

**BEFORE PROCEEDING WITH COMPLETE UNPACKING AND SETUP  
PLEASE READ THE SECTION ON UNPACKING AND INSPECTION**



**UREI  
ELECTRONIC  
PRODUCTS**

**model 5330  
VCA CONTROLLED  
MICROPHONE MIXER**

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## TABLE OF CONTENTS

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### PAGE

#### SECTION I INTRODUCTION

1.1	INTRODUCTION	I-1
1.2	5330 SPECIFICATIONS	I-1
1.3	ACCESSORIES	I-2

#### SECTION II INSPECTION AND INSTALLATION

2.1	UNPACKING AND INSPECTION	II-1
2.2	ENVIRONMENTAL CONSIDERATIONS	II-1
2.3	POWERING	II-1
2.4	FUSING	II-1
2.5	GROUNDING INSTRUCTIONS	II-2
2.6	IMPEDANCE AND TERMINATION	II-2
2.7	INSTALLATION	II-3
2.8	CONNECTIONS-GENERAL	II-3

#### SECTION III OPERATION

3.1	INITIAL TURN ON	III-1
3.2	THEORY OF OPERATION-GENERAL	III-1
3.3	THEORY OF OPERATION	III-1
3.3.1	MIC/LINE INPUTS	III-1
3.3.2	PHANTOM POWER	III-2
3.3.3	AUXILIARY INPUT	III-3
3.3.4	PATCH POINT	III-3
3.3.5	TONE CONTROLS	III-3
3.3.6	MAIN OUTPUTS	III-4
3.3.7	LINK FUNCTION	III-4
3.3.8	LIMITER	III-4
3.3.9	OUTPUT METER	III-5
3.3.10	POWER SUPPLY	III-5
3.3.11	VCA CONTROL	III-5
3.3.12	PRIORITY MUTE	III-6

#### SECTION IV ACCESSORIES

4.1	SC5 SECURITY COVER	IV-1
4.2	5336 REMOTE CONTROL OPTION	IV-1
4.2.1	INSTALLATION	IV-1
4.2.2	WIRING	IV-2
4.2.3	OPERATION	IV-2
4.3	RACK EAR PLACEMENT	IV-3

#### SECTION V MAINTENANCE

5.1	GENERAL	V-1
5.2	REPAIRS AND WARRANTY	V-1

TABLE OF CONTENTS (CONT).

	PAGE
<u>SECTION VI ARCHITECTS AND ENGINEERS SPECIFICATIONS</u>	
6.1 SPECIFICATIONS	VI-1
<u>SECTION VII ILLUSTRATIONS</u>	
FIGURE 7-1 5330 MICROPHONE MIXER FRONT PANEL	VII-1
FIGURE 7-2 5330 MICROPHONE MIXER REAR PANEL	VII-2
FIGURE 7-3 5330 MICROPHONE MIXER BALANCED WIRING DIAGRAM	VII-3
FIGURE 7-4 5330 MICROPHONE MIXER UNBALANCED WIRING DIAGRAM	VII-3
FIGURE 7-5 5330 MICROPHONE MIXER BLOCK DIAGRAM	VII-4
FIGURE 7-6 5336 REMOTE CONTROL OPTION SCHEMATIC	VII-5
FIGURE 7-7 5330 MICROPHONE MIXER SCHEMATIC	VII-6

## SECTION I INTRODUCTION

### 1.1 INTRODUCTION

The JBL/UREI Model 5330 Microphone Mixer is a multi-input dual mono microphone mixer which has been optimized for the demands of fixed installation sound systems. The outstanding features and reliability of the Model 5330 are useful in sound reinforcement, church and boardroom sound, restaurant and small nightclub sound systems, to name a few.

The Model 5330 has 7 input positions with independent front panel gain control. Channels 1-6 include Mic/Line switches, input level trims and switchable low cut filters to accommodate a wide range of installation requirements. Input 7 is an unbalanced high level input with input connectors on both front and rear panels.

The output circuits of the Model 5330 are quite versatile. Two separate transformer isolated outputs are supplied for individual amplifier feeds, each with its own level control and output trim. An effects loop has been provided which allows the connection of equalizers, limiters, expanders, delays, or other signal processing equipment.

A linking function allows several Model 5330's to share a common mix buss.

A built-in limiter, phantom power supply and bargraph LED output meter add to the features of the 5330 Microphone Mixer.

Remote control capability is standard on the two output channels and optional on Input Channels 1-6 with the addition of the 5336 Remote Control Option Card.

The Model 5330 has been designed for long life and reliability. All input and output level controls are quiet and smooth acting. The construction techniques employed insure reliable operation. Components are operated well within their ratings to insure reliability in continuous duty service.

### 1.2 5330 SPECIFICATIONS

FREQUENCY RESPONSE: +0, -1 dB 20 Hz to 20 kHz

	<u>OUTPUT</u>	<u>PATCH</u>
MAXIMUM OUTPUT LEVELS:	+24 dBm*	+20 dB*

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\* When dB refers to an absolute level the reference is 0 dB = 0.775 volts rms. 0 dBm is 1mW into 600 ohms.

THD: Less than 0.1% 20 Hz to 20 kHz @ nominal operating level

MICROPHONE NOISE: EIN -126 dB. 15.7 kHz Noise Bandwidth

COMMON MODE: Greater than 70 dB @ 60 Hz MIC nominal  
Greater than 50 dB @ 60 Hz LINE nominal

INPUT IMPEDANCE: MIC: 3.3 kohm  
LINE: 16 kohm  
LINK IN: 22 kohm  
PATCH RTN: 44 kohm

MAX. INPUT LEVELS:	MIN	INPUT TRIM SETTING	MAX
MIC POSITION	-5 dB		-35 dB
LINE POSITION	+25 dB		-5 dB
PATCH RTN	+20 dB		---

LOW CUT FILTER SLOPE: 6 dB/octave, -3 dB @ 200 Hz

LIMITER THRESHOLD: Fixed at -3 on output meter

COMPRESSION RATIO: Fixed at 10:1

ENVIRONMENT: Operating: 0°C to +50°C (+32°F to +122°F).  
Storage: -20°C to +60°C (-4°F to +140°F).

POWER CONSUMPTION: Less than 20 watts.

#### PHYSICAL SPECIFICATIONS:

##### Dimensions:

Front Panel	88.9 x 483 mm (3-1/2 x 19 in.) EIA rack mount.
Depth Behind Panel	203 mm (8 in.) with rack ears flush. 234 mm (9.2 in.) with rack ears forward.

Finish: Polycarbonate overlaid front panel.  
Chassis is black painted steel.

Net Weight: 3.9 kg (8.5 lb.)

Shipping Weight: 5.2 kg (11.5 lb.)

#### 1.3 ACCESSORIES

5336 Remote Control Card  
SC-5 Security Cover

## SECTION II INSPECTION AND INSTALLATION

### 2.1 UNPACKING AND INSPECTION

Your Model 5330 was carefully packed at the factory, and the container was designed to protect the unit from rough handling. Nevertheless, we recommend careful examination of the shipping carton and its contents for any sign of physical damage which could have occurred in transit.

If damage is evident, do not destroy any of the packing material or the carton, and immediately notify the carrier of a possible claim for damage. Shipping claims must be made by the consignee.

The carton should contain:

Model 5330 Microphone Mixer.

JBL/UREI Instruction Manual (this book).

Rack mounting hardware.

External power transformer.

### 2.2 ENVIRONMENTAL CONSIDERATIONS

The 5330 Mixer will operate satisfactorily over a range of ambient temperatures from 0°C to +50°C (+32°F to +122°F), and up to 80% non-condensing relative humidity.

If the system is installed in an equipment rack, console or desk with high heat producing equipment (such as power amplifiers), adequate ventilation should be provided in order to assure longest component life. Also, while circuitry susceptible to hum pickup is sufficiently shielded from moderate electromagnetic fields, installation should be planned to avoid mounting the system immediately adjacent to large power transformers, motors, etc.

### 2.3 POWERING

The 5330 must use the JBL/UREI power transformer, Model # U100-22 when operating from 90-105V mains, Model # U120-22 when using 105-120V mains, and Model # U220-22 when using 220-240V mains. Power requirement is approximately 20 watts.

### 2.4 FUSING

The fuse required by the 5330 is a 3AG 1 amp fast blow for

all voltage operations. A flat bladed screwdriver is required to remove the fuse from its receptacle.

## 2.5 GROUNDING INSTRUCTIONS

The 5330 is supplied with a three wire external power supply. To comply with most electrical codes, the grounding pin is connected to the chassis. In some installations, this may create ground loop problems. Ground loops can result in hum and buzz if a significant potential difference exists between the AC conduit ground and the grounded metal enclosure in which the chassis is installed. If hum is experienced, one may check for the possibility of ground loops by using a three-prong to two-prong AC adapter between the power transformer and the mains supply, ungrounding the AC plug temporarily. This ungrounds the Model 5330, and may cure the hum or buzz, but is not a substitute for proper system grounding. Be aware that unless the Model 5330 Microphone Mixer is AC grounded, a safety hazard can exist. JBL/UREI accepts no responsibility for legal actions or for direct, incidental or consequential damages that may result from violation of any electrical codes.

## 2.6 IMPEDANCE AND TERMINATION

Audio engineering had its roots in the telephone industry, and "600 ohm circuits" (together with their predecessors, "500 ohm circuits") are carryovers from telephone transmission practices. Long audio transmission lines, like their video counterparts, must be properly sourced from and terminated in equipment which matches their characteristic impedance if optimum frequency response and noise rejection are to be achieved.

However, transmission line theory and techniques are not only unnecessary but impractical within modern recording studios, broadcast studios and other local audio systems where transmission circuits are seldom more than several hundred feet in length. The advent of negative feedback circuitry and solid-state electronics has spawned modern audio amplifiers and other signal processing devices having source impedances of only a few ohms. They are essentially indifferent to load impedances and, by varying their output current inversely to changes in load impedance, maintain the same output voltage into any load impedance above a rated minimum, with no change in frequency response.

Modern audio systems, therefore, utilize amplifiers and other active devices which have very low output impedances and high (10 k to 50 k) input impedances. These products may thus be cascaded (operated in series), or many inputs may be connected to a single output of a preceding device, without regard to impedance "matching." Switching, patching, etc. is

simplified because "double loads" and "unterminated" bugaboos are essentially eliminated. "Floating" (ungrounded) transformer outputs minimize ground loop problems, and differential transformerless circuitry (or input transformers) minimize common mode noise or interference which may be induced into the interconnecting wires or cables.

Where audio must be transmitted through cables or wire pairs of more than a few hundred feet in length, however, transmission line termination practices should still be observed.

The Model 5330 Inputs 1-6 are balanced and are designed for use with 150 ohm microphones or 600 ohm lines. The auxiliary and effects loop inputs are unbalanced (one side grounded) and have a 10 kohm impedance. This makes these inputs suitable for use with any nominal source impedance, low or high. A source termination resistor will only be required when the 5330 line inputs are connected to a source which requires a low impedance termination (such as a 600 ohm transmission line or older vacuum-tube type equipment).

## 2.7 INSTALLATION

After unpacking the 5330 and the power supply, place the 5330 into the rack to be used, leaving space for ventilation. Use the supplied rack screws for attachment to your rack.

## 2.8 CONNECTIONS-GENERAL

All input, output and control wiring for the Model 5330 Mixer connects to rear panel barrier strips. The rear panel labelling indicates input and output polarity. Connection may be made by spade or closed lug terminals designed for #6 screws which are crimped or soldered to the wires. Alternatively, the bare wires may be wrapped around the screws, taking care not to short a wire to the chassis. The auxiliary input is accessible both by a rear panel barrier strip connection and a front panel 1/4 inch (6.35 mm) two-conductor phone jack. Insertion of a plug into the front panel jack disconnects the rear panel auxiliary input.

The Patch Send/Return terminals are supplied with a factory installed jumper between them. To insert an effects or processing device in the signal path the jumper must be removed and the SEND terminal connected to the input of the external device. The output of the external device must be connected to the RTN (return) terminal of the Model 5330.

A second row of barrier strips is located directly beneath the output and patch terminals. The chassis ground to audio ground strap is located on the far left hand side of the



barrier strip. The strap can be removed for installations that require lifting the audio ground from chassis ground. Lifting the strap will remove a hard connection of audio ground and chassis ground, but a 1 kohm resistor and a .01 mF capacitor insure both an AC and DC reference to chassis ground. Chassis ground remains connected to the third wire mechanical ground of the AC power input.

The Link terminals are labelled IN,  $\nabla$ , and OUT. The IN and OUT are actually the same connection to the mixer electronics. The two terminals are for convenience when installing multiple mixers. The Link terminals must be connected to the Link terminals of another 5330 only. Connecting the Link In terminal to any output other than a Link In or Link Out terminal will cause premature input overload and may not properly link mixer signals.

The VCA control terminals are next to the Link terminals. The control terminals are labelled  $\nabla$ , B, A, MUTE, and 5.6 V.

The remote control function requires a 50 kohm linear pot to be connected with its CCW end to 5.6 volts, and its CW end to ground. The wiper of the pot connects to the terminal labelled A or B depending on which output is to be controlled. This connection will allow the external pot to control the level of the VCA. See Section 3.3.11 on VCA control.

The MUTE terminal requires the application of 5.6 volts in order to mute channels 2-6 and Auxiliary. The connection can be via a simple single pole single throw switch wired between the Mute and 5.6 V terminals on the back panel. After signal and control wiring is complete, the power transformer can be connected to the Model 5330. The external transformer connects to the 5330 via a 5 pin DIN connector.

## SECTION III OPERATION

### 3.1 INITIAL TURN ON

After all connections are complete, the mixer can be turned on. The first LED in the bargraph should light; this is the POWER ON indicator.

Depending on microphone sensitivity and power amplifier input sensitivity, the control settings of the 5330 will vary. The input trims of the 5330 have been turned down when shipped from the factory. This should prevent initial system overload in case of a hot microphone and program source. Before initial gain setup turn any remote level controls to full on (CW).

The input channel control pot has a reference mark at 2 o'clock; this position is a good nominal setting point for system setup. With an input connected, slowly bring the output level up until the meter is reading mid scale, but do not bring the output control up beyond the mark at 2 o'clock. If the meter does not read as high as mid scale, bring the input gain up by adjusting the recessed gain trim pot until a mid scale meter reading is obtained.

Slowly bring the system power amplifiers up to operating levels. If it is desired to run the amplifier's input pots up full, it may be necessary to back down the 5330 output trim controls to prevent power amplifier overload. The output trims can be turned up or down to match amplifier gain while still maintaining a mid scale reading on the VU meter.

### 3.2 THEORY OF OPERATION-GENERAL

The following non-technical theory of operation is intended to guide the user through the various functions available in the Model 5330. It is not intended as a service guide, but rather as an aid to understanding how the unit works and how to use it to its maximum utility.

### 3.3 THEORY OF OPERATION

#### 3.3.1 MIC/LINE Inputs

Inputs 1-6 are switchable between microphone and line level by rear panel push-button switches located adjacent to the respective input barrier strips. With the switch in the MIC (out) position the inputs are appropriate for bridging low impedance balanced microphones (see Section 3.3.2 on phantom powering for certain restrictions when using phantom power). With the switch in the LINE (in)

position, the inputs are appropriate for bridging or matching line level devices. Each channel's input is separately controlled by a front panel level control and is provided with a recessed gain trim adjustment (accessible through the front panel with a small 3 mm (1/8") blade screwdriver) which together allow for a wide range of input signal levels to be accommodated. With the trim control in the full clockwise position, gain is maximum. Full counter-clockwise rotation is 30 dB less than maximum gain. In addition, each of the MIC/LINE inputs is provided with a low frequency roll-off switch to reduce induced hum, air conditioner rumble, wind noise, microphone breath blasts and microphone proximity effects. The filter is engaged by sliding the roll-off switch (located immediately above the front panel level control) to the left. The front panel graphics next to the switch indicate a straight line at the right position meaning flat frequency response, and a line with a tilt down at the left, meaning low frequency roll-off. Connection diagrams for microphone and line inputs are shown in figures 7-3 and 7-4.

The level of Inputs 1-6 may be controlled from a different location with the inclusion of the Remote Option Card Model 5336 RCO. Installation and operating instructions for the Remote Option will be found in Section 3.3.11.

### 3.3.2 Phantom Power

The Model 5330 Mixer provides +48 volt DC phantom power for condenser microphones. Phantom power gets its name from the fact that the DC power is invisible to any BALANCED microphone not specifically designed to use it. This includes most dynamic and ribbon microphones. The phantom power may be turned on by the rear panel switch labelled +48 V PHANTOM and is available to any of the six MIC-LINE inputs which have been switched to the MIC position. (Phantom voltage does not appear on the input terminal of any input which is switched to LINE.) This allows the use of such microphones without auxiliary power supplies. Because of the nature of the phantom circuitry it is not possible to use unbalanced microphone connections when the phantom power switch is ON. DO NOT ATTEMPT TO USE AN UNBALANCED MICROPHONE WHEN THE PHANTOM POWER SWITCH IS ON. SEVERE DAMAGE MAY OCCUR TO EITHER THE MICROPHONE OR THE MIXER WHICH WILL NOT BE COVERED BY ANY MANUFACTURERS WARRANTY. Most microphones designed for phantom powering will operate from +48 V, but if you have any doubts about the use of a specific microphone with the Model 5330 Mixer, consult the operating instructions for that microphone or, if necessary, its manufacturer.

The use of Phantom Power on the microphone inputs does not affect any input which is switched to LINE. Line level inputs may continue to be wired balanced or unbalanced as appropriate.

### 3.3.3 Auxiliary Input

The Auxiliary Input is a 10 kohm unbalanced input. Connection may be made either to the barrier strip connector on the rear panel, or to the two-conductor 1/4 in. (6.3 mm) phone jack on the front panel. The rear panel connection is "normalled" through a switch contact on the front panel connector. The insertion of a phone plug in the front panel jack disconnects any signal which may be wired to the rear panel connection.

The VCA Remote Option Card does not allow for remote operation of the Auxiliary Input.

### 3.3.4 Patch Point

The Patch Point on the rear panel of the Model 5330 allows for insertion of a line level signal processing device in the signal chain. The send signal has an unbalanced source impedance of 47 ohms at a nominal -2 dB (0.616 V) level. The unbalanced return input impedance is greater than 40 kohms. To use the Patch Point, it is necessary to remove the factory installed jumper on the barrier strip between the terminals labelled SND and RTN. Connection is then made to some alternate signal path. The signal fed from the SND Patch Point of the Model 5330 Mixer is the sum of the input signals, unaffected by tone controls, limiting or output level controls.

### 3.3.5 Tone Controls

The BASS and TREBLE controls are standard shelving type with a maximum of +10 dB boost and cut at 100 Hertz and 10 k Hertz. The maximum available range of boost and cut may be reduced by adjustment of the EQ Limit trim control through the small hole located between the BASS and TREBLE controls in the front panel. At maximum clockwise rotation of the control the range of boost and cut is +10 dB; at mid-rotation the range is approximately +5 dB; and at maximum counter-clockwise rotation the Tone Controls are bypassed. This feature will prove especially useful where the installer knows that the system will be operated by unskilled personnel who may be tempted to re-equalize an already carefully tuned system. In other situations, some medium amount of EQ may be allowable. As with the other recessed pre-set controls on the front panel, the adjustment of the EQ Limit trim control is made with a small screwdriver.

### 3.3.6 Main Outputs

The Model 5330 Mixer has two identical outputs. Each output is transformer isolated, symmetrical and floating, and may be wired for balanced or unbalanced operation. Each output is capable of driving loads of 600 ohms or greater to a maximum level of +24 dBm (12.28 V). Each output has an Output Level control and an Output Trim control. Each Output Level control operates a voltage controlled amplifier (VCA) which controls level to the output stage. The control operates in the same manner as a conventional type but has the advantage of being remotely controllable (see Section 3.3.11). Reference marks are provided around the circumference of the control. The heavier marks at approximately the two o'clock position are the nominal control settings for the controls. The controls should be in this position for optimum mixer noise performance. The Output Trim control is a recessed control which may be used during initial system setup to trim each output stage gain to allow for convenient control settings while also matching the actual output level of the mixer to the following equipment for optimum headroom and signal-to-noise performance.

### 3.3.7 Link Function

Two or more Model 5330 Mixers may be linked together to provide for additional inputs or to provide the same input to different locations. Two terminals on the rear panel barrier strips are labelled LINK IN and LINK OUT. To connect one Model 5330 Mixer to another, simply connect a wire from the LINK OUT terminal on one to the LINK IN terminal on the other. With the LINK connection made, all of the inputs on both mixers (or more than two if desired) will be available to the outputs of both mixers. Each mixer will, however, retain separate tone control, limiting and master level control to its own outputs.

### 3.3.8 Limiter

The limiter is engaged by depressing the rear panel pushbutton switch. The limiter is a peak responding design that prevents excessive program peaks from overloading the system and amplifiers.

The limiter will work well with speech amplification to allow for widely different voice levels, without constant gain riding by the by the system operator.

The limiter has a fixed threshold of -3 on the output meter. The compression ratio is 10:1 at full limiting with a gradual onset curve. The limiter controls both the A and

B output levels, as follows; limiter action on the A output signal is achieved when the limiter switch is ON and the A meter indicates greater than a -3 level. This is the limiter threshold. At this point, the B output will limit just as the A output does.

Since the limiter control signal is derived from the A output level, the A output will never exceed 0 on the meter. The B output, however, while still limited, can be increased beyond 0 with the B level control. This allows the user to set the B output to varied output settings and have peak limiting, since the B output control has no effect on the limiter threshold.

### 3.3.9 Output Meter

The ten segment LED bargraph display reads in 3 dB steps with VU meter-like ballistics. The meter indicates the level of the signal into the output stage. As supplied from the factory, the Output Trim controls have been set so that 0 VU on the meter corresponds to +4 dBm at the output. The Output Trim controls may be adjusted +10 dB from this setting. Adjusting the Output Trim controls has no effect on the meter. The meter may read the level of either Channel A or B by means of the Meter Switch located between the Output Level controls.

### 3.3.10 Power Supply

The power transformer for the 5330 is of modular design and has been removed from the chassis to prevent any external hum field from interfering with adjacent equipment. Connection to the 5330 is via a 5 pin DIN connector.

### 3.3.11 VCA Control

Two remote control inputs are located on the rear panel barrier strip. The inputs accept up to 5.6 volts for remote operation of the outputs. Remote operation requires a 50 kohm linear pot to be wired to +5.6 V and ground with the wiper connected to the control input.

The remote control circuitry is accurate, stable and will produce repeatable settings over long periods of time.

Depending on the front panel level control settings, remote control operation can have full control of the output signal. The remote and front panel control pots are effectively in series. If the front panel control is set full up, the remote control pot will have a full range of control. But if the front panel control is set to any other position, the remote pot will not bring the mixer's

overall output up any louder than set by the front panel control and will only attenuate from that point down. The operating requirements will determine the best way to set up the remote control feature.

### 3.3.12 Priority Mute

An input terminal on the rear panel strip is used for muting Inputs 2-6 and Auxiliary while not affecting Input 1.

A simple switch contact closure connecting 5.6 volts to the MUTE terminal is required for the Priority Mute function.

The Priority Mute function is useful for paging, chairman override and other operations that require the precedence of one input over the rest.

## SECTION IV ACCESSORIES

### 4.1 SC-5 SECURITY COVER

A smoked plexiglass security cover is optionally available to discourage tampering with settings. The security cover attaches to the 5330 with two supplied Phillips head screws.

### 4.2 5336 REMOTE CONTROL OPTION

The 5336 has 6 VCA controlled circuits that will convert the 6 MIC/LINE inputs to remote controllable operation. The 5336 has been designed to plug into an already adjusted system and not require additional level adjustment. The 5336 does not require the removal of top or bottom cover or any modification of internal components.

**WARNING: BE SURE THE POWER IS TURNED OFF BEFORE INSTALLING THE 5336 REMOTE CONTROL OPTION INTO THE 5330 MIXER.**

#### 4.2.1 Installation

The 5336 Remote Card installs into the Model 5330 Mixer through the slot on the rear chassis surface. A metal cover plate must be removed to expose the access slot.

Two screws that hold the cover plate should be saved to secure the 5336 Remote Control Option Card to the rear chassis of the 5330 Mixer.

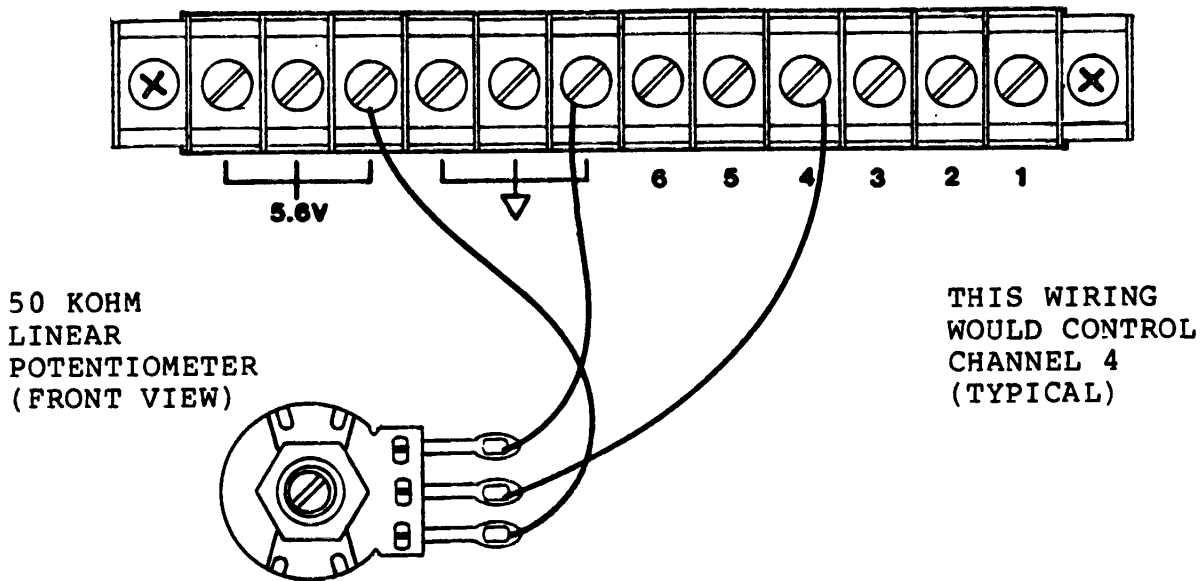
The 5336 installs into the 5330 with the components facing downward and the 18 pin connector facing upward. The 18 pin connector will mate with a pin connector inside the 5330.

Insert the 5336 into the 5330 but not completely flush with the rear chassis. When 1/2 inch of circuit board is still exposed, tilt the circuit board up so the edge connector is touching the bottom of the 5330 motherboard.

Now push the 5336 the rest of the way into the mating connector. There should be a slight amount of resistance before the connectors completely mate and this is normal. **DO NOT FORCE THE CARD INTO THE MIXER.**

Once the card has been seated the two screws that were saved may be used to secure the 5336 barrier strip to the rear chassis.





4.2.2 Wiring: Refer to connection diagram above.

The 5336 has 6 screw terminals labelled 1-6. The wiper of a 50 kohm pot attaches to each of these terminals with a #6 wire lug. The CW end of each 50 kohm pot connects to the  $\uparrow$  terminal, and the CCW end connects to the 5.6 V terminal.

4.2.3 Operation

Depending on the front panel input level control settings, the remote control operation can have full control of each input signal. The remote and front panel control pots are effectively in series. If the front panel control is set full up, the remote control pot will have a full range of control. But if the front panel control is set to any other position, the remote pot will not bring the input level up any louder than set by the front panel control and will only attenuate from that point down. The operation requirements will decide the best way to set up the remote control feature.

In some installations it may be desirable to remote control some inputs but not others. On those inputs which are not to be remotely controlled, no wiring of any kind need be done to the input control port. If remote control is wanted sometimes and, because of the location of the controls, it is necessary to disable the remote controls, a simple single pole switch wired in series with the pot wiper will do the job for an individual channel. A switch in the 5.6 V line will disable all remotes and a switch in the  $\uparrow$  line would cause all VCA controlled channels with pots attached to mute.

### 4.3 RACK EAR PLACEMENT

When shipped, the 5330 rack ears will be in the rearward position. The chassis has 6 threaded holes for placing the rack ears in either of two positions. The forward position is used when the security cover is in place and flush mounting is required. When in place, the front surface of the security cover will be flush with the front surface of the rack ear.

## **SECTION V MAINTENANCE**

### **5.1 GENERAL**

The Model 5330 is all solid state, ruggedly constructed and uses the finest components. As such, it will provide years of trouble free use with normal care. All parts are conservatively rated for their application. **NO SPECIAL PREVENTIVE MAINTENANCE IS REQUIRED. THERE ARE NO USER SERVICEABLE PARTS INSIDE.**

The metal and plastic surfaces of the may be cleaned with a damp cloth. In case of heavy dirt, a non-abrasive household cleaner such as Formula 409 or Fantastik® may be used. **DO NOT SPRAY THE CLEANER DIRECTLY ONTO THE FRONT OF THE UNIT AS IT MAY DESTROY THE LUBRICANTS USED IN THE SWITCHES AND CONTROLS!** Spray onto a cloth and then use the cloth to clean the unit.

### **5.2 REPAIRS AND WARRANTY**

This JBL/UREI Professional Audio Product is warranted by the manufacturer to the original purchaser against defects in material and workmanship for a period of two years from the date of purchase. Complete terms of the Limited Warranty are stated on the Warranty Card packed with this manual. We suggest that you retain a copy of your dated sales receipt for proof of warranty status should that be necessary.

If you wish to return the unit for service, please call or write to the Customer Service Department at the Service address listed on the title page of this manual for a Return Authorization Number. All products returned to the factory must be accompanied by a Return Authorization Number, and must be shipped prepaid. COD shipments will not be accepted.

For prompt service, ship the unit to the factory with the RA number marked on the shipping label. Use the original factory carton; if necessary call or write the factory at the service address listed on the title page of this manual to secure a new carton at a nominal charge. The Amplifier is heavy, and shipping to the factory is at the customer's risk; do not take a chance with inadequate packing materials. Be sure that it is well packed in a sturdy carton, with shock absorbing material such as styrofoam pellets or "bubble-pack" surrounding the unit. Pay particular attention to protecting the controls and switches and make sure that the unit cannot drift around in the shipping box. Shipping damage caused by inadequate packing is not covered by the JBL/UREI warranty. Tape a note to the top of the unit describing the problem, include your name and a phone number where we may contact you if necessary, and give us instructions for returning the product. We will pay return shipping costs on any repair covered under the terms of this warranty.

Field repairs are not normally authorized during the warranty period, and repair attempts by unqualified personnel may invalidate the warranty.

Customers outside the USA should contact their local JBL/UREI Professional Products dealer for warranty assistance. Do not return products to the factory unless you have been given specific instructions to do so.

SECTION VI  
ARCHITECTS AND ENGINEERS SPECIFICATIONS

6.1 SPECIFICATIONS

The monaural mixer shall have six input channels, each equipped with a channel volume control and variable input trim control.

The input channels shall be balanced bridging for use with low impedance microphones. Each channel shall have a rear panel switch to insert a 30 dB pad for use as a line level input.

Phantom powering shall be supplied to condenser microphones via an internal +48 V power supply and will be switched via a master pushbutton. Phantom voltage will be disconnected from each input which is switched to line.

A seventh channel for unbalanced signals shall be incorporated with a separate front panel volume control.

There shall also be an effects send and return circuit to allow the use of external signal processing. Also incorporated into the mixer shall be a mixing buss terminal to allow linking of multiple mixers. The mixer shall have equalizers that boost and cut the signal  $\pm 10$  dB at 100 Hz and at 10 kHz. The equalization shall be bypassable or reducable by a continuously variable limit control that limits the maximum amount of boost or cut.

A rear panel switch shall engage a peak limiter that limits the two output's maximum level to a preset point to prevent amplifier clipping.

Two independent output level controls and output trims shall be standard, with LED bargraph style VU metering, switchable to read either output.

The two independent outputs shall have remote level capability through VCA control and shall be transformer isolated.

The mixer shall accept a remote control option card that shall have VCA control of Inputs 1-6 and have full range of level control.

The mixer shall be powered by an external wall mount power transformer which connects to the mixer by a 5 pin DIN connector.

The mixer shall have a two position rack ear that allows for flush mounting when installed with an optional security cover.

The mixer shall meet or exceed the following performance specifications:

Maximum gain 84 dB. Maximum output +24 dBm into 600 ohms. THD less than 0.1% 20 Hz to 20 kHz. Frequency response +0, -1 dB 20 Hz to 20 kHz. EIN -126 dB with 150 ohm termination.

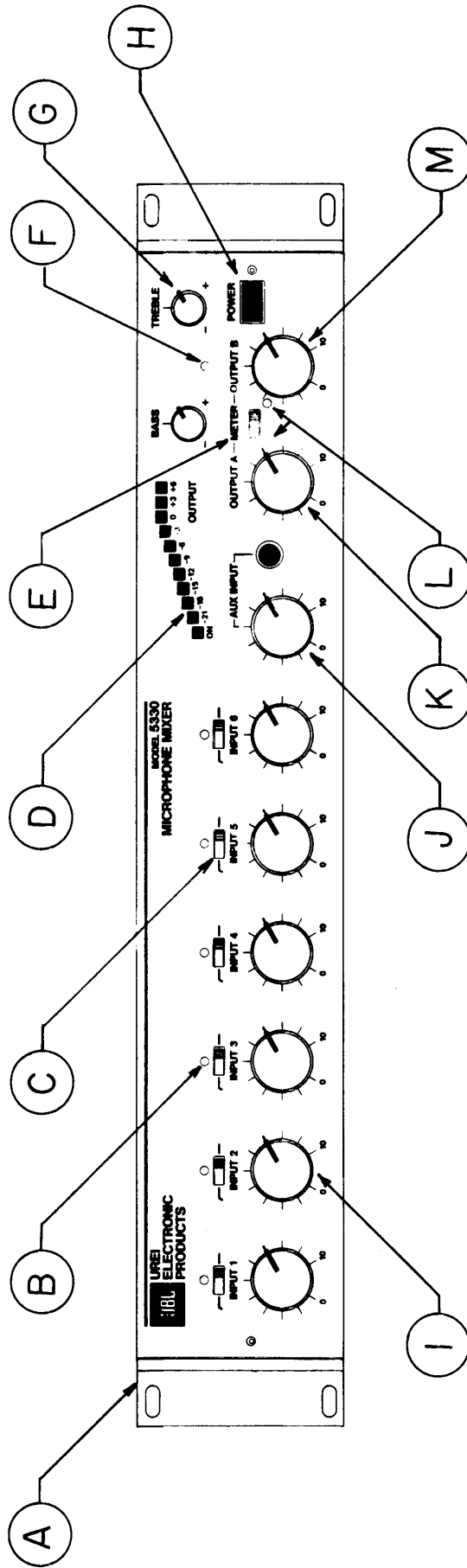
The mixer shall have the following dimensions:

88.9 mm (3.5 in.) tall  
203 mm (8 in.) deep with rack ears flush with front panel  
234 mm (9.2 in.) deep with rack ears extended for flush mounting of security cover  
483 mm (19 in.) EIA standard width  
3.9 kg (8.5 lb.) weight

The mixer shall be the JBL/UREI Model 5330 MICROPHONE MIXER.

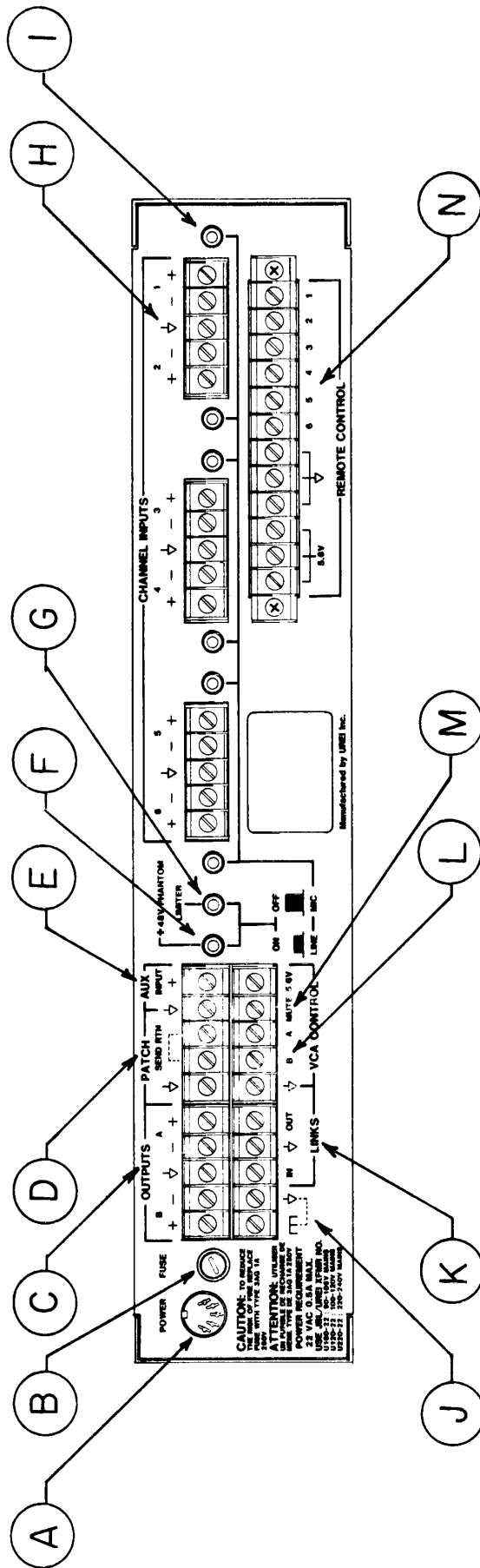
FRONT PANEL FEATURES

- A) ADJUSTABLE RACK EARS
- B) INPUT CHANNEL GAIN TRIM
- C) INPUT CHANNEL LOW CUT FILTER
- D) BAR OUTPUT LEVEL METER & POWER INDICATOR
- E) METR SWITCH
- F) EQ RANGE LIMIT TRIM
- G) BASS & TREBLE CONTROLS
- H) POWER SWITCH
- I) INPUT CHANNEL MIX CONTROL
- J) AUX INPUT MIX CONTROL
- K) OUTPUT A LEVEL CONTROL
- L) OUTPUT TRIM ADJUSTMENT
- M) OUTPUT B LEVEL CONTROL



REAR PANEL FEATURES

- A) POWER RECEPTACLE
- B) FUSE
- C) OUTPUT TERMINALS
- D) PATCH SEND & RETURN TERMINALS
- E) AUX INPUT TERMINALS
- F) PHANTOM POWER SWITCH
- G) LIMITER ON/OFF SWITCH
- H) INPUT CONNECTORS
- I) MIC/LINE SWITCH
- J) AUDIO GROUND TO CHASSIS
- K) GROUND STRAP
- L) MIXER LINKING TERMINALS
- M) REMOTE CONTROL TERMINALS
- N) PRIORITY MUTE TERMINAL
- O) REMOTE CONTROL OPTION (SHOWN IN PLACE) ALLOWS INPUTS 1-6 TO BE OPERATED VIA REMOTE CONTROL



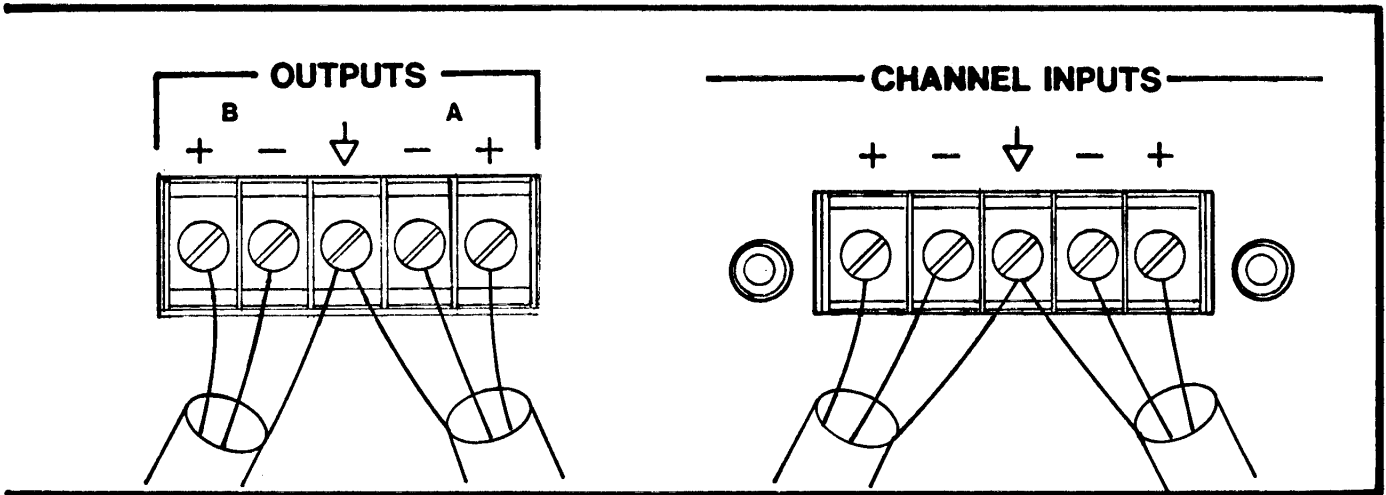


FIGURE 7.3 CONNECTING THE MODEL 5330 WITH BALANCED INPUT AND BALANCED OUTPUT CIRCUITS.

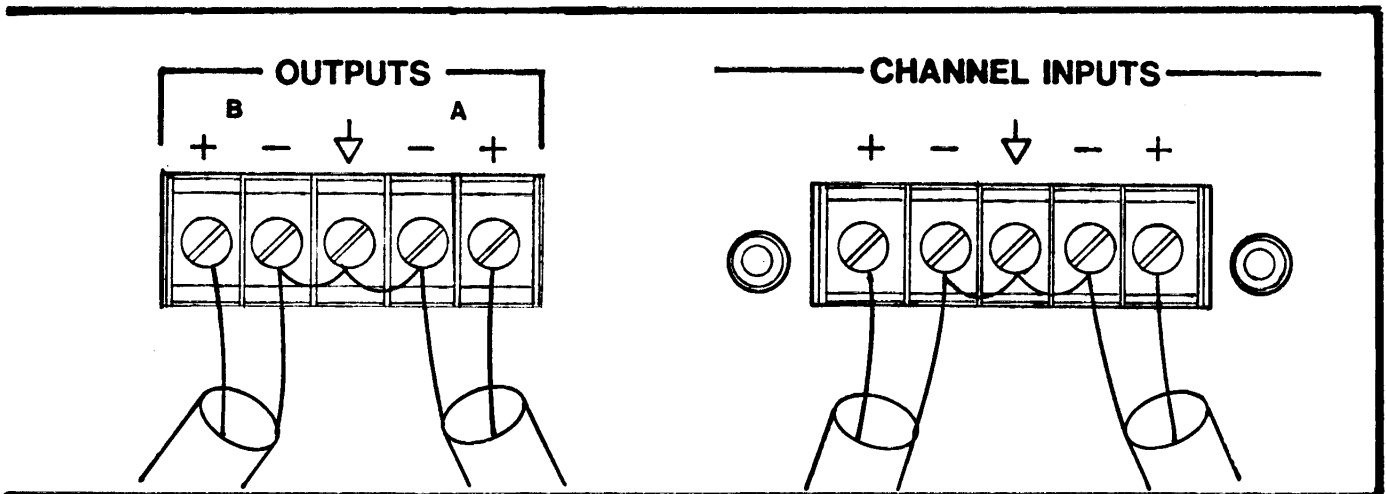
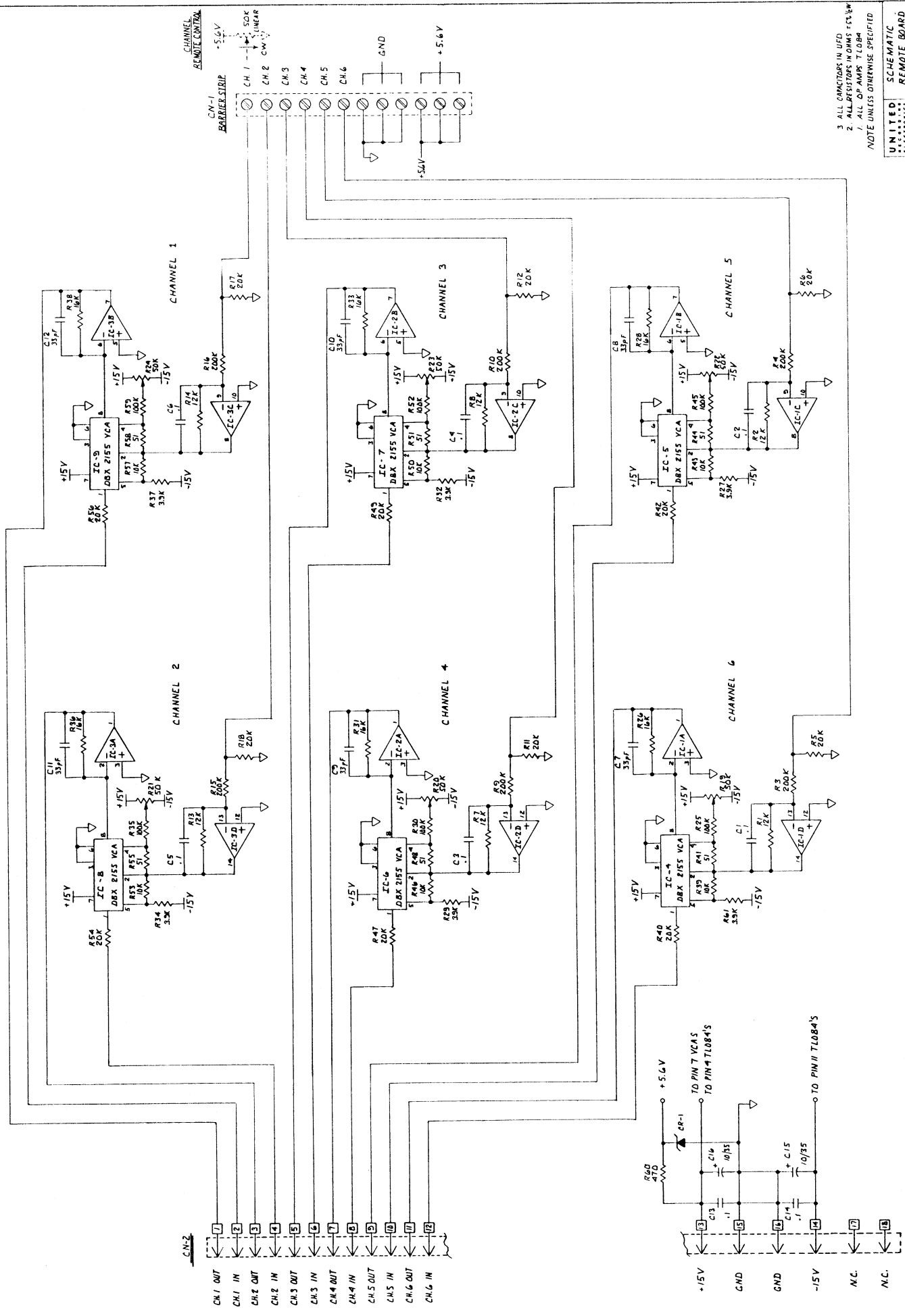


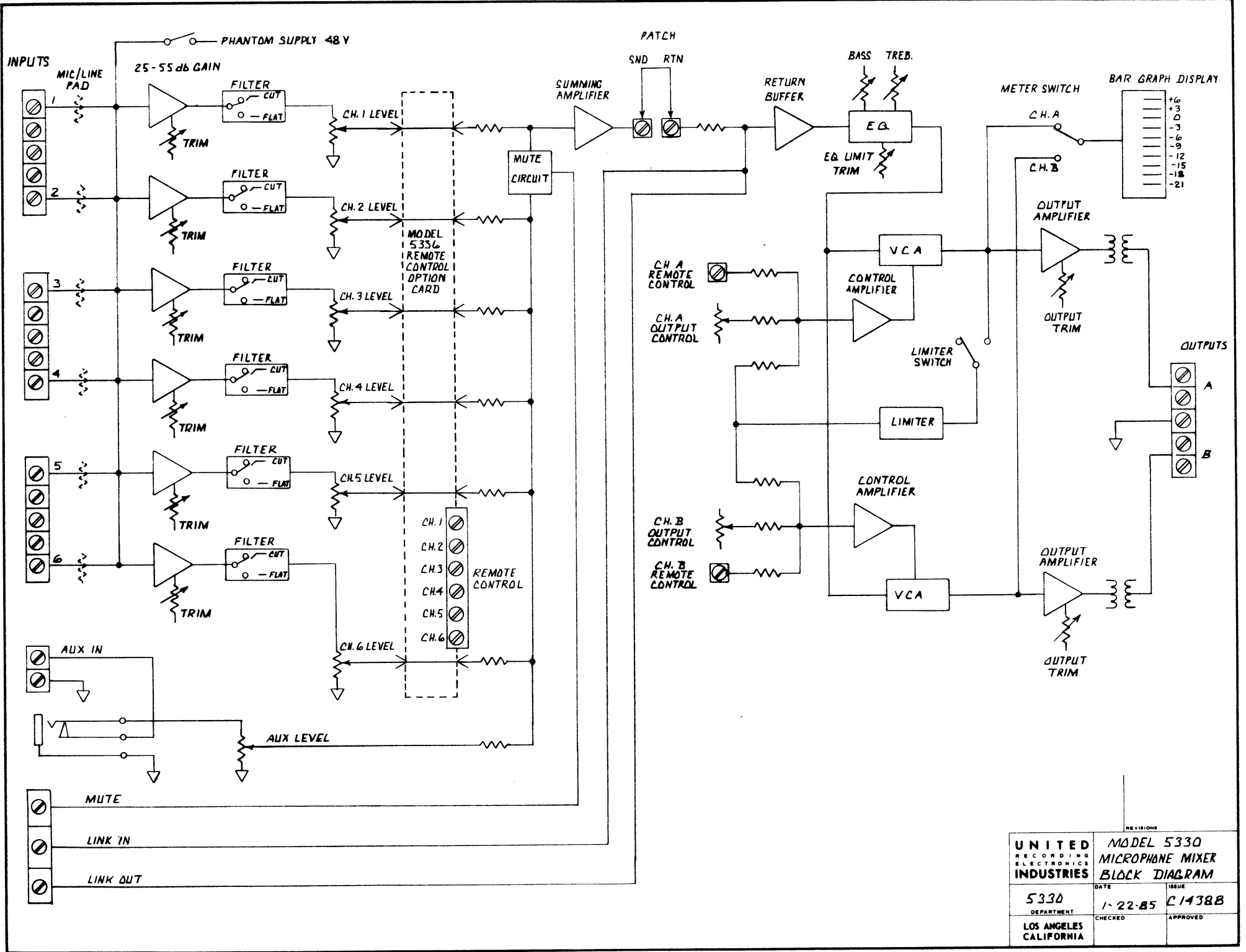
FIGURE 7.4 CONNECTING THE MODEL 5330 WITH UNBALANCED INPUT AND UNBALANCED OUTPUT CIRCUITS.





3 ALL CAPACITORS IN UFD  
 2 ALL RESISTORS IN OHMS UNLESS  
 / ALL OF AMPS T L O H M  
 NOTE UNLESS OTHERWISE SPECIFIED

UNITED	SCHEMATIC
INDUSTRIES	REMOTE BOARD
5236	7-16-85
DESIGNED BY	R/14380
CHECKED BY	
DATE	



REVISIONS	
UNITED RECORDING ELECTRONICS INDUSTRIES	MODEL 5330 MICROPHONE MIXER BLOCK DIAGRAM
5330	DATE 1-22-85 ISSUE C14388
DEPARTMENT LOS ANGELES CALIFORNIA	CHECKED APPROVED