pm$  .38 mm) from, and coaxial with, the opening of the artificial voice.

Sensitivity at a simulated altitude: Sensitivity shall be equal to but not more than 8 dB of the ground level sensitivity, when tested at 25,000 feet.

Frequency response at ground level and at 25,000 feet: The envelope shall be as shown on figure 2 and figure 3, when tested with the microphone sound port 0.187 inch  $\pm$  0.015 inch (4.75 mm  $\pm$  .38 mm) from, and coaxial with, the opening of the artificial voice. The frequency response range of the element shall be 200 Hz to 6,000 Hz.

The response curves generated shall be on the same scale as shown on figures 2 and 3. The response curve shall not exceed the upper and lower limit curves of the stationary Frequency Response Envelope, within the frequency ranges identified in the charts (see figures 2 and 3).

Impedance: 4.0 ohms to 6.0 ohms. The electrical impedance at any frequency over the range of 200 Hz to 6,000 Hz shall not deviate from the 1,000 Hz impedance by more than 20 percent.

Resistive load: 5.0 ohms.

Intended use: Microphone element M-101/AIC is a noise canceling dynamic moving coil microphone element designed for use on a headband type headset at low altitudes or for use in an oxygen mask or pressure-type oxygen helmet, at altitudes where the use of an oxygen helmet is required. The microphone element is intended to provide communication under the noise conditions encountered in military aircraft.

The microphone assembly shall be tested in accordance with the tests specified in table I.

TABLE I. Parameter applicability.

Inspection	Qualification tests	Group "A" tests	Group "B" tests	Group "C" tests
<u>Group I</u>				
Visual and mechanical inspection	X	X		
Sensitivity at ground level	X	X		
Sensitivity at altitude	X			
Frequency response at ground level	X	X		
Frequency response at altitude	X			
Impedance	X	X		
Noise cancellation characteristic	X			
Effect of external magnetic field	X			
Stray magnetic field	X			
Linearity	X			
Talk-out	X	X		
Dielectric withstanding voltage	X			
Signal-to-noise	X		X	
Distortion	X		X	
Interchangeability	X		X	
<u>Group II</u>				
Thermal shock	X			X
Humidity	X			X
Drop	X			X
Pressure equalization	X			X
Explosive decompression	X			X
Salt fog	X			X
<u>Group III</u>				
Vibration	X			X
Bounce	X			X
Altitude	X			X
Moisture barrier seal	X			X
Immersion	N/A			
<u>Group IV</u>				
Fungus	X			
<u>Group V</u>				
Gun blast	N/A			

MIL-PRF-26542/4E

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based upon the entire content, regardless of the marginal notations and relationship to the last previous issue.

Referenced documents. In addition to MIL-PRF-26542, this document references the following:

NASM565  
MIL-STD-1285  
MIL-PRF-26542/3

CONCLUDING MATERIAL

Custodians:

Army - CR  
Navy - EC  
Air Force – 85  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5965-2012-009)

Review activities:

Army - AT, AV, CR4  
Navy – AS, OS  
Air Force – 99

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