

INCH-POUND

MIL-T-27/197B
AMENDMENT 1
14 April 2017
SUPERSEDING
MIL-T-27/197B
10 March 1987

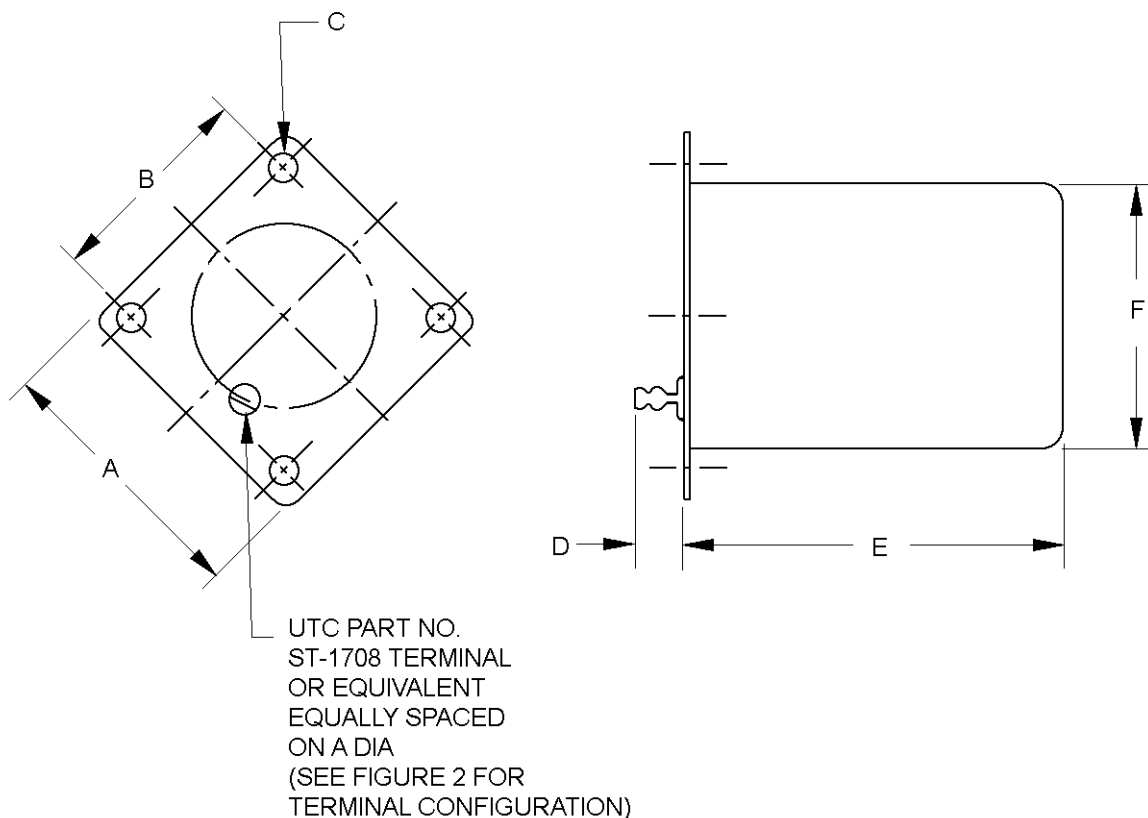
MILITARY SPECIFICATION SHEET

TRANSFORMER, AUDIO FREQUENCY

Inactive for new design after 25 August 1998

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

The requirements for acquiring the products described herein shall consist of this specification and MIL-PRF-27.



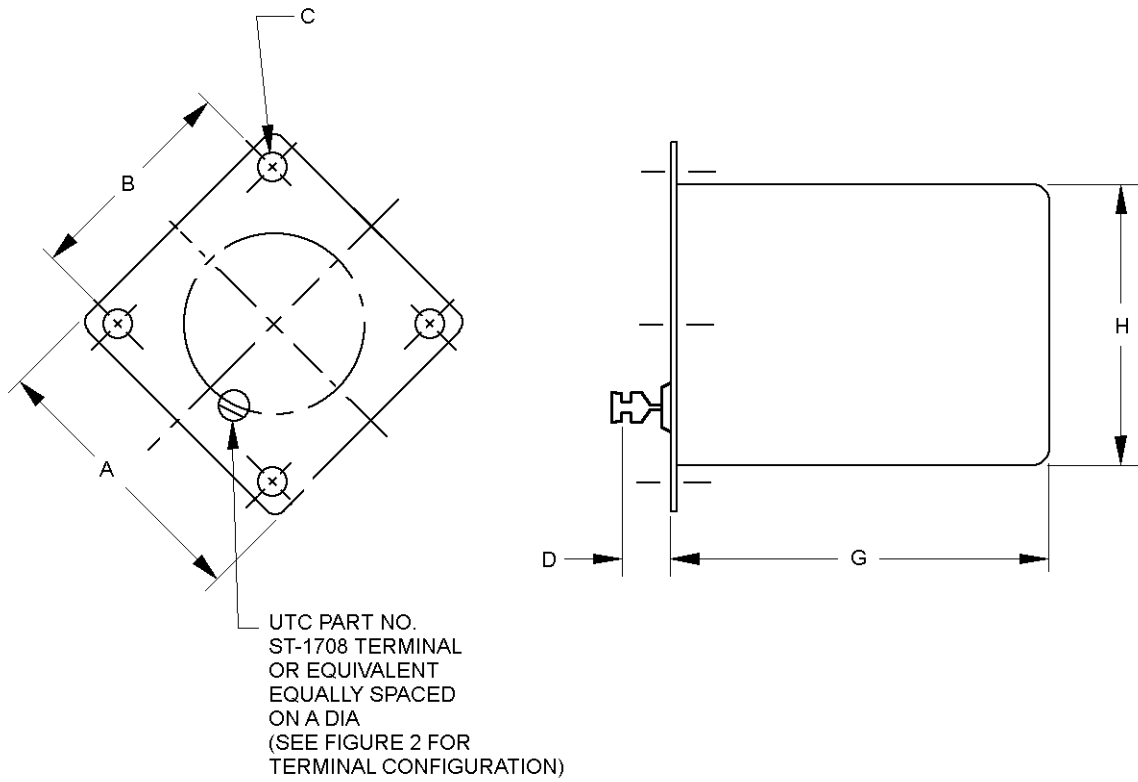
Dash numbers 01 through 10

FIGURE 1. Dimensions and configurations.

AMSC N/A

FSC 5950





Dash number 11

FIGURE 1. Dimensions and configurations – Continued.

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Dash number 01 through 10			Dash number 11		
Dim	Inches	mm	Dim	Inches	mm
A	1.625 SQ ± 0.016	41.28 SQ ± 0.41	A	1.812 SQ ± 0.031	46.02 SQ ± 0.79
B	1.312 ± 0.016 TYP	33.32 ± 0.41 TYP	B	1.500 ± 0.016 TYP	1.500 ± 0.41 TYP
C	.144 ± 0.005 DIA THRU (4 Places)	3.66 ± 0.13 DIA THRU (4 Places)	C	.144 ± 0.005 DIA THRU (4 Places)	3.66 ± 0.13 DIA THRU (4 Places)
D	.265 ± 0.031	6.73 ± 0.79	D	.265 ± 0.031	6.73 ± 0.79
E	2.250 $+ .125, -.062$	57.15 $+3.18, -1.57$	G	2.500 $+ .125, -.062$	63.50 $+3.18, -1.57$
F	1.625 Max. DIA	41.28 Max. DIA	H	1.812 Max. DIA	46.02 Max. DIA

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Tolerance on terminal diameter is ± 0.005 inch (0.13 mm).
4. Terminals shall be equally spaced on the terminal circle diameter.
5. Marking shall be on the side of the case.
6. Primary and secondary electrical values shall be marked as specified in table I, as applicable.

FIGURE 1. Dimensions and configurations – Continued.

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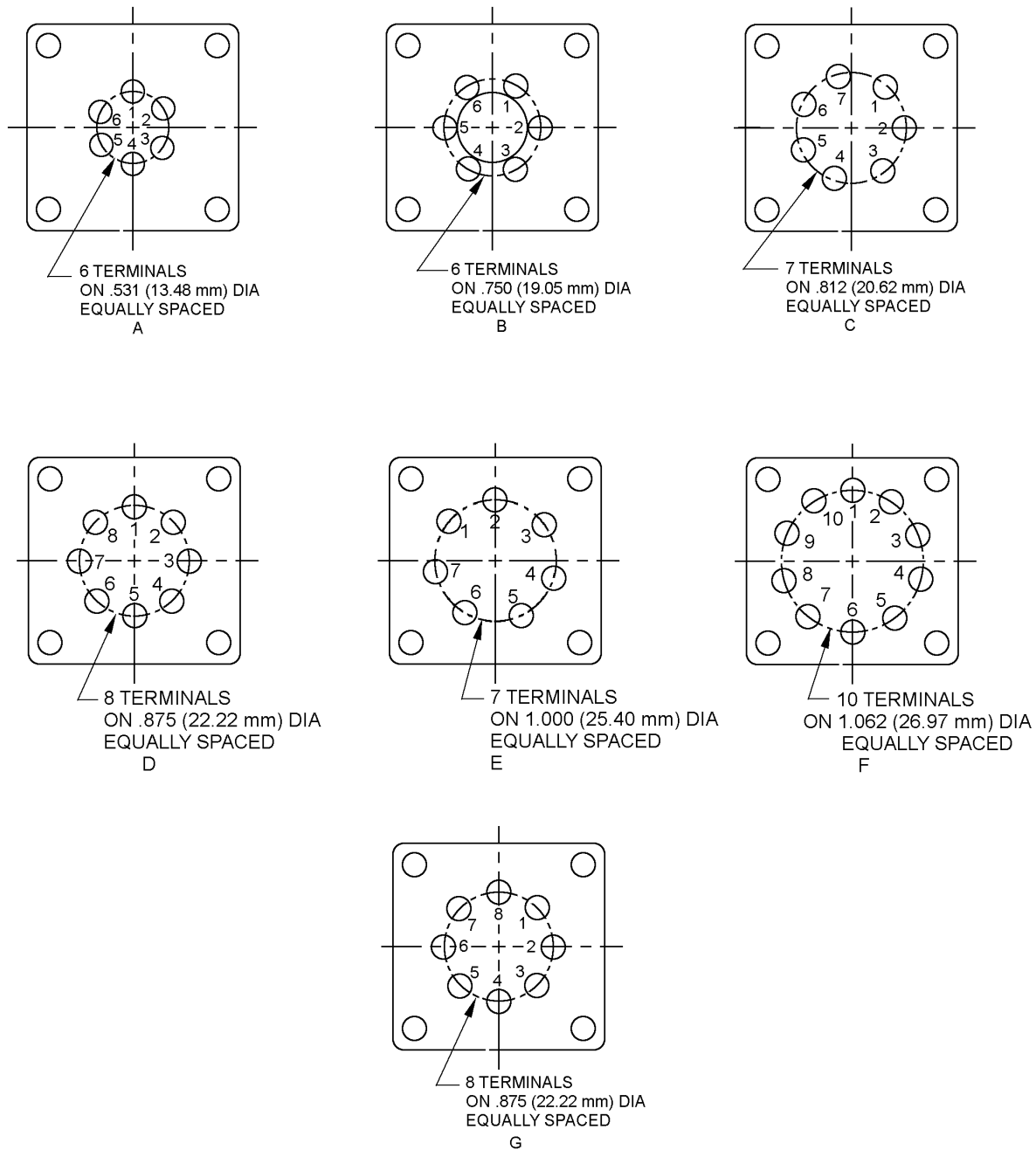
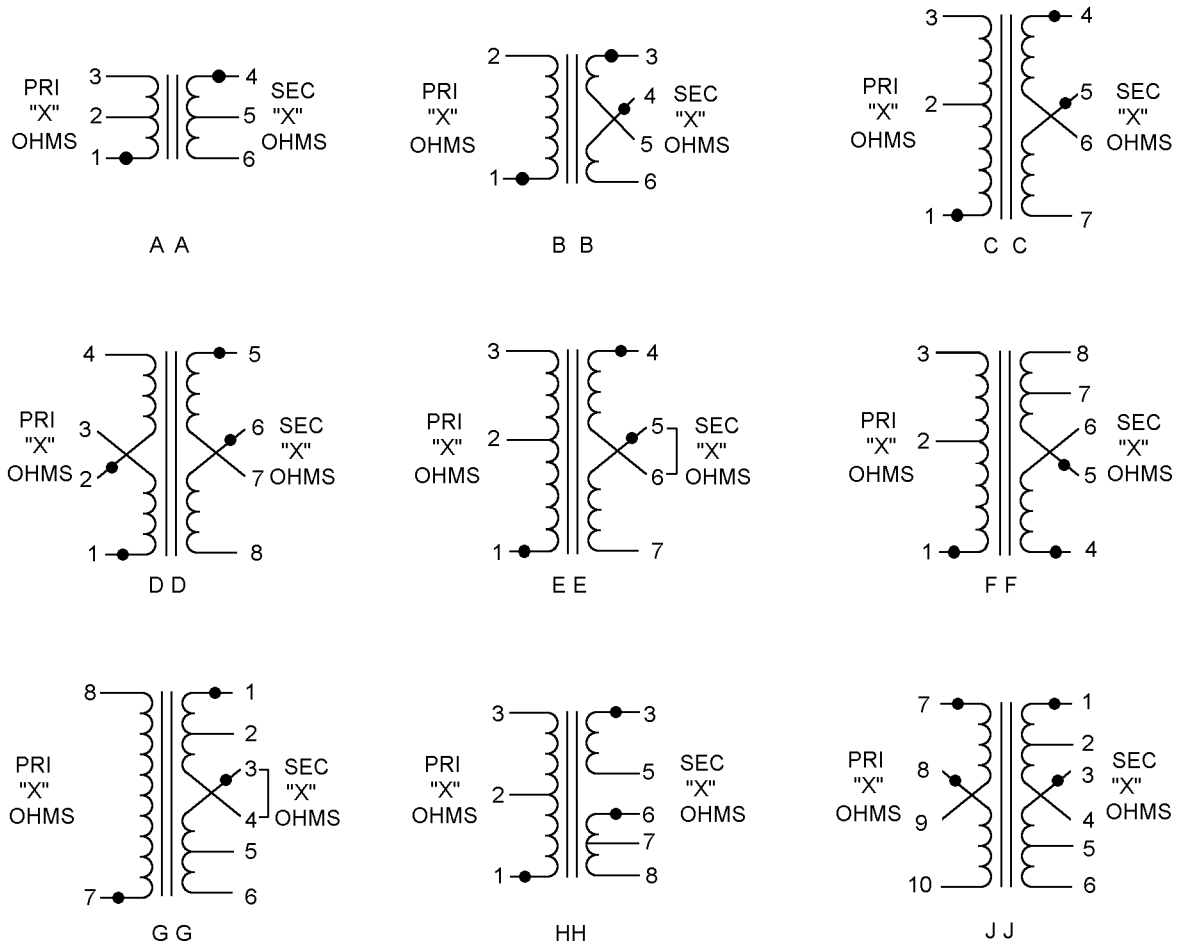


FIGURE 2. Terminal configurations.

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WORKING VOLTAGE (PEAK): "X" VOLTS
ALTITUDE: 50,000 FEET, MAXIMUM.
(SEE TABLE I FOR VALUES OF "X")
CIRCUIT DIAGRAM AND MARKING

FIGURE 3. Circuit diagrams and marking.

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REQUIREMENTS: (When numbers in parentheses, i.e. (1-2), are used, they indicate the winding and the extreme terminals of the winding.)

Electrical ratings: See table I.

Design and construction:

Dimensions and configurations: See figures 1 and 2.

Duty cycle: Continuous.

Case: Metal encased.

Material: Steel

Terminals: Solid lug type, United Transformer Co. part number ST-1708 or equivalent.

Terminal height: 0.265 ± 0.031 inch.

Weight: 227 grams, maximum.

Altitude: 50,000 feet, maximum.

Operating temperature range: -55°C to $+105^{\circ}\text{C}$

| Terminal strength: MIL-STD-202-211, test condition A, 2.0 pounds and test condition E, 0.5 pound-inches.

Dielectric withstanding voltage: See table II.

Electrical characteristics: See table II.

No load (center tap voltage unbalance only): ± 1 percent at 1 V, 1 kHz across the primary.

Harmonic distortion: 5 percent maximum at the rated power level (see table I).

Insertion loss: 3.0 dB maximum at the rated power level.

Frequency response: ± 2 dB at the rated source and load impedances (see table II) through the specified frequency range (see table I) and a reference frequency of 1 kHz.

Resonance, second resonant frequency: The second resonant frequency shall be a minimum of 20,000 Hz.

Temperature rise (dash numbers 06 through 11): At the ambient temperature specified in table II with rated power at 1 kilohertz the temperature rise shall be as specified in table II.

Marking location: See figure 1.

| Part or Identifying Number (PIN): M27/197-(dash number from table I).

TABLE I. Electrical ratings. 1/

Dash no. M27/197-	Terminal configuration (see figure 2)	Circuit diagram (see figure 3)	Primary impedance (Ohms)	Secondary impedance (Ohms)	Unbalanced primary dc current (mA)	Power level at 1kHz (max) (mW)	Primary dc resistance ±25% (ohms)	Secondary dc resistance ±25% (ohms)	Working voltage (peak)	Frequency range
01	A	BB	15,000 (1-2)	80,000 SPLIT (3-6)	8	200	3,050	11,250	350	100 Hz to 20 kHz
02	D	DD	15,000 SPLIT (1-4)	80,000 SPLIT (5-8)	0	15	1,075	2,960	350	30 Hz to 20 kHz
03	B	AA	250 CT 500 CT ^{2/} (1-3)	50,000 CT ^{2/} 100,000 CT (4-6)	0	4	38	1,900	175	100 Hz to 20 kHz
04	D <u>3/</u>	GG	15,000 (7-8)	500 CT (1-6) with (3-4) connected 200 CT (2-5) with (3-4) connected 125 (1-3) and (4-6) connected, and (3-4) open 50 (2-3) and (4-5) Connected, and (3-4) open	8	200	1,650	75	268	50 Hz to 20 kHz
05	F	JJ	30,000 SPLIT (7-10)	500 CT (1-6) with (3-4) connected 200 CT (2-5) with (3-4) connected 125 (1-3) and (4-6) connected 50 (2-3) and (4-5) connected	0	80	2,490	84	350	30 Hz to 20 kHz
06	C <u>4/</u>	EE	500 CT (1-3)	500 SPLIT (4-7)	0	1,000	33	35	175	40 Hz to 20 kHz
07	D	DD	10,000 SPLIT (1-4)	20,000 SPLIT (5-8)	8	1,000	600	134	350	40 Hz to 20 kHz
08	C	CC	500 CT (1-3)	16 SPLIT (4-7)	20	1,000	33	1.35	175	40 Hz to 20 kHz
09	E	CC	200 CT (1-3)	400 SPLIT (4-7)	20	1,000	14	22.2	175	40 Hz to 20 kHz
10	G	FF	48 CT (1-3)	16 (4-8) with (5-6) connected 8 (4-7) with (5-6) connected 4 (4-5) and (6-8) connected	750 <u>5/</u>	5,000	5.0	1.82	175	40 Hz to 20 kHz
11	D	HH	20 CT (1-3)	16 (4-8) with (5-6) connected 8 (4-7) with (5-6) connected 4 (4-5) and (6-8) connected	1,000 <u>5/</u>	10,000	1.25	1.0	175	75 Hz to 20 kHz

1/ Complete qualification testing and approval to M27/197-01 and all tests per table VII of MIL-PRF-27 for M27/197-05 and M27/197-11 shall be sufficient to grant qualification approval to M27/197-01 through M27/197-11.

2/ Impedance values written one above the other indicate a range of matching impedances over which the parts will give satisfactory performance as long as the impedance ratio is maintained.

3/ Terminals 3 and 4 are connected by an external removable jumper.

4/ Terminals 5 and 6 are connected by an external removable jumper.

5/ Balanced dc current.

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TABLE II. Electrical characteristics and properties.

Dash no. M27/197-01	Frequency response: ± 2 dB			Dielectric withstanding voltage V rms		Temperature Rise °C (max)	Ambient Temperature °C	Polarity: Additive with terminals (below) connected
	E _s volts	Z _s ohms	Z _L ohms	At sea level	At barometric pressure			
01	126	15,000	80,000 SPLIT	1,000	300	-	-	(2-3) and (4-5)
02	35	15,000 SPLIT	80,000 SPLIT	1,000	300	-	-	(2-3), (4-5) and (6-7)
03	20	250 CT	50,000 CT	500	300	-	-	(3-4)
04	10	15,000	500 CT	750	300	-	-	(1-8) and (3-4)
05	6.3	30,000 SPLIT	500 CT	1,000	300	-	-	(8-9), (1-10) and (3-4)
06	22	500 CT	500 SPLIT	500	300	30	75	(3-4) and (5-6)
07	45	10,000 SPLIT	2,000 SPLIT	1,000	300	40	65	(2-3), (4-5) and (6-7)
08	4	500 CT	16 SPLIT	500	300	30	75	(3-4) and (5-6)
09	20	200 CT	400 SPLIT	500	300	40	65	(3-4) and (5-6)
10	8.9	48 CT	16	500	300	40	65	(3-4) and (5-6)
11	12.6	20 CT	16	500	300	40	65	(3-4) and (5-6)

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Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Referenced documents. In addition to MIL-PRF-27, this document references the following:

MIL-STD-202-211

Custodians:

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

Preparing activity:
DLA – CC

(Project 5950-2016-034)

Review activities:

Army – AR, CR4, MI
Navy – AS, MC, OS
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 this information above using the ASSIST Online database at <https://assist.dla.mil>.