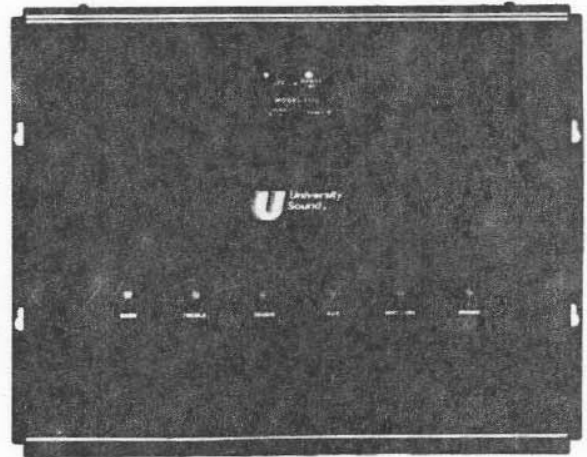


Model 1140



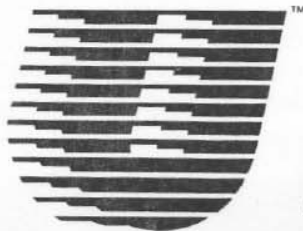
Model 1110

1100 Series

1120/1140/1160/1110

Wall-Mount Paging Amplifiers

Owner's Manual



**University
Sound Inc.**
a MARK IV company
13278 Ralston Avenue
Sylmar, California 91342-7607
FAX (818) 367-5292
PHONE (818) 362-9516



DESCRIPTION

The University Sound 1100 Series paging amplifiers is comprised of the 20 watt Model 1120, the 40 watt Model 1140, the 60 watt Model 1160, and the 100 watt Model 1110. All of the Models are identical except for power output, size, and weight. Four input channels are provided, consisting of three paging channels and one music channel. The three paging channels are configured as follows: The PHONE channel has a 500/600 Ohm balanced transformer input to provide proper termination for the paging access output port of registered telephone equipment such as a PABX or switchboard. The MIC/LINE channel has balanced inputs which may be wired to accommodate either low impedance microphone or balanced line levels. The AUX channel has an unbalanced input with an input sensitivity of 250mV for matching other audio equipment such as a preamplifier or intercom system. The MUSIC channel may receive its source from an external signal such as a tape deck or tuner. Page priority muting is automatically performed by a voice activated circuit that mutes the music channel when a signal is detected on any of the paging inputs.

Power output terminals are included to drive 4 Ohm or 8 Ohm speaker lines, or for power distribution lines, both 25 Volt and 70.7 Volt outputs are provided. In addition, a BOOSTER AMP output jack is provided so that supplemental amplifiers may be operated simultaneously to deliver more power to the additional speaker systems.

Separate BASS and TREBLE equalization controls are provided to compensate for frequency response characteristics of the speaker system or the acoustical environment. In addition, a TRUMPET PROTECT switch is provided that reduces the low frequency power delivered to trumpet speakers below their "low frequency cut-off." In addition to the power switch located on the control panel, a push-to-reset circuit breaker is included which protects the entire unit from conditions beyond safe operating limits that might cause component damage. The entire unit is housed in a sturdy steel cabinet with two metal flanges that permit mounting on a wall surface.

UNPACKING

The unit should be removed carefully from the carton and inspected for any possible damage in transit. If there is any evidence of damage which might have occurred in shipment, immediately notify your supplier or the transportation company which delivered it. Claims for damage sustained in transit must be made upon the carrier. Save all packing material for the claim agent who will supply you with the proper forms and give you the necessary instructions for filling out a claim.

INSTALLATION

Each Model has ample vents for adequate ventilation; however, the unit must be installed with sufficient clearance around the cabinet to permit free air flow. Do not install the unit in a sealed box or cabinet without adequate ventilation. DO NOT PLACE ANY OBJECT ON TOP OF THE COVER OR IN ANY WAY BLOCK THE AIR FLOW OF THE VENTS. DO NOT STORE OR OPERATE THE AMPLIFIER IN AREAS WHERE THE AMBIENT TEMPERATURE EXCEEDS 140 DEGREES F.

In order to make connections to the unit, it is necessary to remove the protective front cover. This is done by removing the

4 screws which attach this assembly to the cabinet. All level adjustments to the system can be made with the cover on or off, using a flat-head screwdriver.

The amplifier has an AC power cord with a 3 prong plug. This cord should be plugged into a 3 wire circuit grounded 120 Volt 60Hz outlet. DO NOT REMOVE THE GROUNDING PIN FROM THIS PLUG as it is the safety ground for the metal cabinet.

INPUT CONNECTIONS

All connections to the unit are made by first removing the protective cover to expose the lower portion of the chassis face. Connection to the MUSIC input, AUX input and BOOSTER AMP output require the use of a standard RCA phono plug. All other connections are made by means of screw terminals.

Phone Input: The PHONE input to the amplifier is designed to provide balanced 600 Ohm termination for the paging access output port of registered equipment such as a PABX or switchboard. Such equipment contains the protective circuitry required by the FCC and has the appropriate registration number. When connected in this manner, no registration number is required.

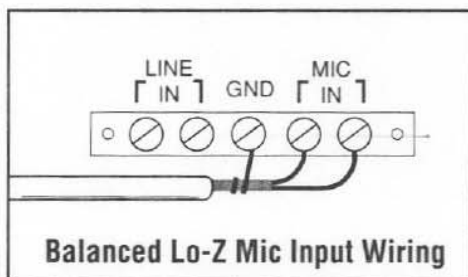
WARNING: THIS UNIT IS NOT TERMINAL EQUIPMENT AND MAY NOT BE DIRECTLY CONNECTED TO THE NATIONAL TELECOMMUNICATION NETWORK. THE RINGER EQUIVALENT OF THE 500 OHM INPUT IS "Z". THIS MEANS THAT RINGING VOLTAGE SHOULD NOT BE APPLIED TO THIS INPUT.

Input connections are made by means of four screw terminals on the face of the unit. The input from to this paging input is marked PHONE INPUT. The center tap of this input transformer is marked C.T. When this input is connected to a balanced circuit, such as a phone line, it may be necessary to ground this center tap in order to eliminate noise induced by longitudinal imbalance of the line. The terminal marked GND is the same ground as the amplifier and may be used to ground the center tap. If the amplifier is not properly grounded or if there is noise on the power outlet to which the unit is connected, this technique will not eliminate all of the noise. In such a case it may be necessary to connect

the C.T. terminal to a "water pipe" ground for minimum noise.

Mic/Line: The inputs for MIC/LINE are balanced. Input connections are made by means of five screw terminals on the face of the unit. Either a 150 to 250 Ohm low impedance microphone or a balanced line may be used as the input to each of these channels. Low impedance microphone wiring requires the use of a shielded cable with two center conductors. These two conductors should be connected to the terminals marked LO-Z MIC and the shield connected to the terminal marked GND. No other wiring should be included inside of this cable and any unused wires in the cable should be connected to ground to prevent any R.F. pickup. Line inputs should be connected to the two terminals marked LINE. This input has an impedance of 10,000 Ohms and may be used as the bridging input from 500/600 Ohm lines.

Aux: The AUX input is unbalanced high impedance with a maximum sensitivity of 250 mV. This input may be used as the paging source from other pre-amplified signals such as a mixer or



connect the C.T. terminal to a "water pipe" ground for minimum noise.

intercom. Input connection to this circuit requires the use of a shielded audio cable with a standard phono plug. The connector to this input is marked AUX IN.

OUTPUT CONNECTIONS

Power output is provided for 4 or 8 Ohm speaker lines or for distribution on 25 Volt or 70.7 Volt constant-voltage lines. Output connections are made by means of screw terminals on the face of the unit.

Long speaker lines have an appreciable resistance with resulting power loss. To avoid this power loss, the use of matching transformers on either 25 Volt or 70.7 Volt lines is recommended. This arrangement also allows the connection of multiple speakers which have different power requirements. In all cases it is advisable to run as heavy a wire as possible consistent with requirements. To avoid inducing hum into the speaker lines do not run speaker cables parallel to power line cables.

In some areas 70.7 Volt distribution lines must be run in conduit. Check your local city electrical codes before installing a 70.7 Volt speaker system to determine the local code requirements.

The 4 OHM and 8 OHM outputs are used when connecting directly to speaker voice coils. Do not simultaneously load both outputs at their rated impedance as this will appear as a demand for twice the rated output from the amplifier and represent an overload to the unit. In a similar manner, do not load both the speaker output and the 25 or 70.7 Volt output simultaneously at full power demand. A combination of speaker loads is permissible using the various outputs from the amplifier; however, the sum of these demands should not exceed the rated power output of the amplifier.

The 25 VOLT and 70.7 VOLT outputs are used with speaker distribution systems in which each speaker has a line matching transformer which is connected for the specific wattage requirement of that speaker. This permits the use of a large number of speakers with various sound level requirements to operate from a common source. By rating these transformers in the wattage which they demand across a 25 Volt or 70.7 Volt line, there is no necessity in calculating total impedance. The total wattage demand of such a speaker line may be determined by adding up

the sum of all the speaker demand in the system. This total should not exceed the wattage rating of the amplifier used to drive the system. Connection to the 25 Volt or 70.7 Volt outputs is made by means of screw terminals on the face of the unit, use the terminals marked COMM and 25V (or 70.7V) according to the line desired.

Optimum performance of any amplifier depends upon proper impedance match between the output and the load. Connecting a load of mismatched impedance to an amplifier will deteriorate the overall performance of the system. To accurately measure the impedance of a speaker line, the University Sound Model LWT should be used. This test instrument permits direct reading of the wattage demand or impedance of a speaker line and is a valuable aid in determining opens, shorts or mismatch conditions.

BOOSTER AMPLIFIER OUTPUT

The audio signal at this jack is the same pre-amp signal that is applied to the power amplifier circuit. By connecting a supplemental power amplifier to this jack, power may be delivered simultaneously to additional speaker systems. A shielded audio cable with phono plugs at each end is required to make this connection.

TONE CONTROLS

Both BASS and TREBLE controls are provided to compensate for frequency response characteristics of the speaker system or acoustical conditions. These controls have a turnover frequency of 1000Hz. These controls are located on the face of the unit. For a "flat" frequency response the screwdriver adjustment slots on these controls should be placed in a vertical position as indicated on the face plate. Clockwise rotation of these controls is used for boost; counterclockwise for cut.

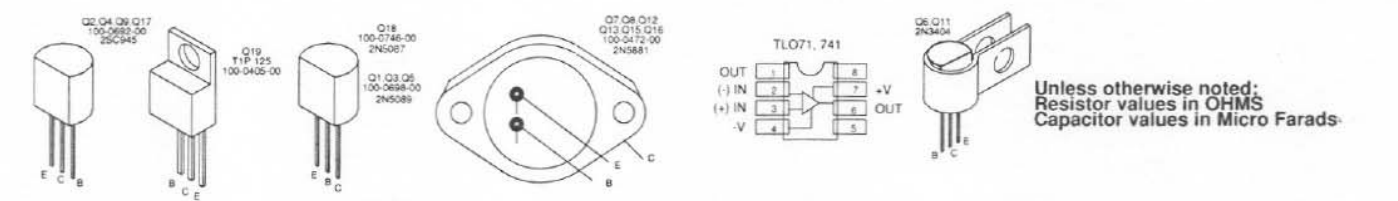
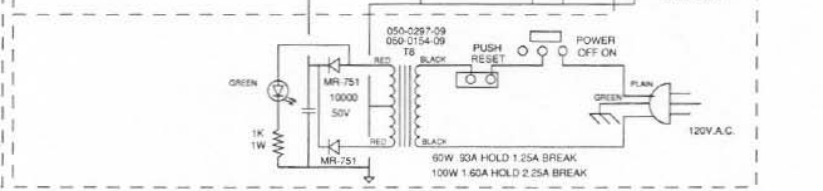
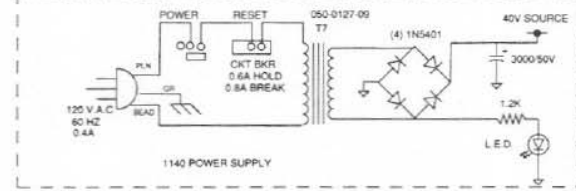
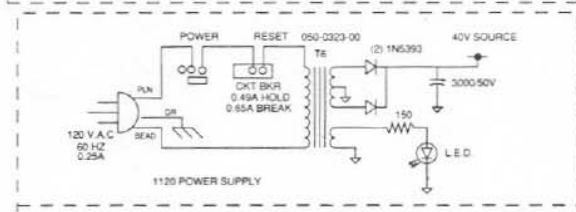
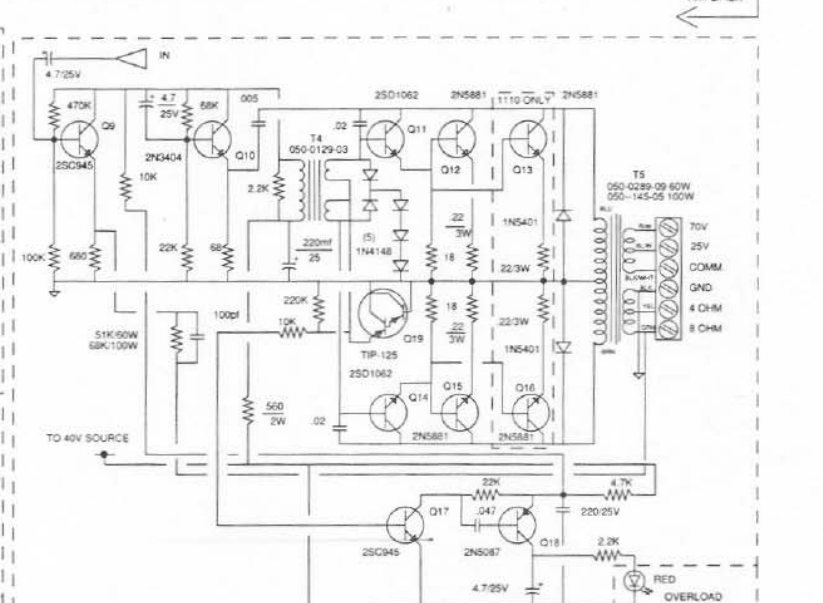
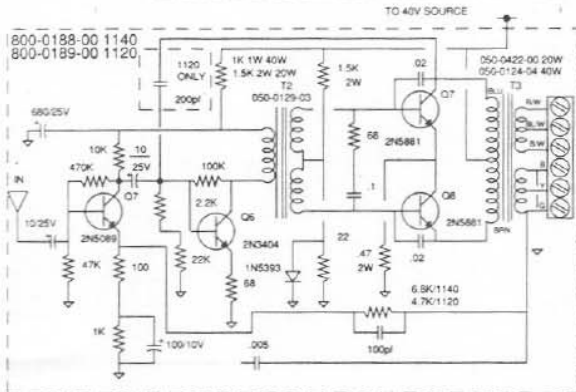
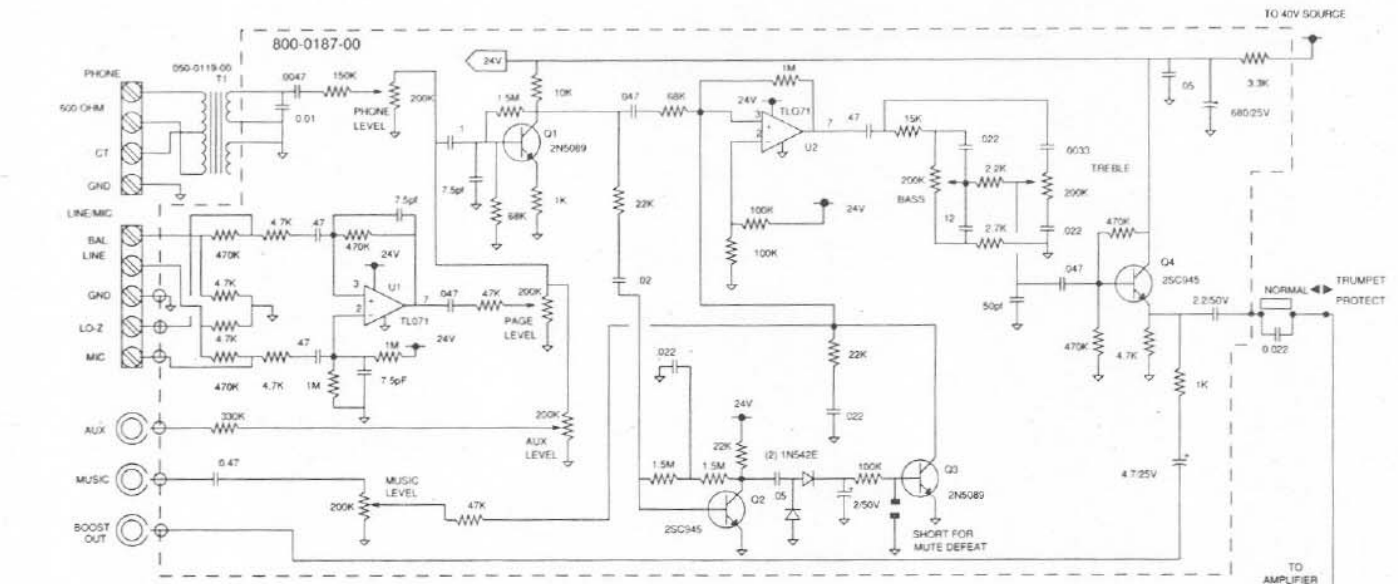
TRUMPET PROTECT

The TRUMPET PROTECT feature is a high-pass filter that protects trumpet-type speakers from damaging frequencies below the low-frequency cutoff, and also prevents low-frequency energy from overloading the amplifier. In general, this also increases speech intelligibility. The circuit is engaged by a switch on the face of the unit.

Specifications:

	Model 1120	Model 1140	Model 1160	Model 1110
Power Output @ 1 kHz	20 watts RMS	40 watts RMS	60 watts RMS	100 watts RMS
Frequency Resp ± 2 dB	50 Hz - 20 kHz	50 Hz - 20 kHz	50 Hz - 15 kHz	50 Hz - 15 kHz
Distortion at Rated Output	<0.5% THD @ 1 kHz	<0.5% THD @ 1 kHz	<1.5% THD @ 1 kHz	<1.5% THD @ 1 kHz
Outputs	----- 4Ω & 8Ω (unbalanced), 25V & 70.7V (balanced), Booster -----			
Output Regulation	----- Less than 2 dB, no load to full load -----			
Tone Controls	----- Bass: ±12 dB @ 50 Hz Treble: ±13 dB @ 15 kHz -----			
Circuit Protections	----- Push-to-Reset Circuit Breaker -----			
Power Consumption	0.25 Amp, 120 VAC	0.4 Amp, 120 VAC	0.6 Amp, 120 VAC	1.0 Amp, 120 VAC
Size	16" W x 7.8" H x 3.6" D	16" W x 7.8" H x 3.6" D	15.3" W x 11.8" H x 8.1" D	15.3" x 11.8" x 8.1"
Shipping Weight	10 lbs.	12 lbs.	20 lbs.	26 lbs.

Input Specifications	Impedance	Sensitivity	Frequency Response	S/N Ratio
Aux	250 KΩ unbalanced	250 mV	50 Hz - 20 kHz, ± 2 dB	70 dB
Phone	600 Ω balanced	70 mV	400 Hz - 6 kHz, ± 2 dB	71 dB
Mic	150 Ω balanced	0.7 mV	70 Hz - 20 kHz, ± 2 dB	58 dB
Line	10 KΩ balanced	70 mV	70 Hz - 20 kHz, ± 2 dB	58 dB
Music	200 KΩ unbalanced	280 mV	20 Hz - 20 kHz, -2 +6 dB	71 dB

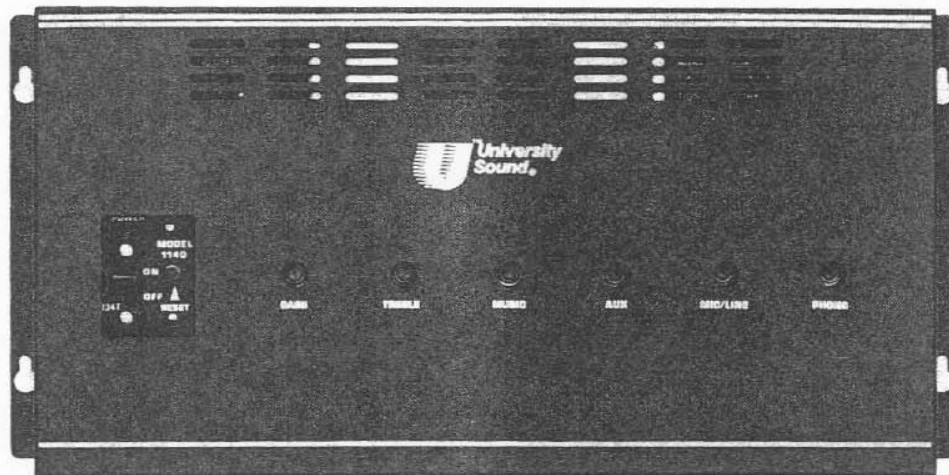


Unless otherwise noted:
Resistor values in OHMS
Capacitor values in Micro Farads.

Warranty: These units have been very carefully inspected and are warranted to be free from defects in material and workmanship under normal use and service for a period of one year from sale to original purchaser. This warranty does not extend to any unit that has been subject to abuse, misuse, neglect, accident, improper installation, or alterations. The obligation of University Sound under this warranty is limited to the repair of any defect in material or workmanship and/or the replacement of any defective part, provided the unit is returned transportation paid within one year. It is recommended that any unit on which service is required be processed through your local distributor or installation company wherever possible. This Warranty is expressly in lieu of all other Warranties, expressed or implied, and of all other obligations or liabilities on our part. We neither assume for us any other liability in connection with the products manufactured by University Sound.



Model 1120 / 1140 Wall-Mount Paging Amplifiers



Product Data

- 20 Watts RMS power rating (1120)
- 40 watts RMS power rating (1140)
- Three paging inputs and one music input
- Transformer isolated phone page input
- Power outputs for 4 ohm, 8 ohm, 25V, or 70.7V speaker systems, all on screw terminals
- Separate bass and treble tone controls
- Voice activated page-over-music mute
- Wall or surface mount
- Internal thermal circuit protection with automatic reset
- Tamper deterrent screwdriver control adjustment
- UL listed

Summary Specifications:

Power Output:

1120: 20 watts RMS @ 1kHz

1140: 40 watts RMS @ 1kHz

Frequency Response: 50 Hz – 20 kHz \pm 2 dB

Distortion: <1.5% THD @ 1 kHz, rated output

Outputs: 4 Ω , 8 Ω , 25V, and 70.7V

Output Regulation: <2 dB No load to full load

Tone Control:

Bass: \pm 12dB @ 50kHz

Treble: \pm 13dB @ 15kHz

Circuit Protection: Internal thermal breaker

Dimensions: 16.0" W x 7.75" H x
3.625" D (40.6 cm x
19.7 cm x 9.2 cm)

Shipping Weight:

1120: 10 lbs. (4.6 kg)

1140: 12 lbs. (5.5 kg)

Description

The Models 1120 and 1140 are monaural solid state 20 and 40 watt RMS paging amplifiers. The four input channels consist of three paging channels and one music channel. The three paging channels are: 1) The PHONE channel which has a 500/600 ohm balanced transformer input to provide proper termination for the paging access output port of a registered telephone equipment such as a PABX or switchboard, 2) The MIC/LINE channel has balanced inputs which may be wired for either low impedance microphone or balanced line, 3) The AUX channel which has an unbalanced input with an input sensitivity of 250mV for use as the paging source from other audio equipment such as a preamplifier or intercom system. The MUSIC channel may receive its source from an external signal such as a tape deck, CD player or tuner. Paging priority is automatically performed by a voice activated circuit which mutes the music channel when any of the paging inputs are used.

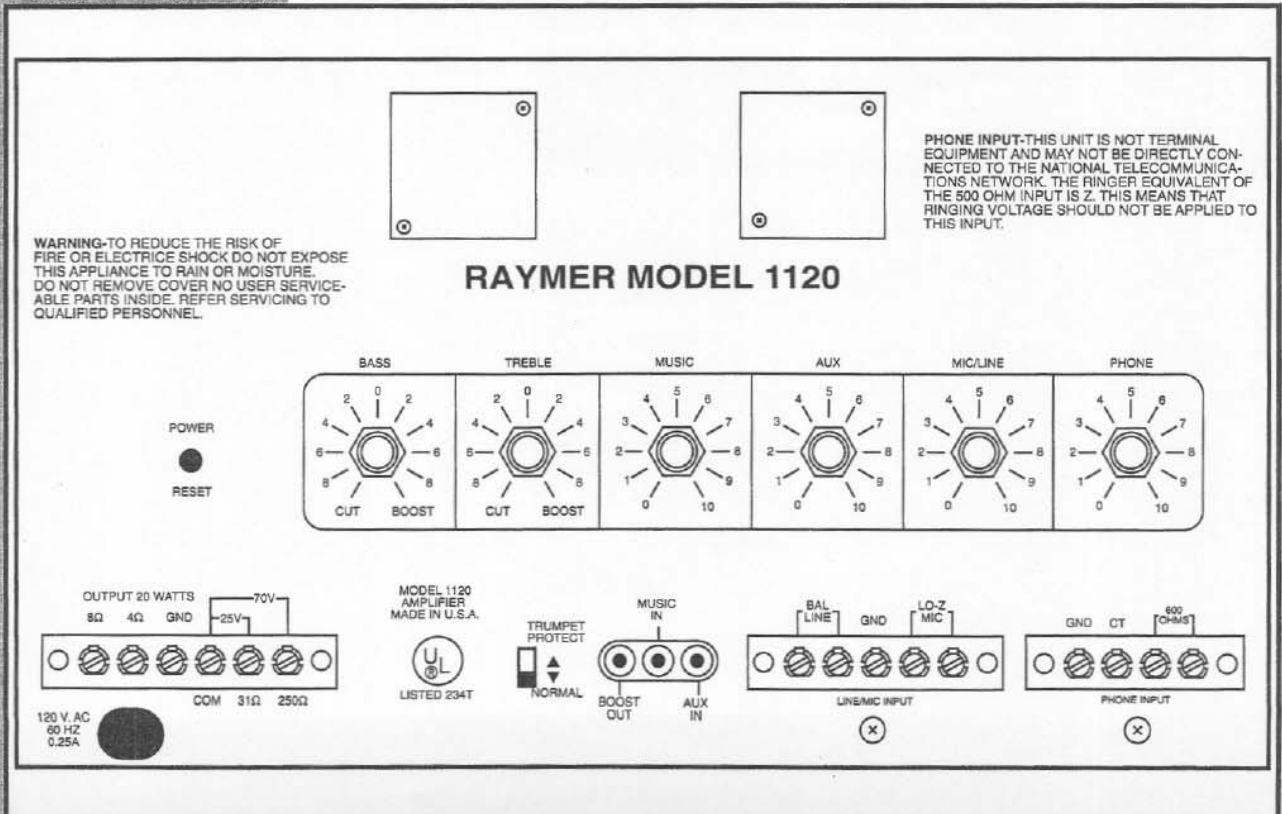
Separate BASS and TREBLE controls are provided for basic equalization functions. In addition, a TRUMPET PROTECT switch is provided on the front panel. This protects the drivers from damage and avoids excessive amplifier loading at low frequencies.

Output terminals are included to drive 4 ohm or 8 ohm speaker lines, and 25 and 70 Volt speaker distribution outputs are provided. In addition, a BOOSTER AMP output jack is provided as a line out source to send the signal to additional amplifiers.

A push-to-reset circuit breaker feature is included which protects the entire unit from conditions beyond the safe operating limits.

The entire unit is housed in a sturdy steel chassis with two metal flanges which permit wall mounting.

Front Panel Detail



Specifications

Input Specifications

Impedance

Aux Input:	250K Ω unbal
Phone Input:	600 Ω bal
Mic Input:	150 Ω bal
Music Input:	200K Ω unbal
Line Input:	10K Ω bal

Sensitivity

Aux Input:	220mv
Phone Input:	50mv
Mic Input:	0.5mv
Music Input:	220mv
Line Input:	50mv

Frequency Response (+/-2dB)

Aux Input:	50Hz-20kHz
Phone Input:	400Hz-6kHz
Mic Input:	70Hz-20kHz
Music Input:	20Hz-20kHz (-2,+6dB)
Line Input:	70Hz-20kHz

Signal to Noise Ratio

Aux Input:	70dB
Phone Input:	71dB
Mic Input:	58dB
Music Input:	71dB
Line Input:	58dB

Controls

Phone, Mic/Line, Aux, Music, Bass, Treble & Power On/Off

Connectors

RCA type phono jacks for Booster Out, Music In, Aux In

Screwtype Terminals for Power Output, Phone In, Mic In & Line In

Protection

Push-to-Reset Circuit Breaker

Power Consumption

1120:	0.25A 120 VAC 60 Hz
1140:	0.4A 120 VAC 60 Hz

Power Output:

1120:	20 watts RMS @ 1kHz
1140:	40 watts RMS @ 1kHz

Frequency Response:

50 Hz – 20 kHz \pm 2 dB

Distortion:

<1.5% THD @ 1 kHz, rated output

Outputs:

4 Ω , 8 Ω , 25V, and 70.7V

Output Regulation:

<2 dB No load to full load

Tone Control:

Bass: \pm 12dB @ 50kHz
Treble: \pm 13dB @ 15kHz

Circuit Protection:

Internal thermal breaker

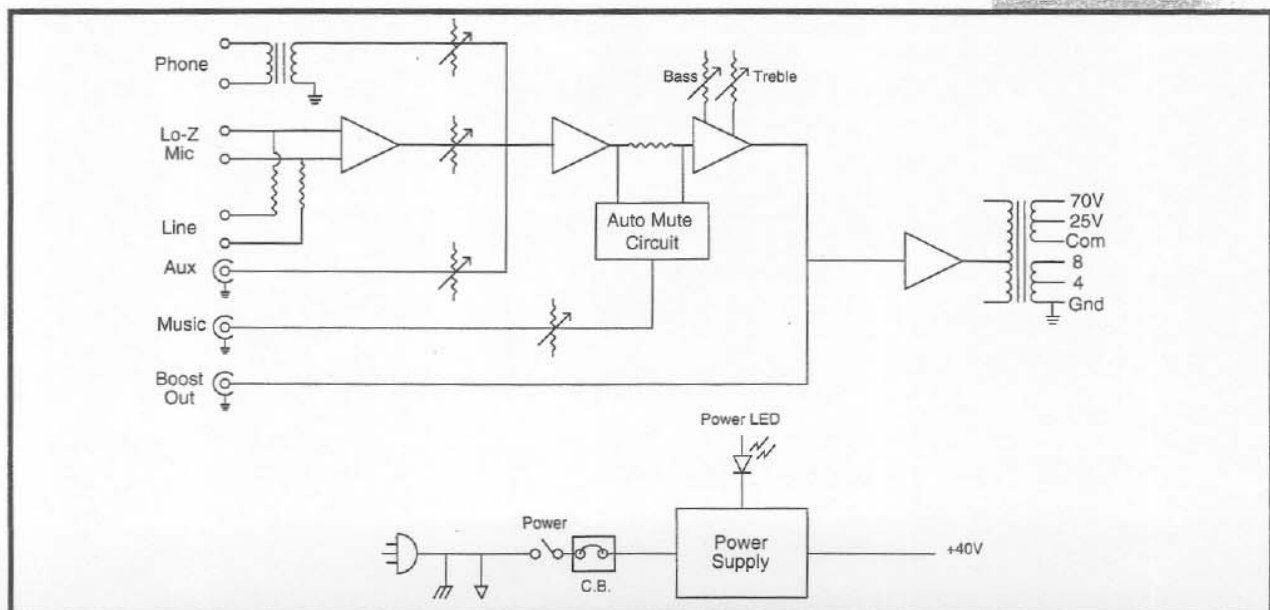
Dimensions:

16.0" W x 7.75" H x
3.625" D (40.6 cm x
19.7 cm x 9.2 cm)

Shipping Weight:

1120:	10 lbs. (4.6 kg)
1140:	12 lbs. (5.5 kg)

Block Diagram



Architect's and Engineer's Specifications

The paging amplifiers shall have three paging inputs and one music input. The paging inputs shall have the following characteristics: one input shall have a 500/600 ohm balanced isolation transformer, another shall be a balanced Lo-Z mic / line level input with an impedance of 150/10K ohms, while the remaining input shall be a high-impedance input with a sensitivity of 250 mV. The music input shall be a high-impedance input with a sensitivity of 250 mV. A voice-activated circuit will provide paging mute of the music input whenever a signal is detected on any of the three paging inputs.

There shall be a treble tone control with ± 13 dB boost/cut at 15 kHz, and a bass tone control with ± 12 dB boost/cut at 50 Hz. The amplifier output shall be able to drive 4 ohm, 8 ohm, 25V, or 70.7V speaker systems. There shall be a

BOOST OUT output with a RCA-type connector jack. There shall be a power switch on the face of unit, a push-to-reset circuit breaker button, and POWER ON and OVERLOAD LED indicators. The enclosure shall measure 16.0" x 7.75" x 3.625" (40.6 cm x 19.7 cm x 9.2 cm) including wall-mount flanges on either side. The units shall operate from a 120V AC 60 Hz line.

[Paragraph below applies only to the Model 1120]
The unit shall provide a power output rated at 20 watts RMS. The unit shall be the University Sound Model 1120.

[Paragraph below applies only to the Model 1140]
The unit shall provide a power output rated at 40 watts RMS. The unit shall be the University Sound Model 1140.



University Sound Inc.

a MARK IV company
13278 Ralston Avenue
Sylmar, CA 91342-7607
FAX (818) 362-3463
PHONE (818) 362-9516

Mark IV Audio Canada
345 Herbert Street
Gananoque, Ontario K7G 2V1
FAX (613) 382-7466
PHONE (613) 382-2141