

INCH-POUND

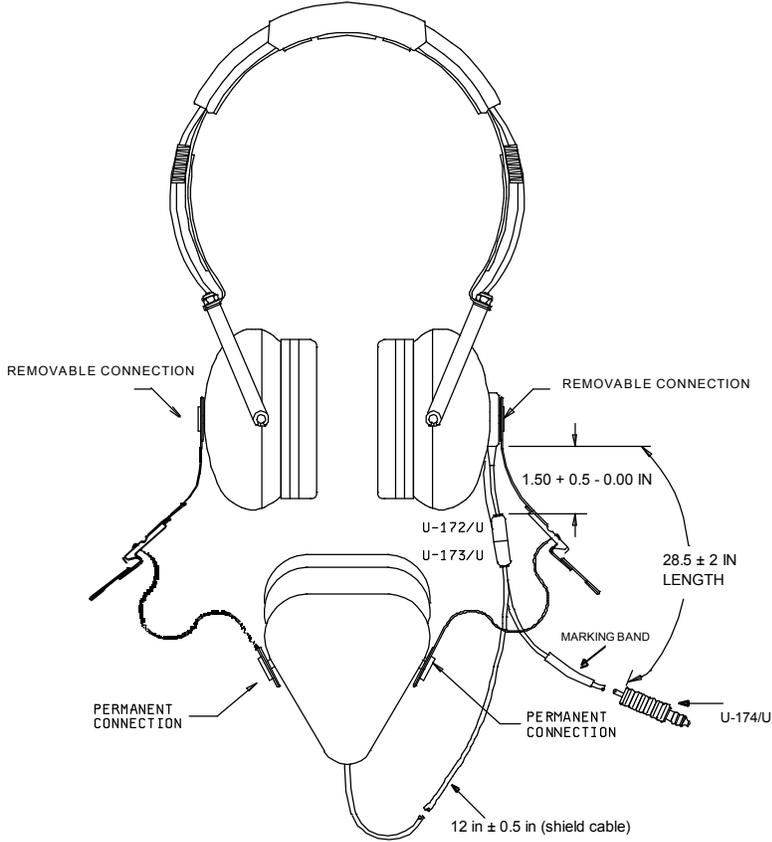
MIL-PRF-87819/1A(USAF)
30 January 1997
SUPERSEDING
MIL-H-87819/1(USAF)
11 MARCH 1985

PERFORMANCE SPECIFICATION SHEET

HEADSET-MICROPHONE, HEARING PROTECTIVE TYPE
HIGH AMBIENT NOISE LEVELS, 105-125 dB, M87819/1-01

This specification sheet is approved for use by the Department of the Air Force, and is available 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 and MIL-PRF-87819.

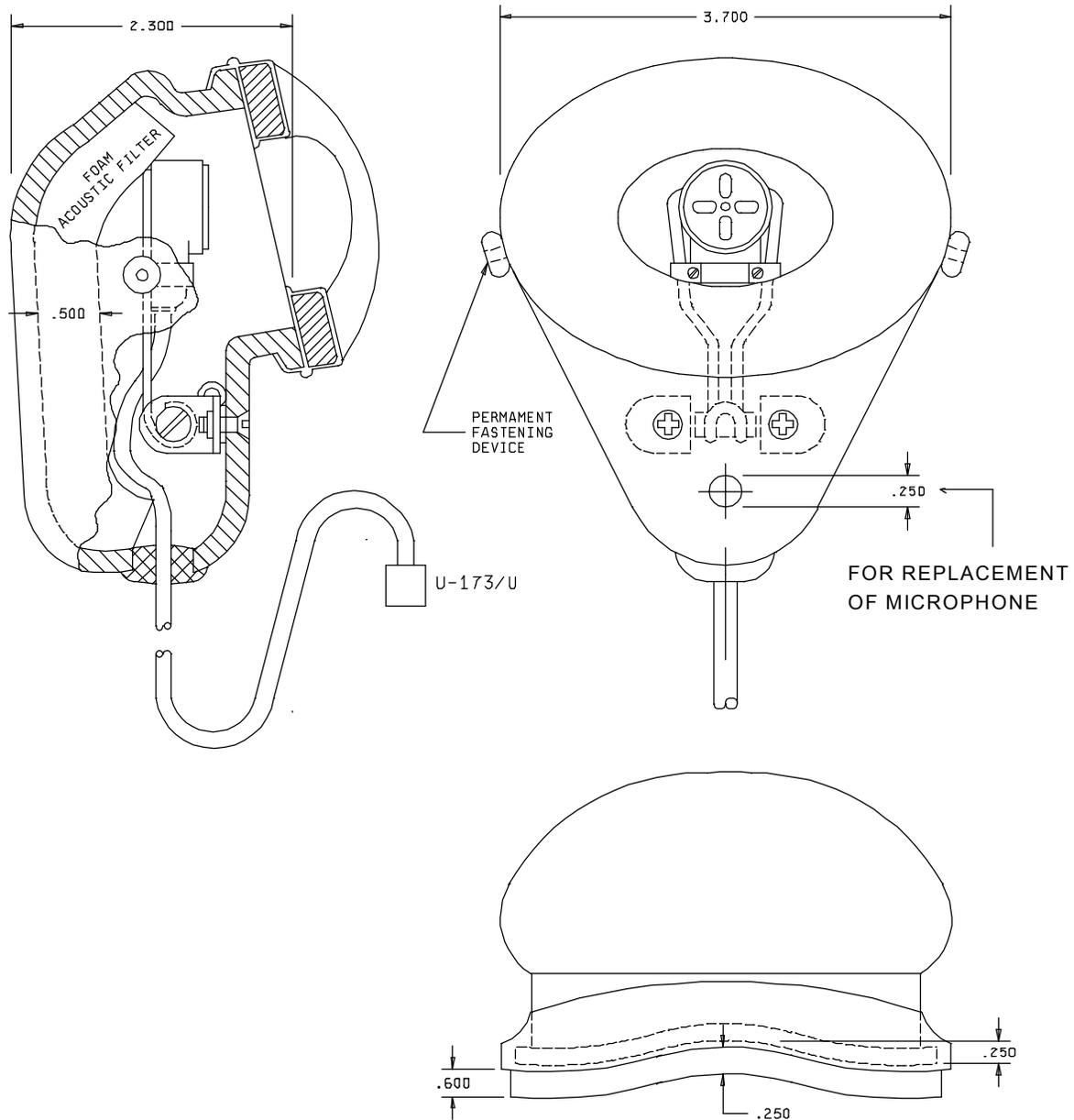


NOTES:

1. 1.500 in cord, and U-172/U plug shall provide interface to emergency oxygen mask connectors.
2. 28.5 in cord shall provide walk-around freedom when used with flightline or shop extender cables.
3. 12 in (shield) cord shall allow the shield to dangle at an accessible, yet unencumbering, position.

FIGURE 1. Headset-microphone assembly M87819/1-01.

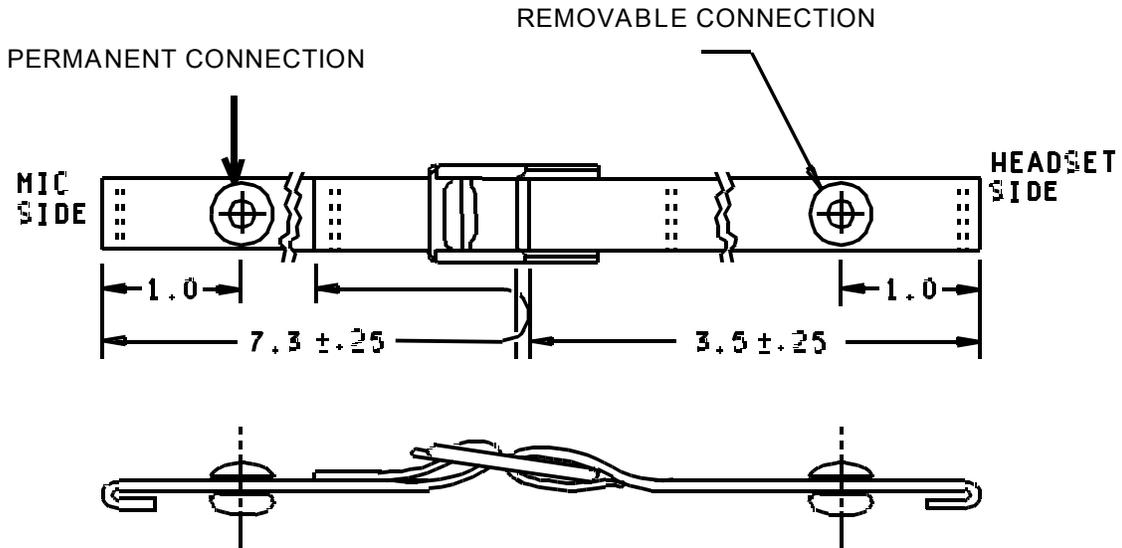
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NOTES:

1. Dimensions are in inches. Unless otherwise specified, tolerance is ± 0.015 in.
2. All shield and shield-cushion dimensions shall enable the part to provide comfortable wear and acoustic noise-protection under the temperature, work-shift, and noise-conditions encountered, and when used by a user with a standard jaw size (50th percentile, male aviator).
3. Foam acoustic filler shall be provided as specified (see Requirements).
4. Mounting method for microphone shall conform to Requirements; mounting shown optional.

FIGURE 2. Microphone protective shield assembly

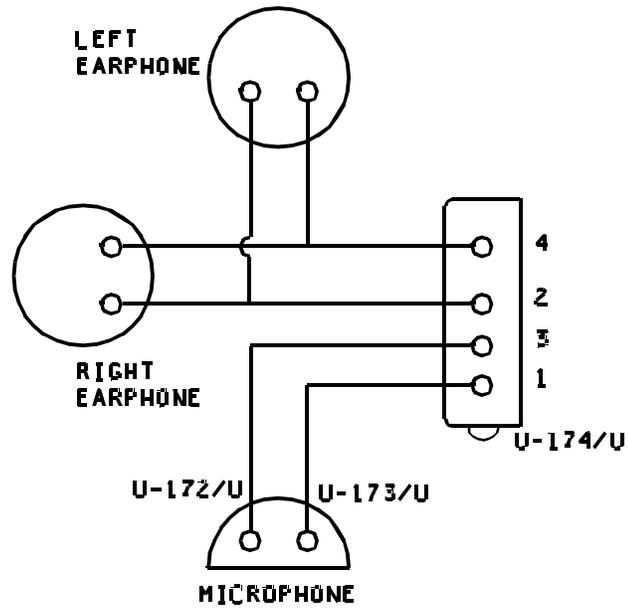
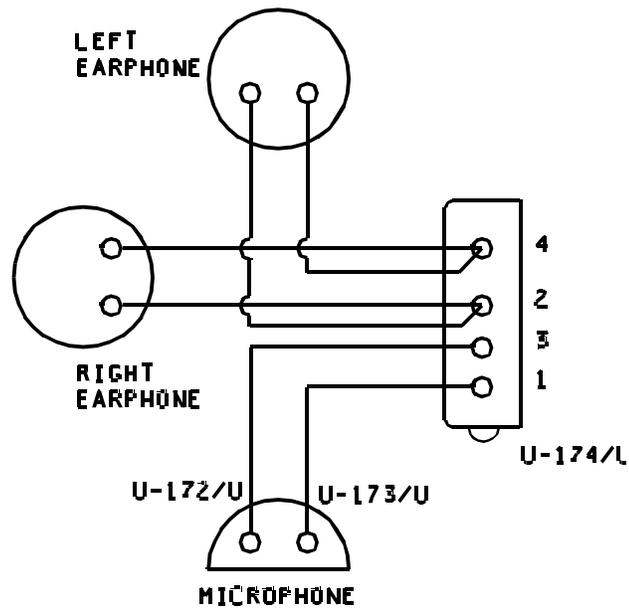


NOTES:

1. Dimensions are in inches, unless otherwise specified, tolerance is ± 0.015 in.
2. 1.0 in strap dimensions shall enable the strap to retain the adjacent connectors under the stress-and-pull conditions encountered, without adding material which may entangle during use.
3. Major strap dimensions (7.3 in, 3.5 in) shall allow the straps to support the weight of the protective shield, when fully extended, while providing sufficient material to allow adjustment of the shield tightly against the standard user head and jaw size, when fully tightened.
4. Strap color, material, and connector types shall conform to the requirements of this specification.

FIGURE 3. Microphone strap assembly, typical configuration

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NOTE: Both 4 wire and 6 wire configurations are acceptable provided EMI requirements are met.

FIGURE 4. Wiring diagram

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REQUIREMENTS:

Design and construction:

Configuration: See figures 1, 2 and 3.

Headband pressure: Headband pressure shall be sufficient to meet the noise attenuation requirements of this specification, without compromising comfort, not to exceed 3.5 pounds.

Microphone protective shield assembly:

Microphone: Microphone shall be M-101/AIC in accordance with MIL-M-26542/4 (1 required), or a microphone providing equal or superior acoustic, environmental, altitude-capable and noise-canceling performance. The microphone shall be securely attached to the protective shield in a manner which prevents motion during use, as well as removal during routine headset maintenance (see figure 2).

Protective shield: The microphone protective shield shall be provided in accordance figure 2. Dimensions related to interface with the shield cushion shall be provided as shown (see Cushion, below). Other dimensions may vary to the extent that they provide superior performance with respect to human interface (hand grasp, 50th percentile male aviator), shock (drop), noise exclusion, and acoustical compatibility with the microphone element. Cord dimension shall be as shown.

Color: Color of the shield shall be the same as the earcups, for consistency.

Filler: The shield shall be designed to reduce acoustic echos within the shell. If this requirement is satisfied using an acoustic-damping foam material, the material shall be flame-retardant, and meet or exceed the performance requirements of MIL-PRF-87819.

Cushion: The microphone protective shield cushion shall be in accordance with Air Force drawing 66B853, for human interface (comfort) under the temperature, work-shift, and noise-conditions encountered in flight-line and shop (engine-test) applications. The color shall be black.

Microphone strap assembly: The microphone shield shall be secured to the earcups by two identical strap assemblies, as shown in figure 1 and figure 3.

Straps: The straps shall conform to the dimensions in figure 3, to enable it to support the dangling microphone shield (when fully extended), as well as enable full adjustment of the microphone shield to the user (when fully tightened). The strap material shall provide high-strength, flame-retardant, fungus-resistant, and slip-resistant performance under the environmental conditions specified. Color shall provide low-contrast with operational clothing and gear.

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- Buckles: The strap assembly sections shall be joined by a mechanism which allows the protective shield to be easily adjusted without allowing slippage during use. It shall not damage the strap material. Color shall provide low-contrast with operational clothing and gear.
- Removable Connection: The removable connection shall prevent inadvertent detachment during use.
- Earphone element: The earphone element shall be H-143/AIC, in accordance with MIL-E-25670/2, (2 required), or an electrically compatible part having equivalent or superior noise-canceling, environmental and voice-band frequency response at ground level and altitude, meeting established United States Air Force hazardous noise exposure standards.
- Wiring diagram: Shall be in accordance with figure 4, for consistency with repair procedures.
- Plug assemblies: See figure 1. Assemblies shall include one (1) U-172/U type or equivalent as approved by qualifying activity; one (1) U-174/U per MIL-C-9177/2(USAF) and U-173/U per Air Force Drawing 57B12662, or electrically and mechanically compatible parts, as approved by the qualifying activity.
- Weight: The weight shall be sufficient to meet the attenuation requirements of this specification, without compromising comfort, not to exceed 1.75 pounds.
- Part or Identifying Number (PIN) shall be: M87819/1-01
- Performance characteristics: See tables I; II and MIL-PRF-87819.
- Attenuation: Testing for attenuation shall be per MIL-PRF-87819 with the exception, use table I specified herein for attenuation values.
- Supersession data: Headset-microphone M87819/1-01 supersedes headset-microphone H-133/AIC.

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TABLE I. Attenuation values

Frequency (Hz.)	63	80	100	125	160	200	250	315
Minimum mean attenuation (dB)	8	9	10	12	13	15	17	20
Minimum mean attenuation (dB) with Eyeglasses	4	5	6	8	10	12	14	17
Frequency (Hz.)	400	500	630	800	1,000	1,250	1,600	
Minimum mean attenuation (dB)	23	26	28	30	31	32	32	
Minimum mean attenuation (dB) with Eyeglasses	20	23	25	27	29	30	30	
Frequency (Hz.)	2,000	2,500	3,150	4,000	5,000	6,300	8,000	
Minimum mean attenuation (dB)	32	32	32	32	32	31	30	
Minimum mean attenuation (dB) with Eyeglasses	32	32	32	31	30	28	24	

NOTE: Eyeglasses shall be in accordance with MIL-PRF-87819.

TABLE II. Performance characteristics

Inspection	Requirements Paragraph	Test Paragraph	Qual. Test	Group A	Group B	Group C
Subgroup 1						
Visual and mechanical	3.3, 3.4, 3.6, 3.7	4.7.1	X	X		X
Acoustic quality	3.5.1	4.7.2	X	X		X
Attenuation (Qualification)	3.5.2.1	4.7.3.1	X			
Attenuation (Conformance)	3.5.2.2	4.7.3.2				X
Speech Intelligibility	3.5.3	4.7.4	X			
Headset System Sensitivity	3.5.4	4.7.5	X			X
Subgroup 2						
Headband Pressure	3.5.12	4.7.13	X		X	
Headband Flexing	3.5.13	4.7.14	X			X
Twist and Pull	3.5.11	4.7.12	X			X
Shock (drop)	3.5.5	4.7.6	X			X
Fungus	3.5.6	4.7.7	X			
Vibration	3.5.7	4.7.8	X			X
Temperature	3.5.8	4.7.9	X			X
Subgroup 3						
Temperature shock	3.5.9	4.7.10	X			X
Humidity	3.5.10	4.7.11	X			X
Salt fog	3.5.15	4.7.16	X			X
Subgroup 4						
Cable Isolation	3.5.14	4.7.15	X			X

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Intended use: Headset-microphone M87819/1-01 is a high ambient noise level headset-microphone designed for use by ground personnel to provide communication under the extreme noise conditions encountered in close proximity to fighter, transport and tanker aircraft engines, both on the flight-line and in engine-test shops, for periods of time required by normal duty work-shifts. The noise-attenuation requirements in this document were developed by the Human Systems Center, Armstrong Laboratory, Biological and Bioacoustics branch, Wright-Patterson AFB, OH. It is strongly recommended that earplugs be worn in conjunction with these headsets.

CONCLUDING MATERIAL

Custodian:
Air Force - 85

Preparing activity:
Air Force - 85

Review activity:
DLA - CC

(Project 5965-0239-01)