

INPUT CIRCUIT ARRANGEMENTS FOR KS-16608, L1 AND KS-16610, L1 AMPLIFIERS

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1. GENERAL

1.01 This practice discusses the input circuit arrangements which apply to both the KS-16608, L1 and KS-16610, L1 Amplifiers. Additional information on these amplifiers, pertaining to their characteristics, will be found in other sections in this group of practices.

1.02 The information on these amplifiers is handled in this manner in order to keep the duplication of information to a minimum. When engineering a system using these amplifiers, all the appropriate sections in this group of practices should be consulted.

1.03 The KS-16608, L1 Amplifier is a basic amplifier which has a nominal output of 12 watts. The KS-16610, L1 Amplifier is also a basic amplifier which has a nominal output of 75 watts. Both these units are general purpose amplifiers and are used in paging and announcing systems. They may also be used in situations where the highest quality music is not required.

2. SHORTING PLUGS

2.01 In order to provide all the input arrangements discussed below, it is necessary to use shorting plugs in some instances. One 9-pin shorting plug is provided with each basic amplifier. In some input situations, however, it will be

necessary to use two 9-pin shorting plugs or one 9-pin and one 8-pin plug. The situations requiring the use of these plugs are discussed in more detail in the discussions on input arrangements.

2.02 Fig. 1 shows the schematic for the 8-pin plug. Fig. 2 is the schematic for the 9-pin plug. IF THESE PLUGS ARE REQUIRED, THEY SHOULD BE **MADE UP LOCALLY**.

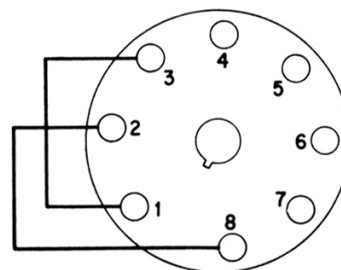


Fig. 1 – 8-Pin Shorting Plug

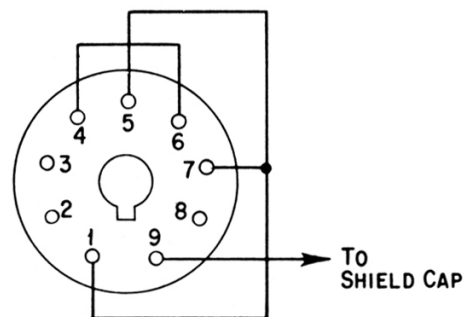


Fig. 2 – 9-Pin Shorting Plug

3. INPUT CIRCUIT ARRANGEMENTS

3.01 The flexibility of the KS-16608, L1 and KS-16610, L1 Amplifiers is increased by the use of plug-in units. These units may be combined in several ways to provide different input arrangements. These arrangements are discussed in detail below. Fig. 3 attached, shows the schematic for each of the input conditions.

Transformer Input— Fig. 3A

3.02 A transformer input is required for connection to telephone lines or other sources of comparable level. In these situations, a KS-16611, L1 Transformer should be plugged into the INPUT NO. 2-LINE socket of the basic amplifier in place of the shorting plug. When the transformer is used, a bridging input of 10,000-ohms impedance is also available. Input connections are made to terminals on TB1 of the basic amplifiers in accordance with Table I. With the KS-16611, L1 Transformer, the gain of the amplifier is about 71 db. The bridging gain of the amplifier across a 600-ohm circuit is about 40 db.

TABLE I

TERMINAL NO.	CIRCUIT
5 and 6	37.5 ohms
5 and 7	150 ohms
5 and 8	600 ohms
9 and 10	10,000 ohms bridging*

*When this input is used, a 640-ohm $\pm 10\%$ resistor should be connected between terminals 5 and 8.

High-Gain Input — Fig. 3B

3.03 When a high-gain input is required for operation from low level microphones or other sources of comparable level, a KS-16607, L1 Amplifier should be plugged into the PRE-AMPLIFIER socket of the basic amplifier. The 9-pin shorting plug should be in the INPUT NO. 2-LINE socket. A KS-16611, L1 Transformer should be inserted in the INPUT NO. 1-PREAMP socket. The KS-16607, L1 Amplifier should be fastened in place using the two screws provided for this purpose. When it is desired to attenuate the high frequencies to compensate for carbon transmitter characteristics, or for other reasons, the HI FREQ terminals on TB4 should be short circuited by means of the link provided for this purpose. If roll-off is not required, the

connection should be left open. Input connections to TB1 of the basic amplifier should be made in accordance with Table II. The gain of the basic amplifier with the preamp is about 118 db.

TABLE II

TERMINAL NO.	CIRCUIT
1 and 2	Transformer Input 37.5 ohms
1 and 3	Transformer Input 150 ohms
1 and 4	Transformer Input 600 ohms

Dual Inputs

3.04 When two independently controlled input circuits are required, a KS-16612, L1 Mixer Unit may be plugged into the INPUT NO. 2-LINE socket of the basic amplifier in place of the shorting plug. The mixer unit should be fastened in place using the two screws furnished with the unit. The two screwdriver operated gain controls on the mixer unit are connected through isolating resistors to the input of the master gain control on the basic amplifiers. When the mixer unit is used, the following input circuit combinations are available.

Two Line Level Inputs — Fig. 3C

3.05 When two separate line level inputs are required, an 8-pin shorting plug should be inserted in the PREAMPLIFIER socket on the basic amplifier. This plug should be made up locally since it is not furnished with the amplifiers. This input arrangement may be used where two remote locations may wish to share the same paging system. If high impedance grounded inputs are required, 9-pin shorting plugs should be inserted in the socket on the mixer unit and in the INPUT NO. 1-PREAMP socket on the basic amplifier. This means an additional 9-pin shorting plug should be made locally. Under this condition an input of approximately 1.25 volts is required to drive the amplifier to full output. If transformer inputs are required, KS-16611, L1 Transformers should be inserted in the amplifier and mixer sockets. Input connections should be made on TB1 in accordance with Table III. With the transformer, the maximum gain of each channel is about 60 db.

TABLE III

TERMINAL NO.	CIRCUIT IMPEDANCE
1	Input No. 1-High Impedance — High Side
4	Input No. 1-High Impedance — Ground Side
5	Input No. 2-High Impedance — High Side
8	Input No. 2-High Impedance — Ground Side
1 and 2	Input No. 1-Transformer — 37.5 ohms
1 and 3	Input No. 1-Transformer — 150 ohms
1 and 4	Input No. 1-Transformer — 600 ohms
5 and 6	Input No. 2-Transformer — 37.5 ohms
5 and 7	Input No. 2-Transformer — 150 ohms
5 and 8	Input No. 2-Transformer — 600 ohms
9 and 10	Input No. 2-Transformer — 10,000 ohms bridging*

*When this input is used, a 640-ohm $\pm 10\%$ resistor should be connected between terminals 5 and 8.

One Line Level Input — One High-Gain Input — Fig. 3D

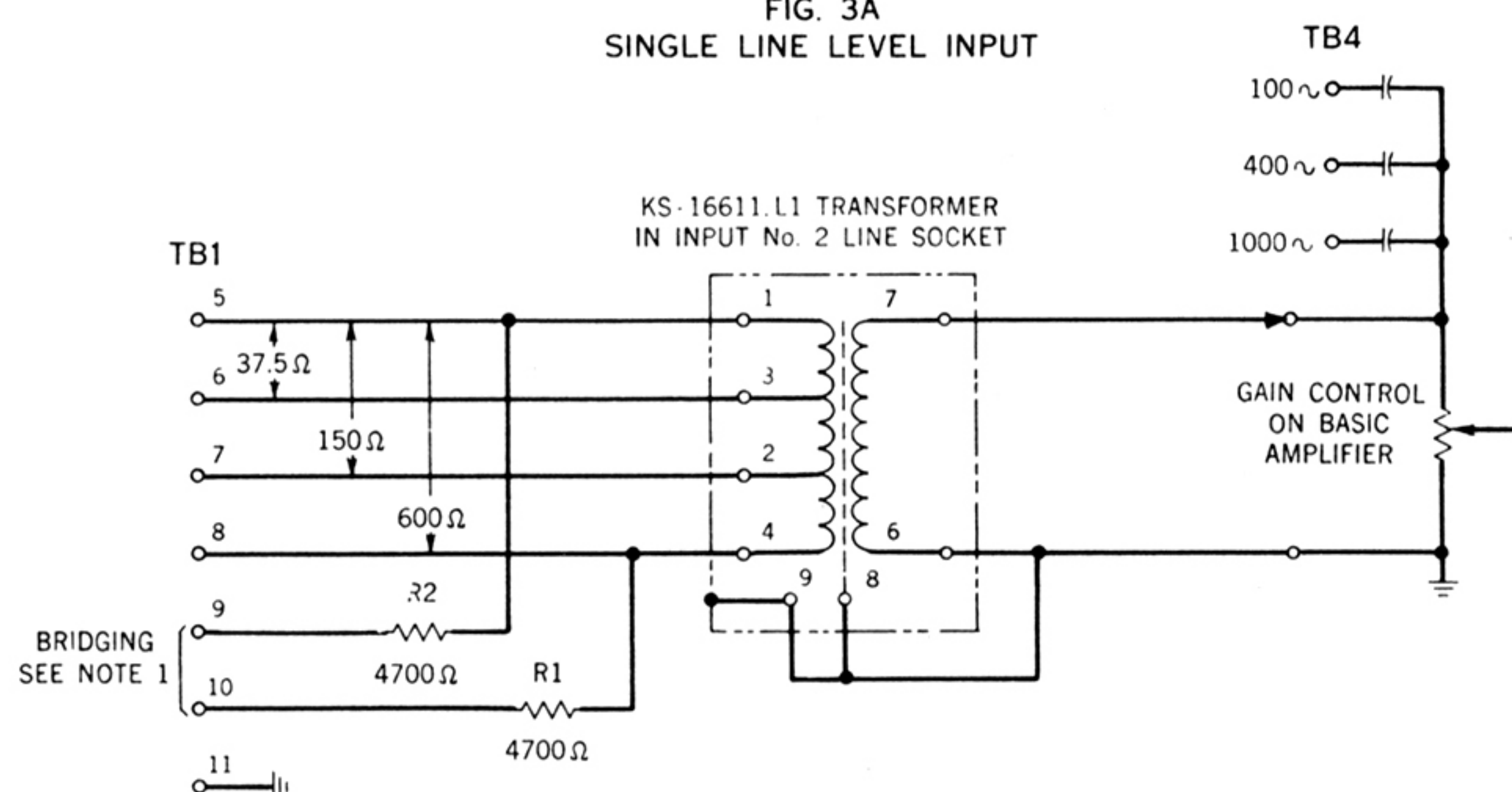
3.06 When one line level input and one high-gain input is required, a KS-16607, L1 Amplifier should be inserted in the PREAMPLIFIER socket of the basic amplifier. This input arrangement may be used where one input is used for paging and the other input is used to bridge on a music distribution system. A KS-16611, L1 Transformer should be inserted in the INPUT NO. 1-PREAMP socket and either a

shorting plug or a KS-16611, L1 Transformer should be inserted in the socket on the KS-16612, L1 Mixer Unit. The choice depends on whether high impedance or transformer input is required for the line level input. Input connections should be made to TB1 in accordance with the Table IV. The maximum gain of the high-gain channel is about 108 db. The gain of the line channel is about 60 db excluding bridging input. The gain of the line channel with bridging input is about 30 db.

TABLE IV

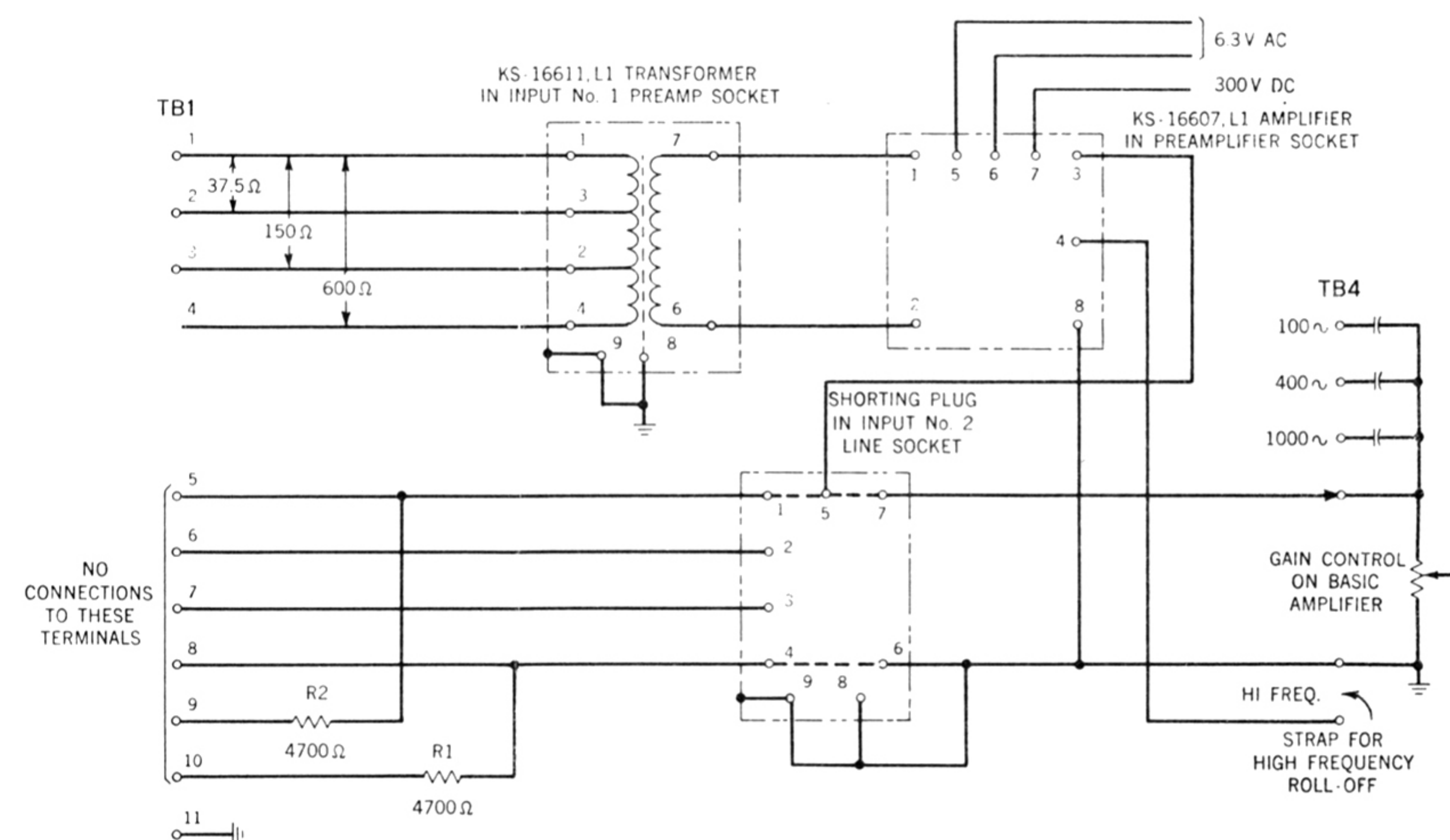
TERMINAL NO.	CIRCUIT IMPEDANCE
1 and 2	High Gain — Transformer Input — 37.5 ohms
1 and 3	High Gain — Transformer Input — 150 ohms
1 and 4	High Gain — Transformer Input — 600 ohms
5	Line Input — High Impedance — High Side
8	Line Input — High Impedance — Ground Side
5 and 6	Line Input — Transformer — 37.5 ohms
5 and 7	Line Input — Transformer — 150 ohms
5 and 8	Line Input — Transformer — 600 ohms
9 and 10	Line Input — Transformer — 10,000 ohms bridging*

*When this input is used, a 640-ohm $\pm 10\%$ resistor should be connected between terminals 5 and 8.

FIG. 3A
SINGLE LINE LEVEL INPUT

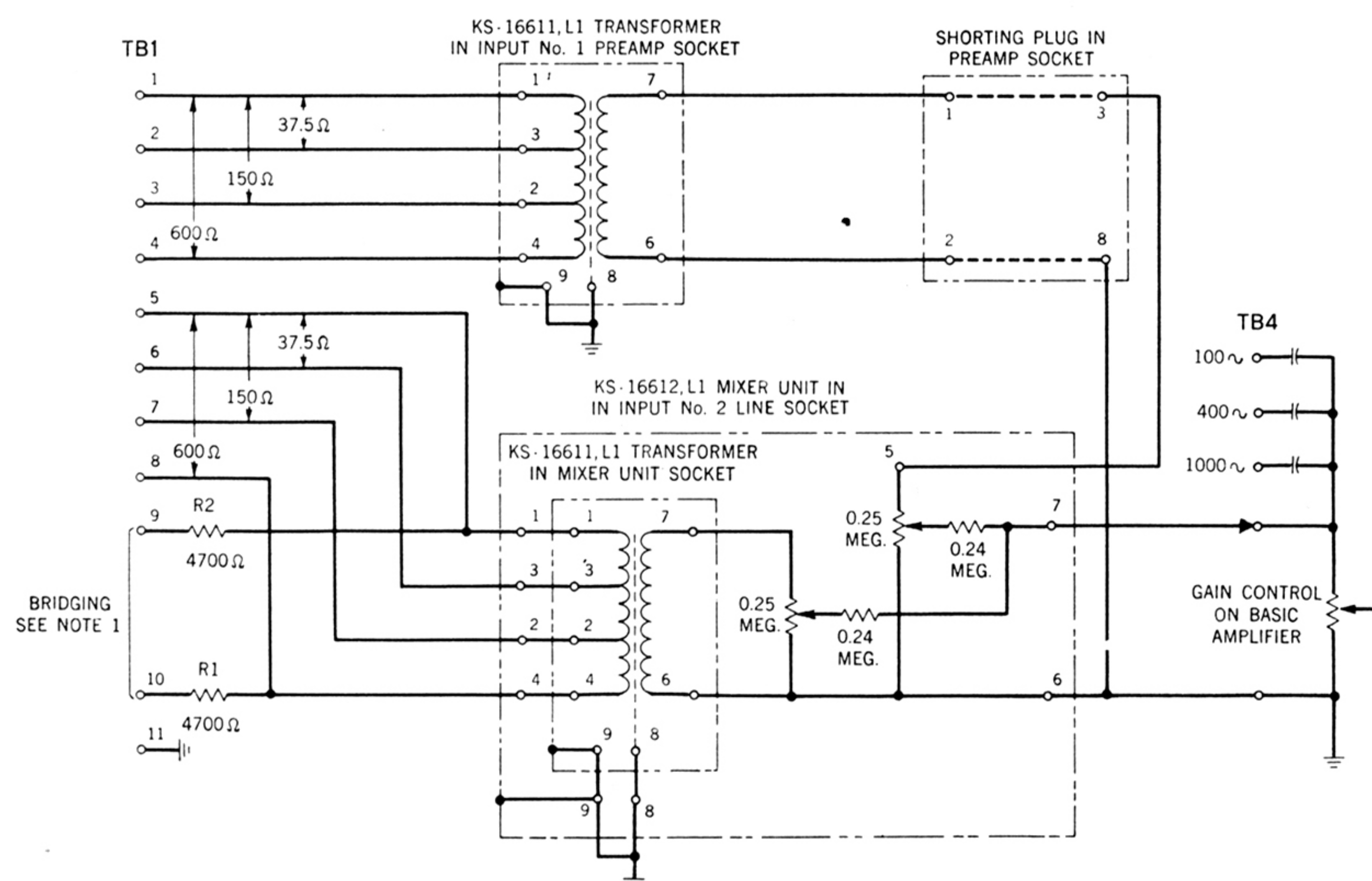
NOTES:

1. WHEN BRIDGING INPUT IS USED CONNECT $640\Omega \pm 10\%$ RESISTOR BETWEEN TERMS 5 AND 8.
2. FOR HIGH IMPEDANCE INPUT SUBSTITUTE SHORTING PLUG FOR KS-16611, L 1, TRANSFORMER. INPUT TO TERMS 5 AND 8.

FIG. 3B
HIGH-GAIN INPUT

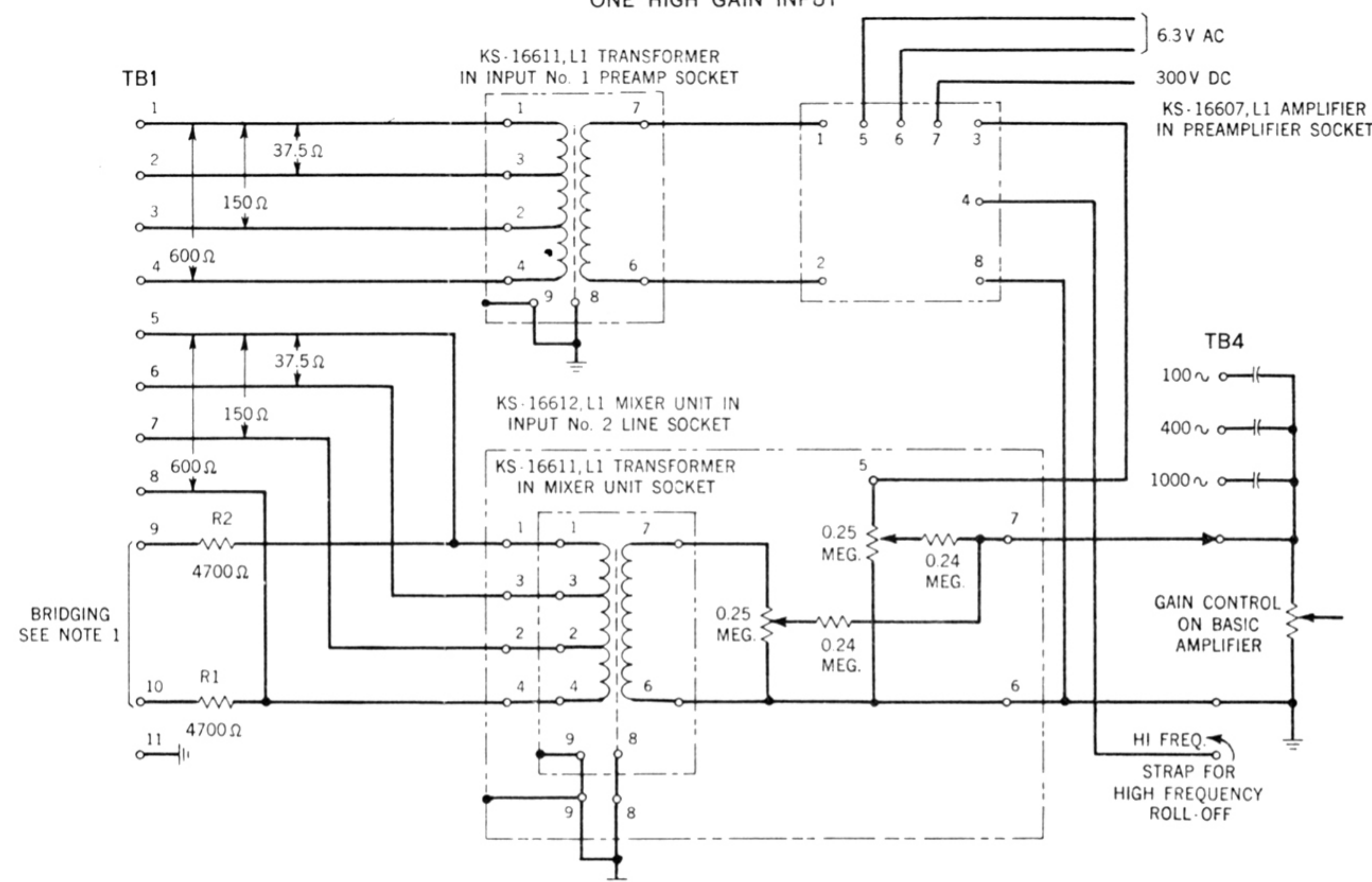
NOTES:

1. FOR HIGH IMPEDANCE INPUT SUBSTITUTE SHORTING PLUG FOR KS-16611, L 1, TRANSFORMER. INPUT TO TERMS 1 AND 11.

FIG. 3C
TWO LINE LEVEL INPUTS

NOTES:

1. WHEN BRIDGING INPUT IS USED CONNECT $640\Omega \pm 10\%$ RESISTOR BETWEEN TERMS 5 AND 8.
2. FOR HIGH IMPEDANCE INPUTS SUBSTITUTE SHORTING PLUGS FOR KS-16611, L 1, TRANSFORMERS. INPUT NO. 1 TO TERMS 1 AND 4. INPUT NO. 2 TO TERMS 5 AND 8.

FIG. 3D
ONE LINE LEVEL INPUT
ONE HIGH GAIN INPUT

NOTES:

1. WHEN BRIDGING INPUT IS USED CONNECT $640\Omega \pm 10\%$ RESISTOR BETWEEN TERMS 5 AND 8.
2. FOR HIGH IMPEDANCE INPUTS SUBSTITUTE SHORTING PLUGS FOR KS-16611, L 1, TRANSFORMERS. HIGH GAIN INPUT TO TERMS 1 AND 11. LINE LEVEL INPUT TO TERMS 5 AND 8.

Fig. 3 – Input Circuit Connections