

7/300 Powered Mixer

# Operation Manual

**B I A M P<sup>®</sup>**

---

S Y S T E M S

10074 SW Arctic Drive      Beaverton, OR 97005      503-641-7287

## ADVANTAGE 7/250 POWERED MIXER

### TABLE OF CONTENTS

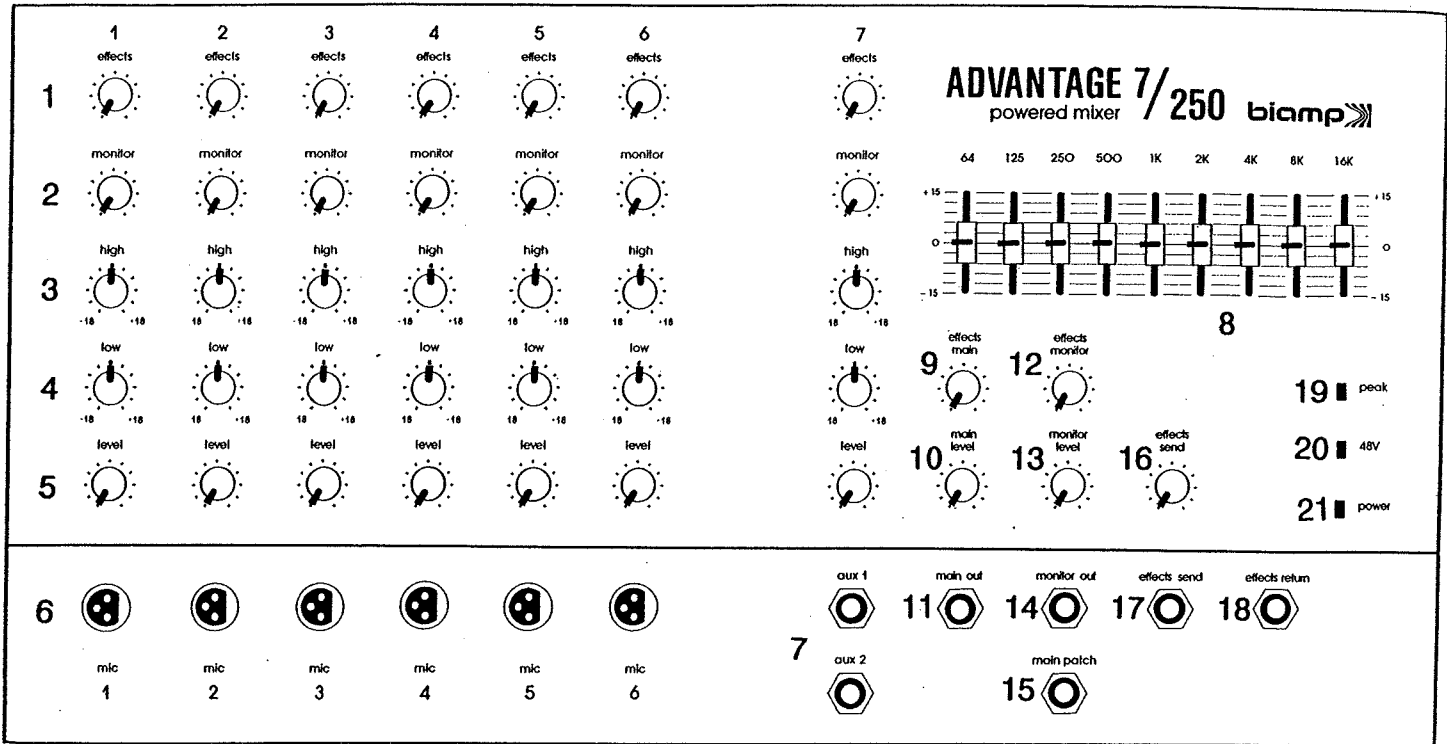
1.0 INTRODUCTION . . . . .	pg. 1
2.0 FRONT PANEL FEATURES . . . . .	pg. 3
3.0 REAR PANEL FEATURES . . . . .	pg. 3
4.0 INSTALLATION INSTRUCTIONS	
4.1 Cooling . . . . .	pg. 4
4.2 Rack wing positioning . . . . .	pg. 4
5.0 OPTIONAL ACCESSORIES	
5.1 25V/70V Distribution autoformer . . . . .	pg. 4
5.12 Installation of optional 25V/70V autoformer . . . . .	pg. 4
5.2 External input isolation transformers . . . . .	pg. 4
6.0 PATCH CABLE DIAGRAM . . . . .	pg. 4
7.0 BLOCK DIAGRAM . . . . .	pg. 6
8.0 SPECIFICATIONS	
8.1 Mixer section . . . . .	pg. 7
8.2 Power amplifier section . . . . .	pg. 7
9.0 WARRANTY . . . . .	pg. 8

### 1.0 INTRODUCTION

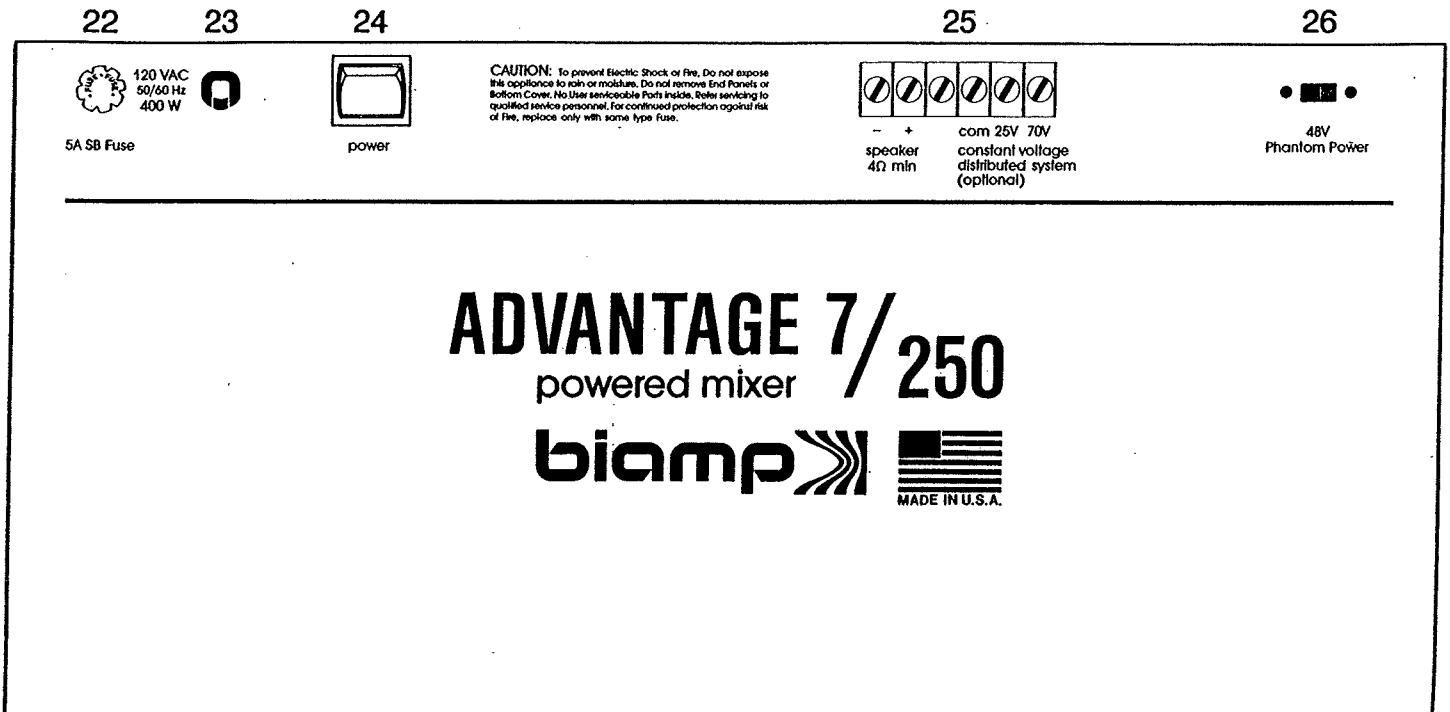
The BIAMP ADVANTAGE 7/250 powered mixer provides the professional sound contractor with a flexible multi-channel mixer, power amp, and graphic EQ in one easy to use and easy to install package. The ADVANTAGE 7/250 is a compact, rack mount unit. Use it alone or with other ADVANTAGE Series modules (such as the ADVANTAGE GM for automatic gain control or the ADVANTAGE RC for remote level control). A 25V/70V autoformer for powering speaker distribution systems is available as a user-installed option.

#### ADVANTAGE 7/250 features include:

- \* 6 microphone channels
- \* 1 dual-input line level channel
- \* switchable 48 volt phantom power with slow turn-on
- \* 9-band graphic equalizer, +/-15dB on ISO centers
- \* individual effects controls for main and monitor
- \* main patch insert jack
- \* 250 watts of clean power at 4 ohms
- \* passive cooling - no fan maintenance or noise
- \* delayed turn-on/fast-off circuit for thumpless power switching
- \* power-on, phantom power and peak LED indicators
- \* barrier strip for output connections
- \* rack wings accommodate either recessed or flush mounting in rack
- \* EXCLUSIVE GOLD SEAL 5-YEAR WARRANTY



ADVANTAGE 7/250 Front Panel



ADVANTAGE 7/250 Rear Panel

## 2.0 FRONT PANEL FEATURES

- 1) EFFECTS SEND. This control adjusts the amount of signal sent from the channel to the EFFECTS mixing bus. The EFFECTS SEND signal is post-channel level control.
- 2) MONITOR SEND. This control adjusts the amount of signal sent from the channel to the MONITOR mixing bus. The MONITOR SEND signal is pre-channel EQ.
- 3) HIGH EQ. +/-18dB @ 18kHz shelving type equalization.
- 4) LOW EQ. +/-18dB @ 50Hz shelving type equalization.
- 5) CHANNEL LEVEL. This control adjusts the amount of channel signal sent to the MAIN mixing bus.
- 6) CHANNEL MIC INPUT. This 3-pin XLR jack is for connection of low impedance microphones or direct boxes to each channel. It provides a balanced transformerless input wired to the DIN standard, with Pin 2 being high (+), Pin 3 being low (-), and Pin 1 being Shield.
- 7) AUX CHANNEL DUAL LINE INPUTS. These 2-conductor 1/4" Phone jacks are for connection of the output from line level devices. If output signals are connected to both jacks, the signals are mono-summed in the channel (see Block Diagram, page 6).
- 8) GRAPHIC EQ. This graphic equalizer provides 15db of cut or boost within each of the 9 frequency bands. Each band is one octave wide and is centered on an ISO standard frequency. Each mark above and below the center position indicates a level change of approximately 3dB. The graphic equalizer is post-Main Level control.
- 9) EFFECTS MAIN. This control adjusts the amount of signal sent from the Effects Return jack to the Main mixing bus.
- 10) MAIN LEVEL. This control adjusts the amount of signal sent from the Main mixing bus to the EQ, amplifier, and the Main Out jack.
- 11) MAIN OUT. This 2-conductor 1/4" Phone output jack is for connection to the input of external amplifiers or other line level devices. The signal is from the Main Level control.
- 12) EFFECTS MONITOR. This control adjusts the amount of signal sent from the Effects Return jack to the Monitor mixing bus.
- 13) MONITOR LEVEL. This control adjusts the amount of monitor signal sent to the Monitor Out jack.
- 14) MONITOR OUT. This 2-conductor 1/4" Phone output jack is for connection to the input of Monitor systems or other line level devices. The signal is from the Monitor Level control.
- 15) MAIN PATCH. This 3-conductor 1/4" Phone jack is for connection of outboard processing equipment, such as other ADVANTAGE modules. Tip is Send, Ring is Return, and Sleeve is Ground. For automatic gain control, connect the the MAIN PATCH jack to the In/Out jack of an ADVANTAGE GM using standard balanced 1/4" Phone cable. For remote level control, connect the MAIN PATCH jack to an In/Out jack on one channel of an ADVANTAGE RC using standard balanced 1/4" Phone cable.

Other types of line level processing equipment may be connected using a special patch cable (see Patch Cable Diagram, page 4). This Patch jack is post-Graphic EQ and provides an insertion point prior to the power amplifier input.

16) EFFECTS SEND. This control adjusts the amount of signal sent from the Effects mixing bus to the Effect Send jack.

17) EFFECTS SEND. This 2-conductor 1/4" Phone output jack is for connection to the input of Effects units or other line level devices. The signal is from the Effects Send control.

18) EFFECTS RETURN. This 2-conductor 1/4" Phone input jack is for connection of the output from Effects units or other line level devices. The signal is sent to the Effects Main and Effects Monitor level controls.

19) PEAK INDICATOR. This red LED indicates the amplifier signal level has reached clipping. If this indicator turns on, lower the signal level by reducing the Main Level.

20) +48V INDICATOR. This yellow LED indicates the +48V phantom power is switched on, and phantom power is applied to the XLR input connectors.

21) POWER ON INDICATOR. This green LED indicates the Power Switch is turned on and power is applied to the unit.

## 3.0 REAR PANEL FEATURES

22) AC FUSE. 5 Amp SB fuse for 120 VAC operation; 2 Amp SB fuse for 240 VAC operation. Replace only with fuse of same value and type as original.

23) AC POWER CORD. This power cord is a 3-conductor type and is intended to be used only with 3-conductor (grounded) AC outlets. If the ADVANTAGE 7/250 is used on a 2-conductor AC outlet with an adaptor, the ground lead from the adaptor must be connected to a suitable ground for operator safety.

24) POWER SWITCH.

25) SPEAKER AND DISTRIBUTION SYSTEM CONNECTOR. This 6-terminal barrier strip is for connection of speakers (4 ohm minimum load) or, with the installation of the optional 25V/70V autotransformer, connection to a speaker distribution system. Each terminal's function is shown by the label appearing beneath it (note that one terminal is unused).

26) 48V PHANTOM POWER SWITCH. This switch turns on the +48V phantom power supply. Phantom power is applied to the XLR microphone inputs on channels 1-6 for operation of condenser microphones and direct boxes. Phantom power does not appear at the Channel 7 line inputs.

**\*\*CAUTION:** Improper use of phantom power may cause damage. Any unbalanced microphone will be destroyed by connection to the phantom supply. In addition, many other pieces of electronic equipment will be damaged by phantom supply voltage. Check the microphone or equipment manufacturer's recommendations before using phantom power. Phantom power is safe for most dynamic microphones.\*\*\*\*

## 4.0 INSTALLATION INSTRUCTIONS

### 4.1 Cooling

The ADVANTAGE 7/250 is passively cooled using BIAMP'S "Turbulent Flow" heatsink assembly to remove excess heat. During installation, make sure the cooling vents on the top and bottom of the unit are not blocked.

Overheating causes the thermal protection circuit to remove AC power from the unit. Power will return to the unit automatically after sufficient cooling takes place.

### 4.2 Rack wing positioning

The ADVANTAGE 7/250 is shipped from the factory with the rack wings positioned for recessed mounting in a rack. Extra holes are provided for flush mounting. As shown on the Rack Wing Diagram, page 5, recessed mounting uses the four "D" holes. To reposition the wings for flush mounting:

- 1) remove the four screws holding the rack wing
- 2) move the wing back until the four "E" holes on the rack wing line up with the holes on the side of the 7/250 chassis
- 3) replace the screws

## 5.0 OPTIONAL ACCESSORIES

### 5.1 25V/70V Distribution Autoformer

A 25V/70V distribution autoformer is available from BIAMP SYSTEMS (Biamp Part No. 909.0004.00). The autoformer accepts either 100 watt or 200 watt input, frequency response is flat from 100Hz-15kHz (+/-3dB), and THD @ 1kHz is less than 1%. The impedance rating is 8 ohms. Note that maximum power output from the ADVANTAGE 7/250 power amplifier into an 8 ohm load is 145 watts.

Holes are provided on the 7/250 chassis for internal or external mounting. The barrier strip internal connections are pre-wired. Mounting hardware is included with the autoformer.

### 5.12 Installation of optional 25V/70V autoformer

The following instructions are for mounting the distribution autoformer internally on the right rack wing of the unit, as shown on the 25V/70V Autoformer Installation Diagram, page 4. Extra holes are provided for internal mounting from the top or external mounting on the rear. If you have any mounting questions or problems, please call BIAMP SYSTEMS.

- 1) remove the four screws holding the right rack wing
- 2) attach the autoformer to the inside of the rack wing using the hardware provided with the autoformer. If the 7/250 is recessed-mounted, attach the autoformer using the "A" and "B" holes. If the 7/250 is flush-mounted, use the "B" and "C" holes.
- 3) remove the clamp holding the bundle of 5 wires on the rear of the unit.

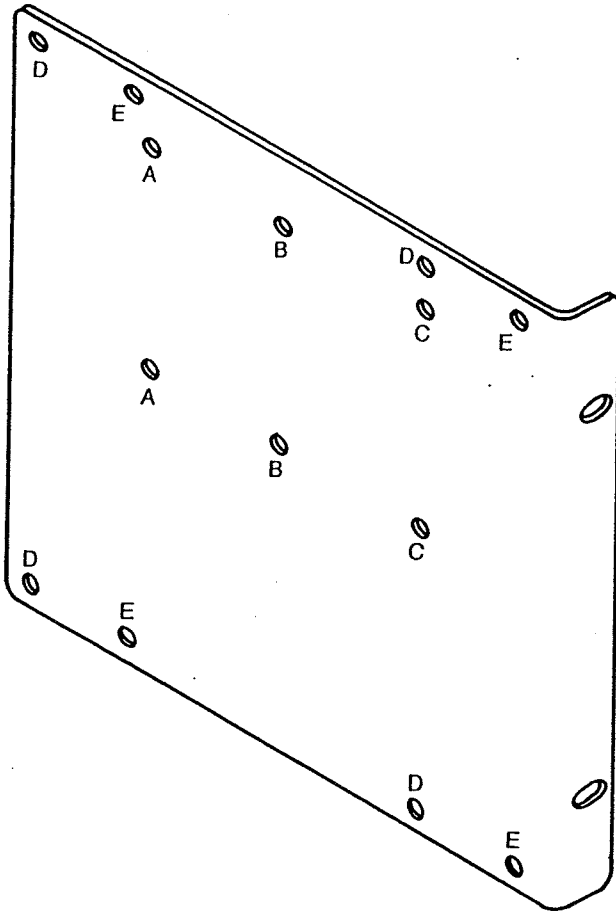
- 4) remove the heat-shrink insulation covering the spade lug termination on each wire. Work carefully to avoid accidentally cutting the wires
- 5) connect the wires to the autoformer pins as follows:
  - \* BLACK to Pin 1
  - \* BLACK/WHITE (or BLUE/BLACK on some units) to Pin 2
  - \* RED/WHITE to Pin 3
  - \* RED (or BLUE/RED on some units) to Pin 6
- 6) connect the WHITE wire to Pin 5 of the autoformer if the total output requirements exceed 100 watts. Otherwise, connect the WHITE wire to Pin 4
- 7) replace the right rack wing
- 8) connect the distribution system speaker wires to the barrier strip terminals using the Common terminal and either the 70V or 25V terminal, depending on your application.

### 5.2 External Input Isolation Transformers

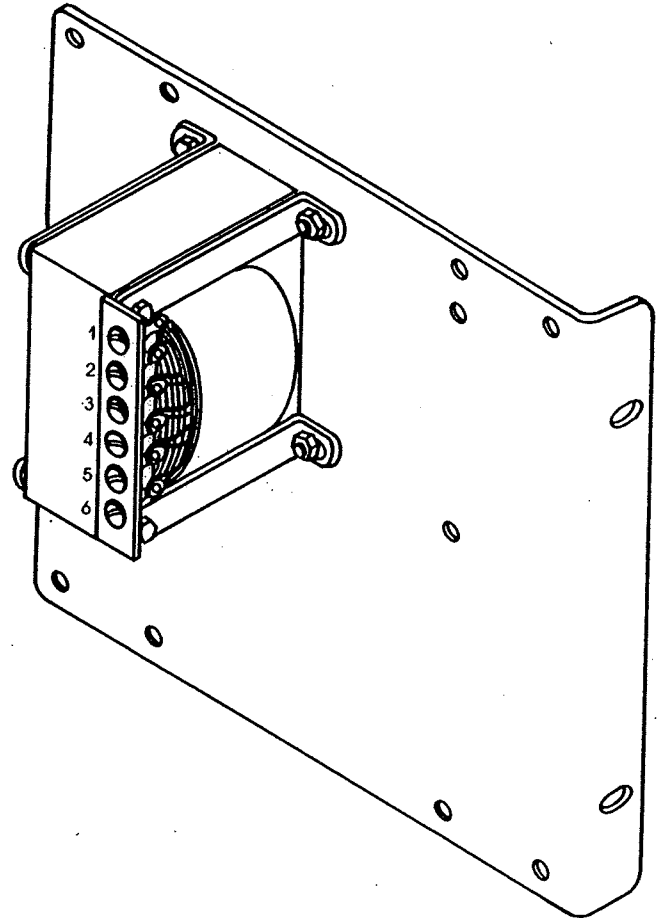
External input isolation transformer modules are available from BIAMP SYSTEMS (Biamp Part No. 909.0009.00). This accessory provides transformer-coupled inputs for the ADVANTAGE 7/250, as well as any other BIAMP mixer. The module has a male XLR on one end and a female XLR on the other, and plugs into the microphone line. Best results are obtained when the microphone line is connected to the module, and the module is plugged directly into an XLR input on the mixer. Please note that phantom power is prevented from reaching the microphone by this module.

## 6.0 PATCH CABLE DIAGRAM

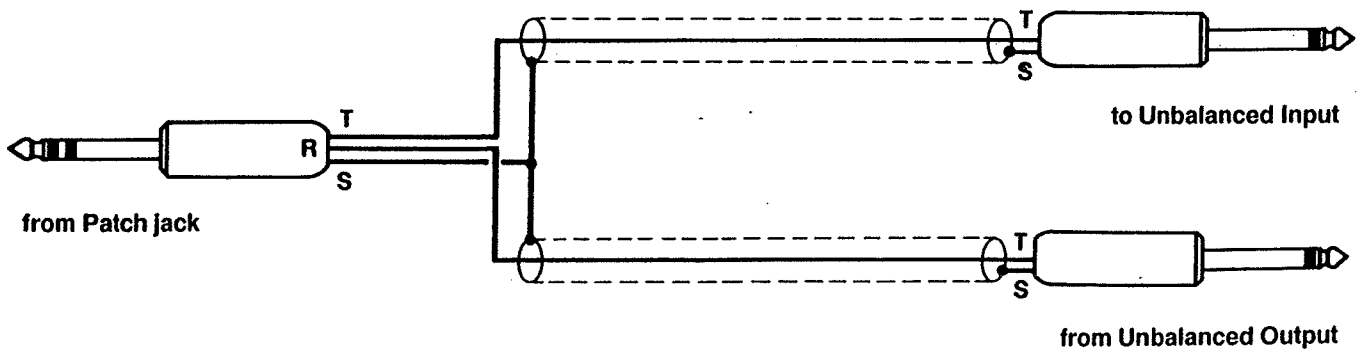
This type of cable uses a Tip/Ring/Sleeve 1/4" Phone connector on one end, and Tip/Sleeve 1/4" Phone connectors on the other two ends. It is wired Tip A to Tip B, Ring A to Tip C, and Sleeve A to Sleeve B and Sleeve C (Ground). Use this type of patch cable to connect effects devices or signal processors to the ADVANTAGE 7/250 Main Patch jack. Tip B is Send and Tip C is Return. See illustration on page 5.



Rack Wing Diagram

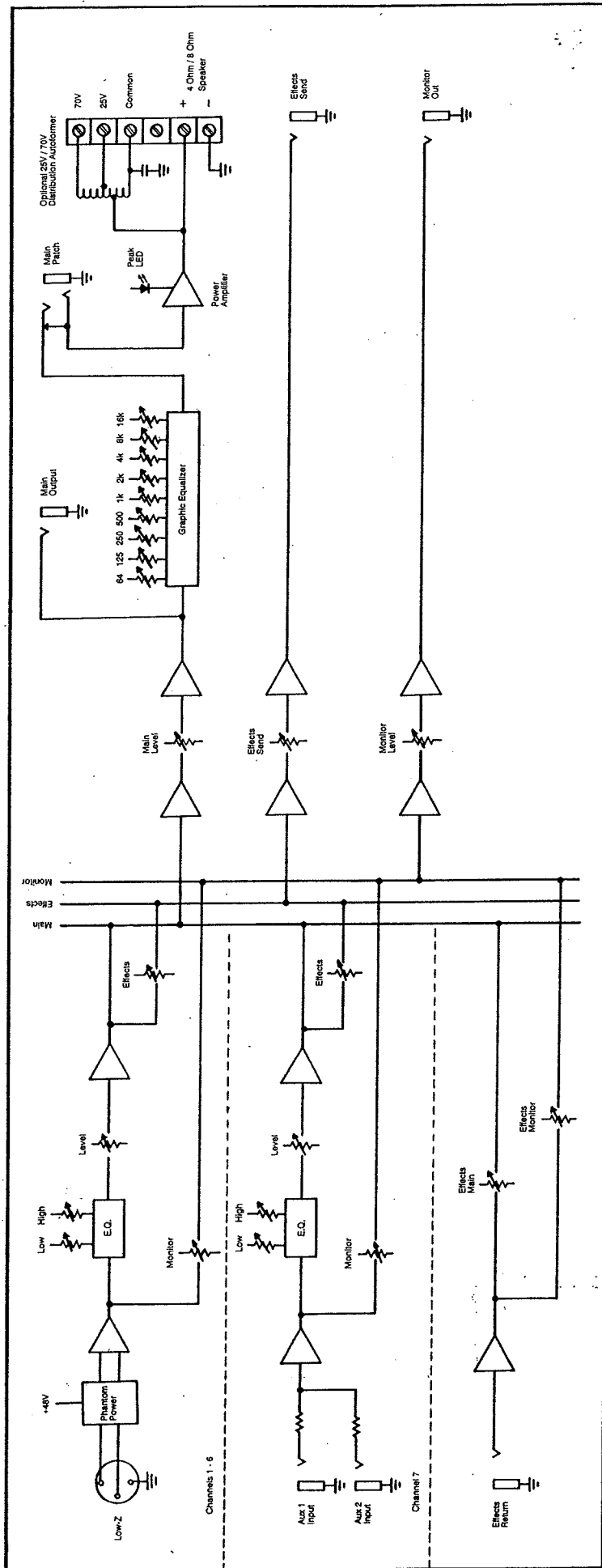


25V/70V Autoformer Installation Diagram  
(recessed mounting shown)



Patch Cable Diagram

ADVANTAGE 7/250 Block Diagram



## 8.0 SPECIFICATIONS

### 8.1 MIXER SECTION

-----	
FREQUENCY RESPONSE (20Hz-20kHz) @ +4dBm	+0dB, -1.0dB
-----	
THD (20Hz-20kHz) @ +4dBm	<.02%
-----	
IMD (SMPTE) @ +4dBm	<.08%
-----	
COMMON MODE REJECTION RATIO @ 60Hz	55dB
-----	
EIN (20Hz-20kHz) 150 ohm termination	-110dB
-----	
EQUALIZATION	
Input Channel EQ Gain/Centers	+/-18dB @ 50Hz +/-18dB @ 18kHz
Program Graphic EQ Gain/Centers	+/-15dB 64Hz, 125Hz, 250Hz 500Hz, 1kHz, 2kHz 4kHz, 8kHz, 16kHz
-----	
OVERALL SYSTEM INPUT IMPEDANCE	
Low Z	2k ohms (balanced)
Auxiliary Line	100k ohms
EFX/AUX Return	10k ohms
Main Patch Insert	4.7k ohms
-----	
MAXIMUM INPUT LEVEL	
Low Z	-10dBv
Auxiliary Line	+20dBv
Main Patch Insert	+5dBv
-----	
OUTPUT IMPEDANCE	
Main Out	<200 ohms
Monitor Out	<200 ohms
EFX Send	<200 ohms
Main Patch Insert	<200 ohms
-----	
MAXIMUM OUTPUT LEVEL	
Main	+18dBv @ >600 ohms
Monitor	+18dBv @ >600 ohms
EFX	+18dBv @ > 2k ohms
Main Patch Insert	+18dBv @ >600 ohms
-----	

### 8.2 POWER AMPLIFIER SECTION

-----	
OUTPUT POWER @ 1 kHz	4 ohms: 250 watt 8 ohms: 145 watt
-----	
SIGNAL/NOISE RATIO (20Hz-20kHz)	102 dB
-----	
FREQUENCY RESPONSE (20Hz-20kHz) @ 1 watt into 4 ohms	+0dB, -0.5dB
-----	
THD (20Hz-20kHz) @ 150 watts into 4 ohms @ 90% max pwr into 4 ohms	<0.1% <0.2%
-----	
IMD (SMPTE) @ 150 watts into 4 ohms @ 90% max pwr into 4 ohms	<0.10% <0.15%
-----	
SLEW RATE @ 4 ohms	17v/microsec
-----	
DIMENSIONS	
Height	5 rack spaces
Width	19 inches
Depth	9.3 inches
-----	
WEIGHT	
	<25 lbs
-----	
CONNECTORS	
Input	XLR, 1/4" Phone
Output	Barrier Strip
-----	
INDICATORS	
Power	Green LED
Phantom Power	Yellow LED
Peak	Red LED
-----	
POWER REQUIREMENTS	120/240VAC 50/60Hz
-----	
POWER CONSUMPTION	600 watts
-----	
OTHER	
* +48v Phantom Power	
* 5 Year Warranty	
* Optional 25/70 Volt Distribution Autoformer	
* Optional External Input Isolation Transformers	
-----	



BIAMP FIVE YEAR GOLD SEAL LIMITED WARRANTY

BIAMP SYSTEMS IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR GOLD SEAL LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS OPERATORS GUIDE.

BIAMP Systems expressly warrants this product to be free from defects in materials and workmanship for a period of 5 YEARS from the date of purchase as a new product from an authorized BIAMP dealer under the following conditions.

1. The Purchaser is responsible for completing and mailing to BIAMP, within 10 days of purchase, the attached warranty application. BIAMP will issue a GOLD SEAL warranty validation sticker that must be affixed to the product to be presented at the time of warranty service. PROOF OF PURCHASE ON UNREGISTERED EQUIPMENT IS NOT SUFFICIENT FOR RECEIVING IN-WARRANTY SERVICES. In the event Purchaser does not receive a validation sticker within 60 days of mailing, Purchaser should notify BIAMP in writing immediately. The Purchaser has the sole responsibility for completing and mailing the warranty application.
2. In the event the warranted BIAMP product requires service during the warranty period, BIAMP will repair or replace, at its option, defective materials, provided you have identified yourself as the original purchaser of the validated product to any authorized BIAMP Service Center. Transportation and insurance charges to and from an authorized Service Center or the BIAMP factory for warranted products or components thereof to obtain repairs shall be the responsibility of the Purchaser.
3. This warranty will be VOIDED if the serial number has been removed or defaced; or if the product has been subjected to accidental damage, abuse, rental usage, alterations, or attempted repair by any person not authorized by BIAMP to make repairs; or if the product has been installed contrary to BIAMP's instructions.
4. Electro-mechanical fans, electrolytic capacitors, and normal wear and tear of appearance items such as paint, knobs, handles, and covers are not covered under this warranty.
5. BIAMP SHALL NOT IN ANY EVENT BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, LOSS OF USE, PROPERTY DAMAGE, INJURY TO GOODWILL, OR OTHER ECONOMIC LOSS OF ANY SORT. EXCEPT AS EXPRESSLY PROVIDED HEREIN, BIAMP DISCLAIMS ALL OTHER LIABILITY TO PURCHASER OR ANY OTHER PERSON ARISING OUT OF USE OR PERFORMANCE OF THE PRODUCT, INCLUDING LIABILITY FOR NEGLIGENCE OR STRICT LIABILITY IN TORT.
6. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. BIAMP EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES SET FORTH HEREIN SHALL BE THE PURCHASER'S SOLE AND EXCLUSIVE REMEDIES WITH RESPECT TO ANY DEFECTIVE PRODUCT. THE AGENTS, EMPLOYEES, DISTRIBUTORS, AND DEALERS OF BIAMP ARE NOT AUTHORIZED TO MODIFY THIS WARRANTY OR TO MAKE ADDITIONAL WARRANTIES BINDING ON BIAMP. ACCORDINGLY, ADDITIONAL STATEMENTS SUCH AS DEALER ADVERTISEMENTS OR REPRESENTATIONS DO NOT CONSTITUTE WARRANTIES BY BIAMP.
7. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.

In the event your BIAMP product should ever require service, please contact the BIAMP factory for the location of the nearest authorized service center.

Thank you for purchasing BIAMP...  
AMERICAN SOUND CRAFTSMANSHIP

BIAMP SYSTEMS  
P.O. Box 2160  
Portland, Oregon 97208-2160

14270 N.W. Science Park Drive  
Portland, Oregon 97229

(503) 641-7287