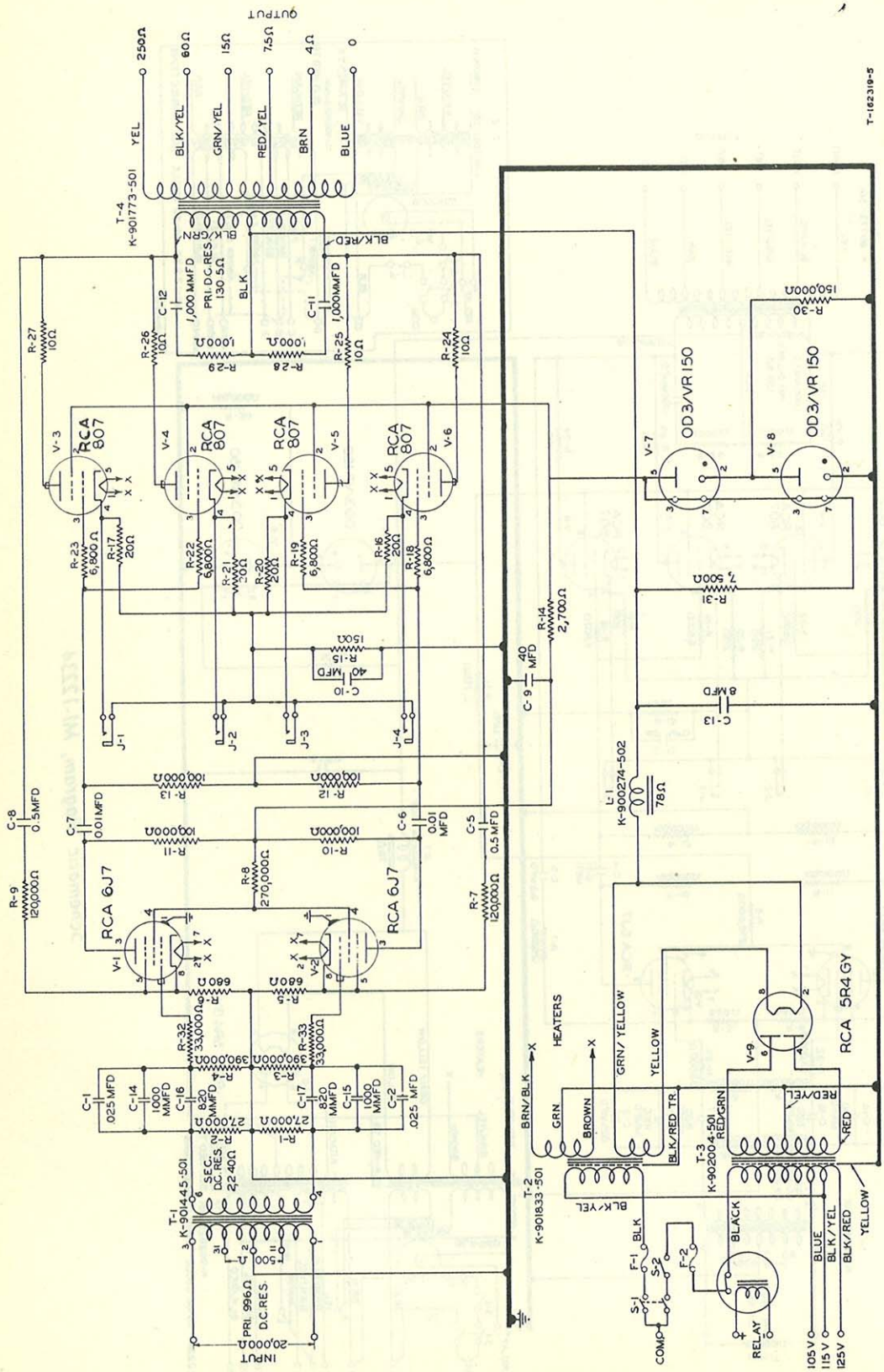
MODEL MI-12245

RADIO CORP. OF AMERICA



Schematic diagram, MI-12245

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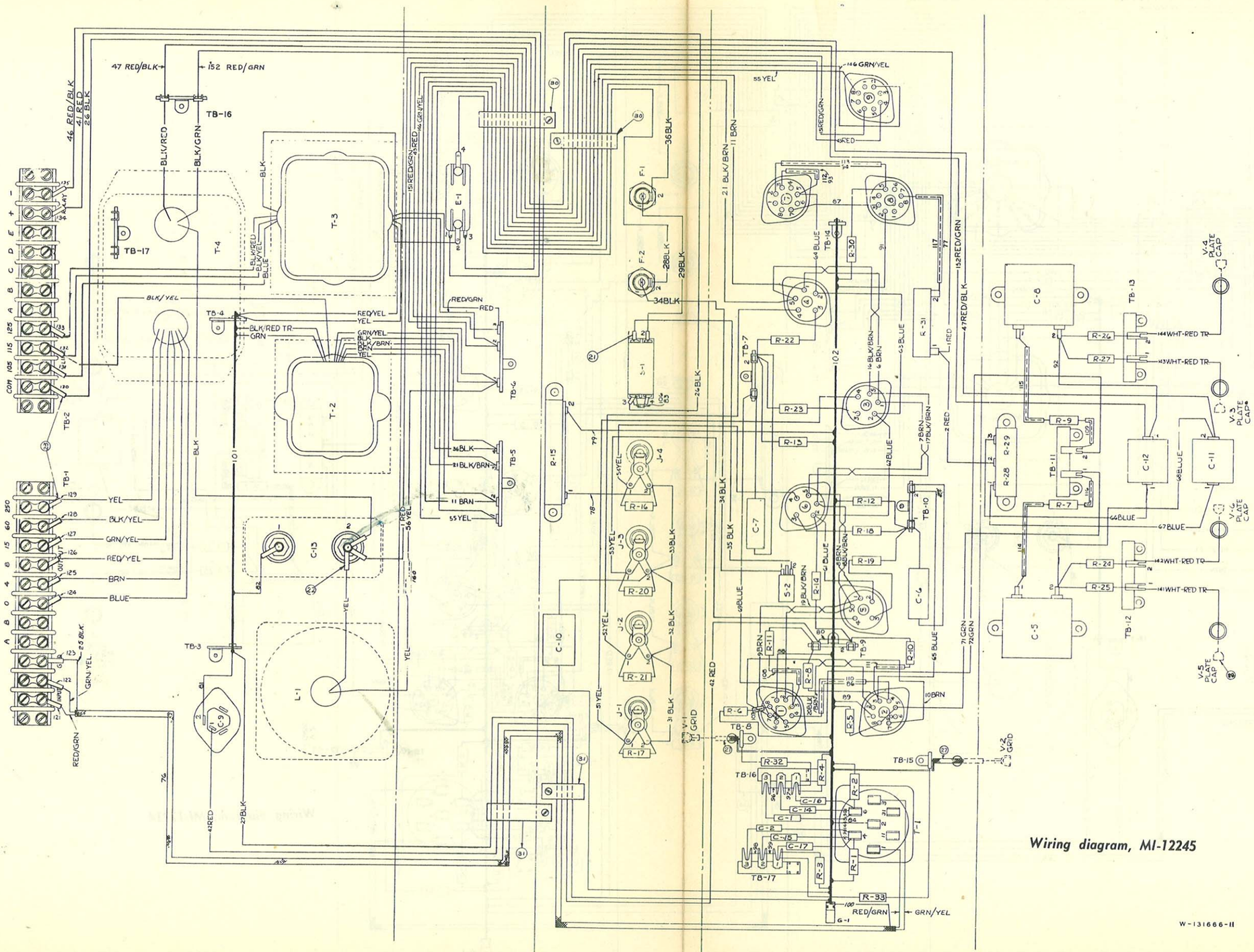


Wiring diagram, MI-12245

W-131666-11

TECHNICAL DATA

Power Supply Required

(a) *MI-12245*
105 to 125 volts, 50 to 60 cps, 330 watts

(b) *MI-12234*
210 to 250 volts or 105 to 125 volts, 25 to 60 cps, 330 watts

(c) *Plate Relay (optional)*
24 volts dc

Fuses

Filament—2 amperes
Plate—3 amperes

Tubes

1st stage—2 RCA 6J7 or 1620
2nd stage—4 RCA 807
Rectifier—1 RCA 5R4GY
Voltage Regulator—2 RCA OD3/VR 150

Frequency Response

See figure 2

Source Impedance

0-20,000 ohms

Gain

37.5 db at 1000 cps (20,000-ohm input bridging a 600-ohm terminated source)

Rated Power Output and Distortion

70 watts with less than 5% total rms harmonic distortion, 100 to 7500 cps (117-volt line on 115-volt tap)

Input Voltage to Obtain Rated Power Output (1000 cps)

3.8 volts rms

Load Impedance

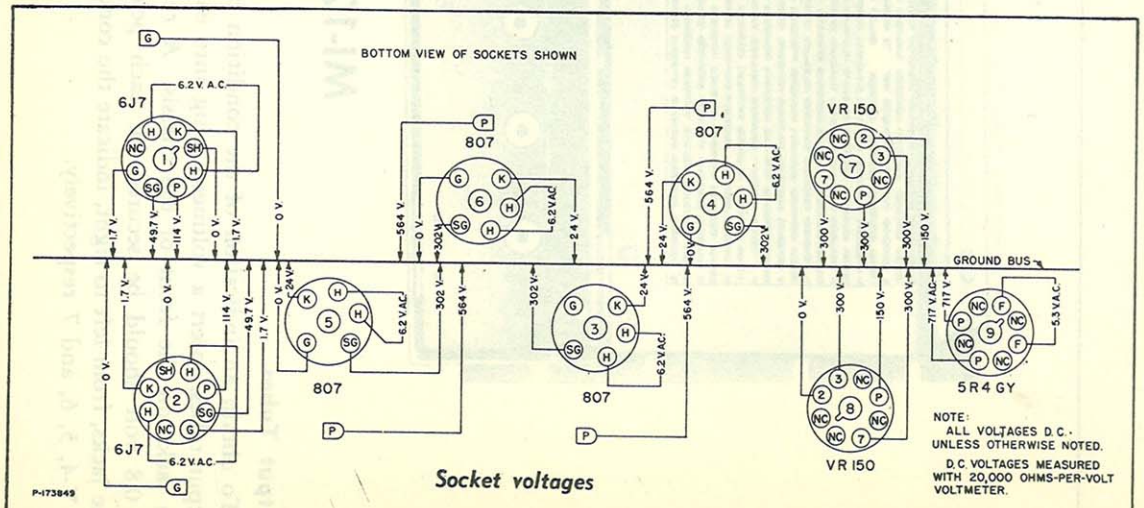
The output transformer is tapped to work into the following load impedances: 4, 8, 15, 60 and 250 ohms.

Noise Level (unterminated input)

–26 db (1 mw reference)
–34 db (6 mw reference)

Dimensions and Weight

Length—19 inches
Depth—10⅞ inches
Height—10½ inches
Weight—56 pounds



Socket voltages

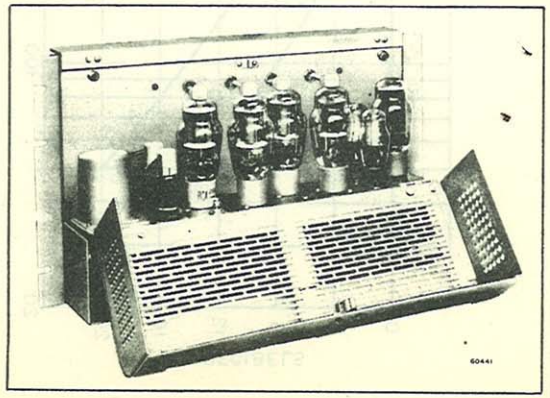
Output Connections

Leads from the output transformer in the amplifier are connected to the terminal board TB-1. The output terminals on this board are marked 0, 4, 8, 15, 60 and 250 ohms. In the following table the first column gives the connections necessary for the load impedances shown in the third column. The combination of loudspeakers connected to the amplifier output must have an effective combined impedance equal to or slightly greater than the load impedance value chosen.

LOAD IMPEDANCE TABLE

Terminals	*Volts Output (at 70 watts)*	*Load Impedance (ohms)*
4 and 8	—	0.67*
8 and 15	—	1.1*
4 and 15	—	3.5*
0 and 4	17	4
0 and 8	24	8
0 and 15	32	15
8 and 60	43	24
4 and 60	49	33
0 and 60	65	60
15 and 250	101	143
8 and 250	109	171
4 and 250	116	191
0 and 250	132	250

*Use only for light loads such as monitoring headphones.



Amplifier with cover open

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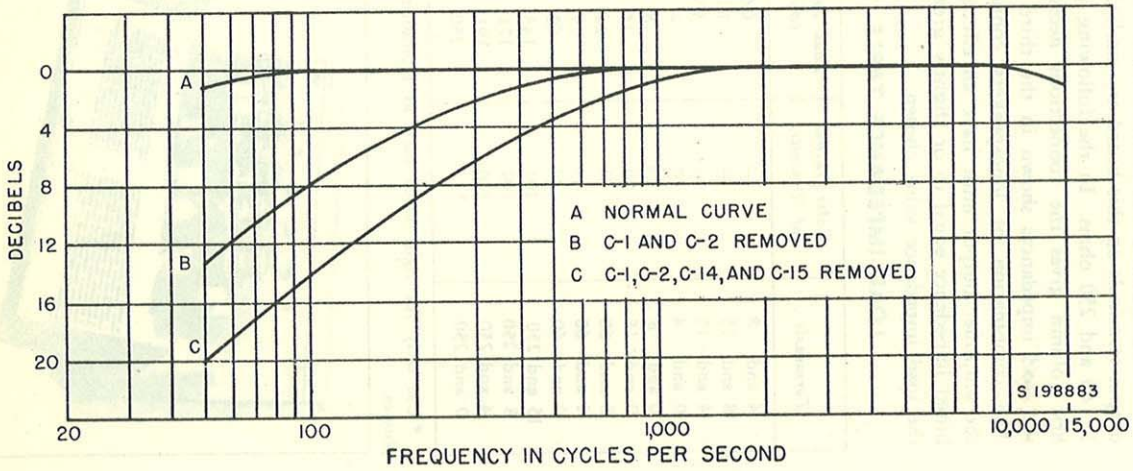
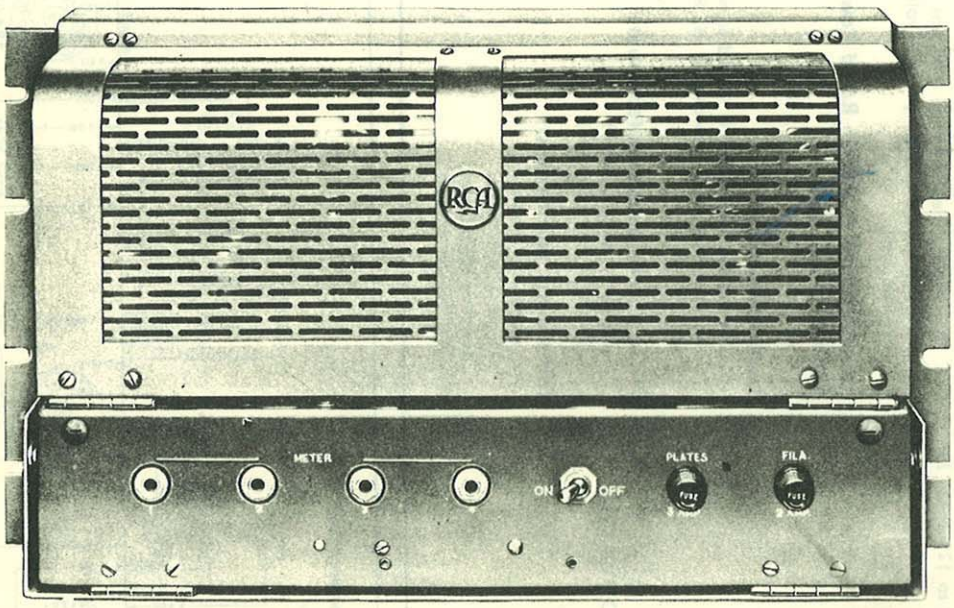


-Frequency response curves



60440-1

MI-12245, MI-12234

Output Tubes

To obtain an indication of the condition of the output tubes, insert a voltmeter plug into each of the jacks on the front of the chassis. A reading of 0.8 volt should be secured for each position. The jacks, from left to right, indicate the condition of V-4, 5, 6, and 7 respectively.

Fuses

Two cartridge-type fuses are in the fuse holders, marked PLATES and FILA, which are mounted on the front of the chassis. The plate fuse F-2 has a rating of 3 amperes and the filament fuse F-1 of 2 amperes.

A-C Power Connections

Measure the line voltage. The MI-12245 is connected for operation from a 105- to 125-volt, 50- to 60-cycle line; the MI-12234 from a 210- to 250-volt, 25- to 60-cycle line. Connect one of the a-c power leads to the COM terminal on TB-2 and connect the other lead to the TB-2 terminal marked with the number corresponding closest to the line voltage (105, 115 and 125 for MI-12245 and 210, 230 and 250 for MI-12234).

To operate the MI-12234 from a 105- to 125-volt, 25- to 60-cycle line, proceed as follows (see figures 8 and 9):

a. Remove the black and green lead from terminal K on TB-17 and connect this lead to terminal E on TB-2.

b. Remove the jumper connecting terminal L on TB-17 to terminal B on TB-2.

c. Connect a wire (JUMPER 1) from terminal K on TB-17 to terminal B on TB-2.

d. Connect a wire (JUMPER 2) from terminal L on TB-17 to terminal D on TB-2.

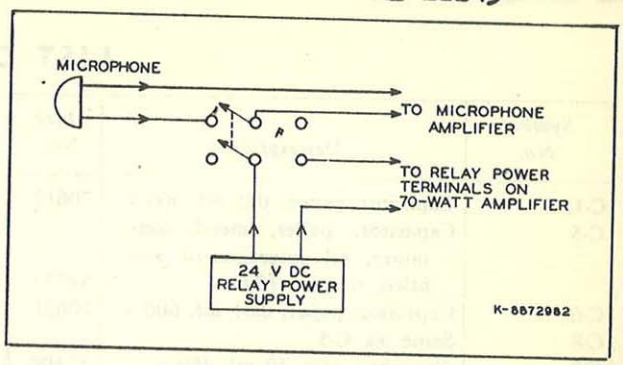
e. Connect a wire (JUMPER 3) from terminal B on TB-2 to the 230-volt terminal on TB-2.

f. Connect one of the a-c power leads to the COM terminal on TB-2. The terminals marked 210, 230 and 250 on TB-2 are now correct for 105, 115 and 125 volts respectively. Connect the other power lead to the terminal corresponding closest to the line voltage.

Relay Connections

A source of power for the relay is not necessary for operation of the amplifier, but the advantage of remote control of the unit may be obtained by using the relay. Twenty-four volts dc is required to operate the relay. This voltage may be secured from the MI-12501 or MI-12504 Relay Power Supply. When the relay is energized, the plate voltage is removed from the amplifier tubes, and the amplifier will not operate; when the relay is de-energized, and the power switch is ON, the amplifier will operate. Figure 5 illustrates a method of connecting a double-pole double-throw switch to operate the relay and a microphone simultaneously. This type of switch is used on the MI-6427 Pushmike Stand and the MI-6425 Pushmike Adaptor.

Connect the relay-power leads to the + and − terminals of TB-2. Polarity does not have to be observed.



Suggested relay power-control connections

Audio Input Connections

The amplifier is connected for a 20,000-ohm input impedance. This makes the unit suitable for bridging a low-impedance program source. From one to forty amplifiers can be bridged across the 500-ohm output of a preceding preamplifier or line amplifier. Any of the following units can be used to feed the 70-Watt Amplifier:

a. MI-12241 Two-Stage Preamplifier
b. MI-12242 Remote Preamplifier
c. MI-12243 or MI-12248 Line Amplifier

To connect the amplifier input to match a 500-ohm line, disconnect the leads from terminals 1 and 3 on the input transformer T-1 and reconnect these leads to terminals number 11 and 31 of T-1.

Connect the input leads to the terminals marked INPUT on the terminal board TB-1 (see figures 7 and 8). The amplifier input circuit is balanced to ground and care should be taken to see that there are no ground connections in the external circuit which might cause ground loops or create an unbalanced condition.

Frequency Compensation

The amplifier is connected with fixed compensation so that in operation the frequency response shown in figure 2A is obtained. When using horn-type speakers, which should not be subjected to the maximum amplifier power at low frequencies, the frequency response shown in figures 2B or 2C may be required.

To obtain the frequency response curve shown in figure 2B, remove the two jumpers connecting terminal number 2 and terminal number 3 on terminal boards TB-18 and TB-19 (see figures 7 and 8). This will disconnect C-1 and C-2 from the circuit.

To obtain the response shown in figure 2C, remove the four jumpers connecting terminals number 3 and 2 and terminals number 2 and 1 on TB-18 and TB-19. This will disconnect C-1, C-2, C-14 and C-15 from the circuit.

MODELS MI-12234, MI-12245

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LIST OF PARTS

Symbol No.	Description	Stock No.
C-1, 2	Capacitor, paper, .025 mf, 500 v	70612
C-5	Capacitor, paper, metal container, oil impregnated and filled, 0.5 mf, 1000 v	52772
C-6, 7	Capacitor, paper, 0.01 mf, 600 v	70631
C-8	Same as C-5	
C-9	Capacitor, elec, 40 mf, 450 v	37308
C-10	Capacitor, elec, 40 mf, 150 v	52771
C-11, 12	Capacitor, mica, 1000 mmf, ±10%, 2500 v	50454
C-13	Capacitor, Pyranol, 8 mf, 1000 v	19341
C-14, 15	Capacitor, mica, 1000 mmf, 500 v	39652
C-16, 17	Capacitor, mica, 820 mmf, 300 v	53119
E-1	Relay, normally-closed contacts, 24-volt coil, 20 to 30 ma, resistance from 900 to 1200 ohms	52766
F-1	Fuse, 2 amp, for filament	3883
F-2	Fuse, 3 amp, for plate	10907
J-1, 2, 3, 4	Jack, meter, for cathode current indication of the 807 tubes	23421
L-1	Reactor, filter, inductance 4.2 hy at 3 v 60 cyc and 0.3 amp dc	30172
R-1, 2	Resistor, comp, 27,000 ohms, ½ w	
R-3, 4	Resistor, comp, 390,000 ohms, ½ w	
R-5, 6	Resistor, comp, set of 2, 680 ohms, ½ w, matched within 1% of each other	
R-7	Resistor, comp, set of 2, 120,000 ohms, ½ w, matched within 1% of each other	
R-8	Resistor, comp, 270,000 ohms, ½ w	
R-9	Same as R-7	
R-10, 11, 12, 13,	Resistor, comp, 100,000 ohms, ½ w	
R-14	Resistor, comp, 2700 ohms, ½ w	
R-15	Resistor, wire wound, 150 ohms, 20 w	52796
T-4	Transformer, output, turns ratio 5.04/10.25/20.5/28.9/41:1, output impedance 250/60/15/2.5/2 ohms	52719
X-1, 2	Socket, tube, 8 prongs, black phenolic base	31319

Symbol No.	Description	Stock No.
R-16, 17	Resistor, comp, 20 ohms, ½ w	
R-18, 19	Resistor, comp, 6800 ohms, ½ w	
R-20, 21	Same as R-16	
R-22, 23	Same as R-18	
R-24, 25, 26, 27	Resistor, comp, 10 ohms, ±20%, ½ w	
R-28, 29	Resistor, wire wound, 2000 ohms, midtap, 3.7 w	52773
R-30	Resistor, comp, 150,000 ohms, ½ w	
R-31	Resistor, wire wound, 7500 ohms, 20 w	53751
R-32, 33	Resistor, comp, 33,000 ohms, ½ w	
S-1	Switch, ON-OFF, toggle, DPST	28449
S-2	Switch, momentary, interlock, single pole, push switch	19433
T-1	Transformer, input, turns ratio primary terminals 1 and 3 to secondary 1:1.64 and primary terminals 11 and 31 to secondary 1:1.0	18373
T-2 (MI-12245)	Transformer, filament, primary 117 v, 60 cyc, rectifier filament 5.0 v 4.0 amp, amplifier filament 6.3 v 4.2 amp	52641
T-2 (MI-12234)	Transformer, filament, primary 115/230 v, 25 cyc, rectifier filament 5.0 v 4.0 amp. amplifier filament 6.3 v 4.2 amp	54120
T-3 (MI-12245)	Transformer, plate, primary 105/115/125 v, 60 cyc, secondary 717/0/717 v 250 ma	72217
T-3 (MI-12234)	Transformer, plate, primary 105/115/125/210/230/250 v, 25 cyc, secondary 717/0/717 v 195 ma	54101
X-3, 4, 5, 6	Socket, tube, 5 prongs	52768
X-7, 8, 9	Same as X-1	
	Holder, fuse	48894
	Plate, capacitor mounting	28452