

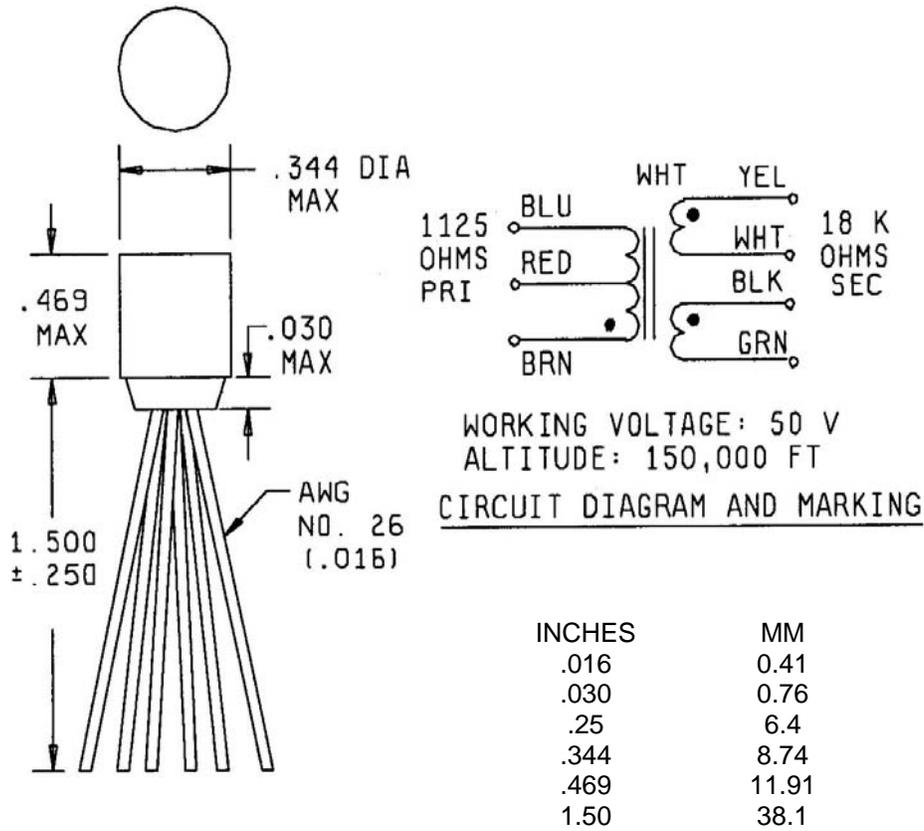
MIL-PRF-27/290C  
 18 July 2008  
 SUPERSEDING  
 MIL-PRF-27/290B  
 23 April 2003

PERFORMANCE SPECIFICATION SHEET

TRANSFORMER, AUDIO FREQUENCY

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

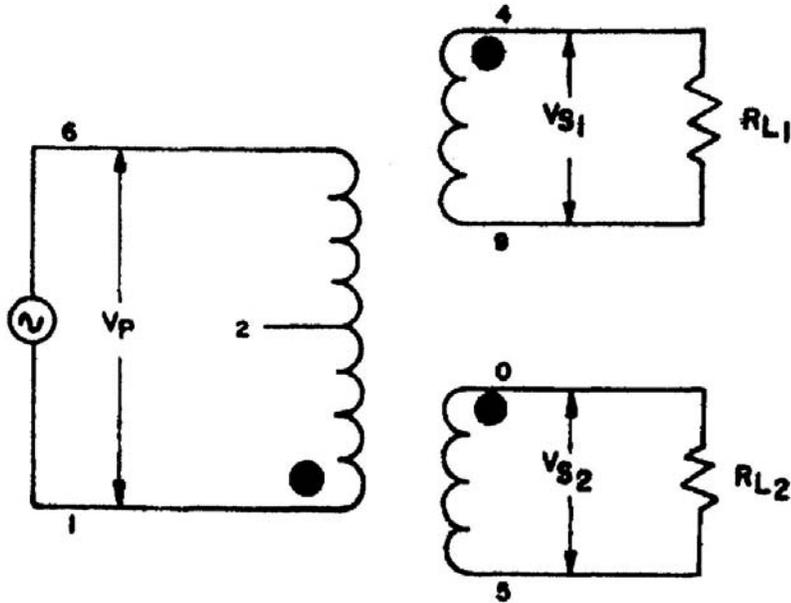
The complete requirements for procuring the transformer described herein shall consist of this document and the latest issue of specification MIL-PRF-27.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Marking shall be on the side of the case.

FIGURE 1. Dimensions and configurations.



$V_{S1} = V_{S2} \pm 0.05\%$  when:  
 $V_p = 15 \sin \{2\pi(400 \pm 20)T\}$  where  $T =$  Time in sec.  
 $R_{L1} = R_{L2} = 15 \text{ k}\Omega \text{ thru } 1 \text{ M}\Omega.$

FIGURE 2. Output balance circuit.

REQUIREMENTS: (When colors in parentheses, i.e. (Brn-Blu), are used, they indicate the winding and the extreme terminals of the winding. When the extreme terminals of two windings are used, i.e. (Brn-Blu), the windings are connected in series.)

Electrical ratings:

Primary power level: 100 mW maximum at 1 kHz.

Working voltage: 50 Volts peak.

Primary impedance: (Blu-Brn) 1,125 ohms ct  $\pm 125$  ohms.

Secondary impedance: (Yel-Grn) 18,000 ohms split  $\pm 2,000$  ohms. Split indicates that one-fourth of the listed impedance is available by paralleling the windings.

Primary current: 3.5 mA.

Frequency range: 300 Hz to 20 kHz,  $\pm 3$  dB at 1 mW level.

Design and construction:

Dimensions and configuration: See figure 1.

Duty cycle: Continuous.

Case: Metal, one open end filled with epoxy.

Terminals: Copper clad, steel tinned 100 percent, electroplated per ASTM B545 and ASTM B339.

Diameter: 0.016 inch.

Length: 1.500  $\pm 0.250$  inch.

Weight: 0.2 ounce maximum.

Operating temperature range:  $-55^{\circ}\text{C}$  to  $+130^{\circ}\text{C}$ .

Altitude: 150,000 feet.

Terminal strength: Method 211 of MIL-STD-202, test condition A, 2 pounds.

Dielectric withstanding voltage (each winding):

At sea level and at reduce barometric pressure: 100 Vrms.

Polarity: Additive with terminals Blu and Yel, and Wht and Blk connected.

Electrical characteristics:

Primary Impedance: 1,125 ohms ct  $\pm 12$  percent with 1 volt at 5 kHz and 3.5 mA dc applied to the primary and 18 k $\Omega$  across the secondaries.

Primary dc resistance: 120 ohms  $\pm 25$  percent.

Secondary dc resistance: 940 ohms  $\pm 25$  percent.

No load (center tap unbalanced):  $\pm 1$  percent at 1 volt, 5 kHz across the primary.

Harmonic distortion: Total harmonic content of the output shall be a maximum of 5 percent at 100 mW and 3.5 mA in the primary.

Secondary output balance: When the transformers are operated with identical loads of 15 k $\Omega$  to 1 M $\Omega$  on each of the secondary windings and the primary input voltage is equal to  $15 \sin \{2\pi(400 \pm 20) T\}$ , where T = time in seconds, the output voltages shall be equal within  $\pm 0.05\%$  (see figure 2).

Insertion loss: At 100 mW in the primary, the insertion loss shall be a maximum of 3.0 dB at 1 kHz.

Frequency response:  $Z_S = 1,000$  ohms;  $Z_L = 16$  k $\Omega$ ,  $E_L = 1$  volt; reference frequency = 1 kHz.

Frequency range is 300 Hz to 20 kHz,  $\pm 3.0$  dB.

Self-resonant frequency: Shall be a minimum of 300 kHz.

Vibration (high frequency): MIL-STD-202, method 204, test condition B.

Marking location: See figure 1.

Part or Identification Number (PIN): M27/290-01.

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 on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Referenced documents.

MIL-PRF-27  
MIL-STD-202  
ASTM B339  
ASTM B545

Custodians:

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

Preparing activity:  
DLA - CC

(Project 5950-2008-036)

Review activities:

Army - AR, CR4, MI  
Navy - AS, MC, OS, SH  
Air Force - 19, 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 <http://assist.daps.dla.mil>.