

AUDIO INPUT TRANSFORMERS

Scanned and Prepared by Dale H. Cook

<p>20A00</p>	<p>Line to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:10 500/600 Ohm CT Pri. Connect to Blue and Brown use Red for CT 60,000 Ohm CT Sec. Connect to Green and Yellow use Black for CT</p>	
<p>20A01</p>	<p>Line to Single Grid Turns Ratio Pri. to Sec. 1:20 500/600 Ohm CT Pri. Connect to Blue and Brown use Red for CT 240,000 Ohm Sec. Connect to Green and Black</p>	
<p>20A02</p>	<p>Line to Push-Pull Grids Turns Ratio Pri. to Sec. 1:20 500/600 Ohm CT Pri. Connect to Blue and Brown use Red for CT 240,000 Ohms Sec. Connect to Green and Yellow use Black for CT</p>	
<p>20A03</p>	<p>Single Button and/or Plate to Grid 10,000 Ohm Pri. Connect Plate to Blue, Red to B + (10MADC) 200 Ohm Pri. Connect 200 Ohm Mike or Line to Brown 100,000 Sec. Connect to Green and Black HAS INTERCOM AND TRANSCEIVER APPLICATIONS</p>	
<p>20A04</p>	<p>Voice Coil to Grid Turns Ratio Pri. to Sec. 1:80 3/6 Ohm Pri. Connect to Blue and Red 38,400 Sec. Connect to Green and Black</p>	
<p>20A05</p>	<p>Line to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:10 500/600 Ohms CT Pri. Connect to 1 and 4, join 2 and 3 50 Ohms Pri. Connect to 1 and 4, join 1 and 2, 3 and 4 60,000 Ohms CT Sec. Connect to 5 and 8, join 6 and 7 SPLIT Pri. and Sec. CT for Balancing Networks.</p>	

INTERSTAGE TRANSFORMERS

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<p>20A16 20A17</p>	<p>Single Plate to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:2 Connect Plate (7000 to 15000 Ohms @ 10 MADC) to Blue Connect B+ to Red Connect Grids to Green and Yellow Connect Ground or Bias to Black</p>	
<p>20A18 20A22 20A23</p>	<p>Single Plate to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:3 Connect Plate (7000 to 15000 Ohms @ 10 MADC) to Blue Connect B+ to Red Connect Grids to Green and Yellow Connect Ground or Bias to Black</p>	
<p>20A19</p>	<p>Single or Push-Pull Plates to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:3 Connect Plates (10000 to 20000 Ohms @ 10 MADC) to PRI. Blue and Brown. Connect B+ to Red (Not used in singled ended outputs) Connect Grids to Green and Yellow Connect Ground or Bias to Black</p>	
<p>20A24</p>	<p>Single or Push-Pull Plates to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:3 Connect Plates (20000 Ohm CT @ 10 MADC) to Blue and Brown Connect B+ to Red (Not used in single ended outputs) Connect Grids to Green and Yellow Connect Ground or Bias to Black and Red/Yellow (Split CT)</p>	
<p>20A25</p>	<p>Single or Push-Pull Plates to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:1.41 Connect Plates (10000 to 20000 Ohms CT @ 10 MADC) to 1 and 4 Connect B+ to 2 and 3 Connect Grids to 5 and 8 Connect Ground or Bias to 6 and 7 (Split CT)</p>	
<p>20A27</p>	<p>Single or Push-Pull Plates to Single or Push-Pull Grids Turns Ratio Pri. to Sec. 1:2 Connect Plates (2500 to 10000 Ohm CT @ 10 MADC) to 1 and 4 Connect B+ to 2 and 3 Connect Grids to 5 and 8 Connect Ground or Bias to 6 and 7 (Split CT)</p>	

UNIVERSAL OUTPUT TRANSFORMER

Designed to couple the output tube or tubes to any dynamic speaker voice coil. The chart below is based on the manufacturers' recommended plate loads for the tube listed. Some tubes may be operated under different load conditions depending on the applied plate voltage etc. Measure the receiver voltages and refer to a tube manual for the proper load.

The transformer has three primary leads; brown, red, and blue. When used with a single tube, connect the brown lead to the tube plate and the blue lead to B+, disregarding the red lead. With a push-pull circuit connect the brown and blue leads to the plates and the red lead to B+.

Voice coil values are the actual secondary impedance of the various terminals for given loads. Choosing the terminals to the value nearest the rated voice coil impedance will result in the maximum undistorted output from the tubes. Where the impedance of the voice is unknown the proper secondary terminals may be determined by trial.

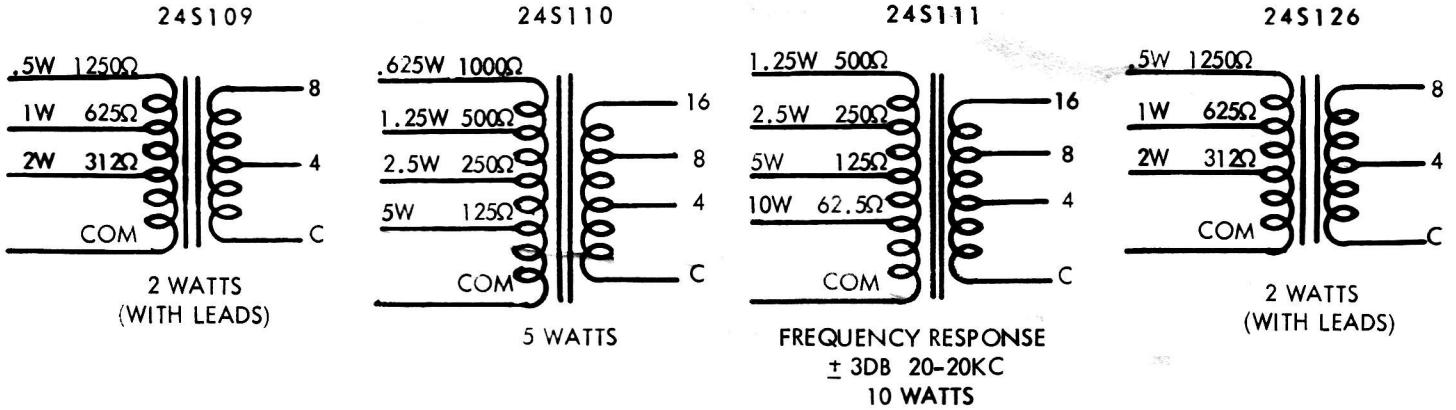
By the use of the column marked "Impedance ratio of primary to secondary", it is possible to compute the correct matching for many combinations not shown in the table. If the load resistance of the tube to be used is divided by the impedance of the voice coil, the result will be the impedance ratio that should be used, and the proper tap may be selected by referring to the impedance ratio column and choosing the closest value. For example, to match an 5,000 ohm tube to a 16 ohm voice coil, the impedance ratio $\frac{5,000}{16} = 312$

The nearest value to this is 310, and the secondary connections should be made to terminals 3 and 5.

Secondary Terminals	Impedance Ratio	PLATE LOAD IMPEDANCE						
		6,000	5,000	4,000	3,000	2,500	2,000	1,500
		Voice Coil Impedance						
1-2	1,820	3.3	2.75	2.2	1.65	1.9	1.1	.8
1-3	1,000	6	5	4	3	2.5	2	1.5
3-4	556	10.8	9	7.4	5.4	4.5	3.7	2.7
2-4	390	15.4	12.8	10.3	7.7	6.4	5.2	3.9
3-5	310	19.3	16.1	12.9	9.7	8	6.5	4.9
2-5	236	25.4	21.2	16.9	12.7	10.6	8.5	6.9
1-4	182	-	-	22	16.5	13.8	11	8.3
1-5	128	-	-	-	23.4	19.5	15.2	11.7

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IN SCHOOLS - AUDITORIUMS - GRILLS - INDUSTRIAL PLANTS -
PRIVATE HOMES - and COIN OPERATED SYSTEMS



These HI-FIDELITY SPEAKER TRANSFORMERS have been designed for their ability to provide the custom audio engineer with a system that combines versatility with excellent acoustics.

Some newer amplifiers have a designated 25 volt outlet, but almost any amplifier has an impedance tap which may be used as a 25 volt output.

The following table gives these impedance taps:

Full Power Output of Amplifier	Impedance taps for 25 Volt Line
5	125 Ohms
10	62.5 Ohms
20	31.25 Ohms
25	25 Ohms
40	15 Ohms

For Power ratings not shown use the following formulae:

$$\frac{625}{W} = \text{Impedance Tap for 25 Volt Line} \quad W = \text{Full Power Output of Amplifier}$$

Any combination of speaker and TRANSFORMERS may now be connected to the 25 tap providing that the sum of the watts equals the output rating of the amplifier.

A typical system installed in a building including a large auditorium is shown.

