

AB INTERNATIONAL

MODEL 1450 / 1650

OWNER'S MANUAL



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GENERAL

AB International amplifier products are designed to deliver uncompromised performance in continuous duty commercial and precedent audio applications.

The following operating instructions cover the installation and operation of the Precedent Series amplifiers. . New owners are encouraged to read the entire manual before placing amplifiers in service.

Precedent Series Amplifiers

Circuit Description

To assure absolute long term reliability, the output section of each channel incorporates multiple Motorola Power Transistors, which provide 3 times the amplifiers rated power in watts of dissipation per channel, The output stage is arranged in a full complimentary format for class AB/2 operation.

The bias current is evenly distributed among all output devices. Bias thermal compensation is accomplished by a thermally bipolar semiconductor junction to the heat producing output device. Triple diffused high power driver transistors are employed along with high speed, high voltage silicon annular devices for the predriver and inverter stages. Utilization of these components provides the required separation of Ft break points for absolute stability. Full complimentary drive and loading is employed throughout. Only 20 dB of negative feedback is used to reduce forward transfer distortion to minimum levels. V1 type energy limiters are incorporated for short circuit protection of the amplifier. Due to the unusually large safe operating area of the output stage, the limiters do not activate until driving a forty-five degree reactive load under 2 ohms at full power.

Construction

The amplifiers are designed on an all modular concept permitting rigorous preassembly module testing and maximum service accessibility. Each functional module is fully tested before final assembly. Although components of the highest quality are used throughout, each amplifier is burned in, prior to shipment, at the worst case operating point to eliminate any possibility of component malfunction. All chassis components are precision machined from high quality aluminum and sheet steel stock. The entire package concept is directed toward maximum efficiency of space and structure, accounting for the unit's compact size and light weight.

Installation

All AB International amplifiers are designed for mounting in a standard 19 inch equipment rack, or one of the many rack type portable cases available on the market. The amplifiers require 3-1/2 inches of vertical panel space, with 13-1/2 inches required behind the panel. Total depth, including handles, is 14-3/4 inches. Front panels are machined from solid aluminum stock with a black textured finish and sturdy rack mount handles.

Placement of the amplifier is not critical for normal operating conditions, provided that sufficient air flow is allowed to reach the heat sink array. If the unit is to be placed on a shelf, or a similar unenclosed area, allow four inches clearance behind the heat sink to permit vertical air flow through the array. For installation in a cabinet, allow an additional two inches above and one inch below the amplifier to permit air to be drawn around the back of the unit. If the amplifier is to be mounted in an equipment rack or cabinet with other heat producing equipment, ensure environmental operating temperatures do not exceed 55°C (131°F). Should overheating occur because of inadequate ventilation, thermal protection circuitry will automatically protect the amplifier. When a safe operating temperature is restored, the amplifier will resume normal operation.

Because the amplifiers are capable of delivering high power from a relatively small physical package, considerable heat can build up in cabinets containing several instruments. A good rule of thumb to adopt is; "Provide forced air cooling in any enclosure containing four or more instruments."

Power Connections

Precedent Series power amplifiers are specified for operation from 120-240 Volt, 50-60 Hz mains supply.

Equipment for domestic (USA) consumption includes a captive cord with a three pin polarized plug. **DO NOT REMOVE THE CENTER GROUNDING PIN!**

Power Connections (Cont'd)

In new installations and portable sound systems, or any situation in which the mains power is suspect, it is wise to confirm appropriate voltage and line polarity BEFORE connecting the instrument to power sources.

Thermal Protection

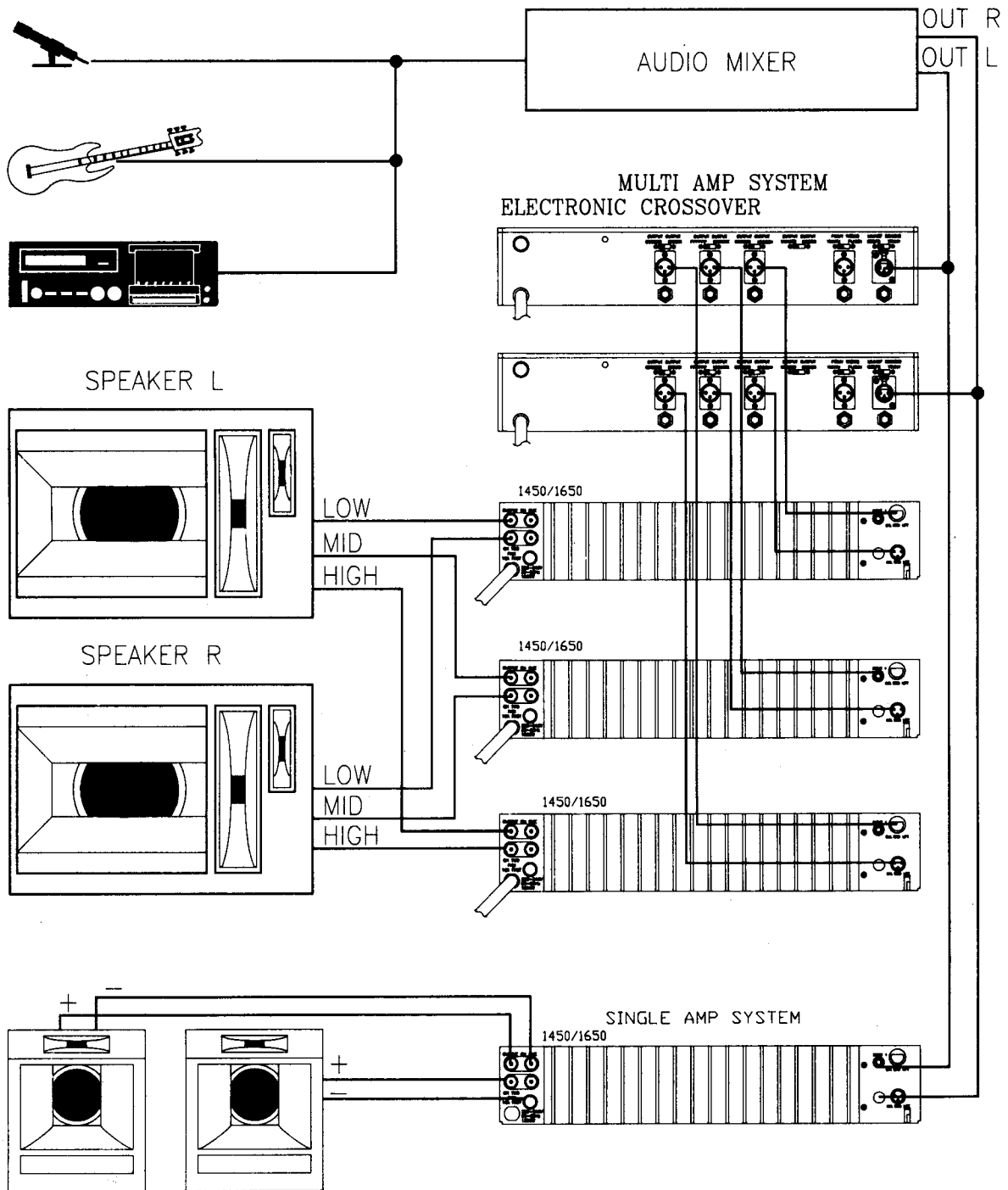
Certain conditions of operation (restricted airflow cooling, sustained high power operation into low impedance loads) can result in an increase in output device case temperature sufficient to affect any amplifiers performance.

Should the heat sink reach 95°C, thermal protection circuitry will automatically disconnect the amplifier's output stage from the load (loudspeaker) until the temperature decreases sufficiently. The action of removing the load eliminates output current, resulting in an immediate temperature drop. The thermal protection circuit will automatically reconnect the load when the temperature drops below 95°C.

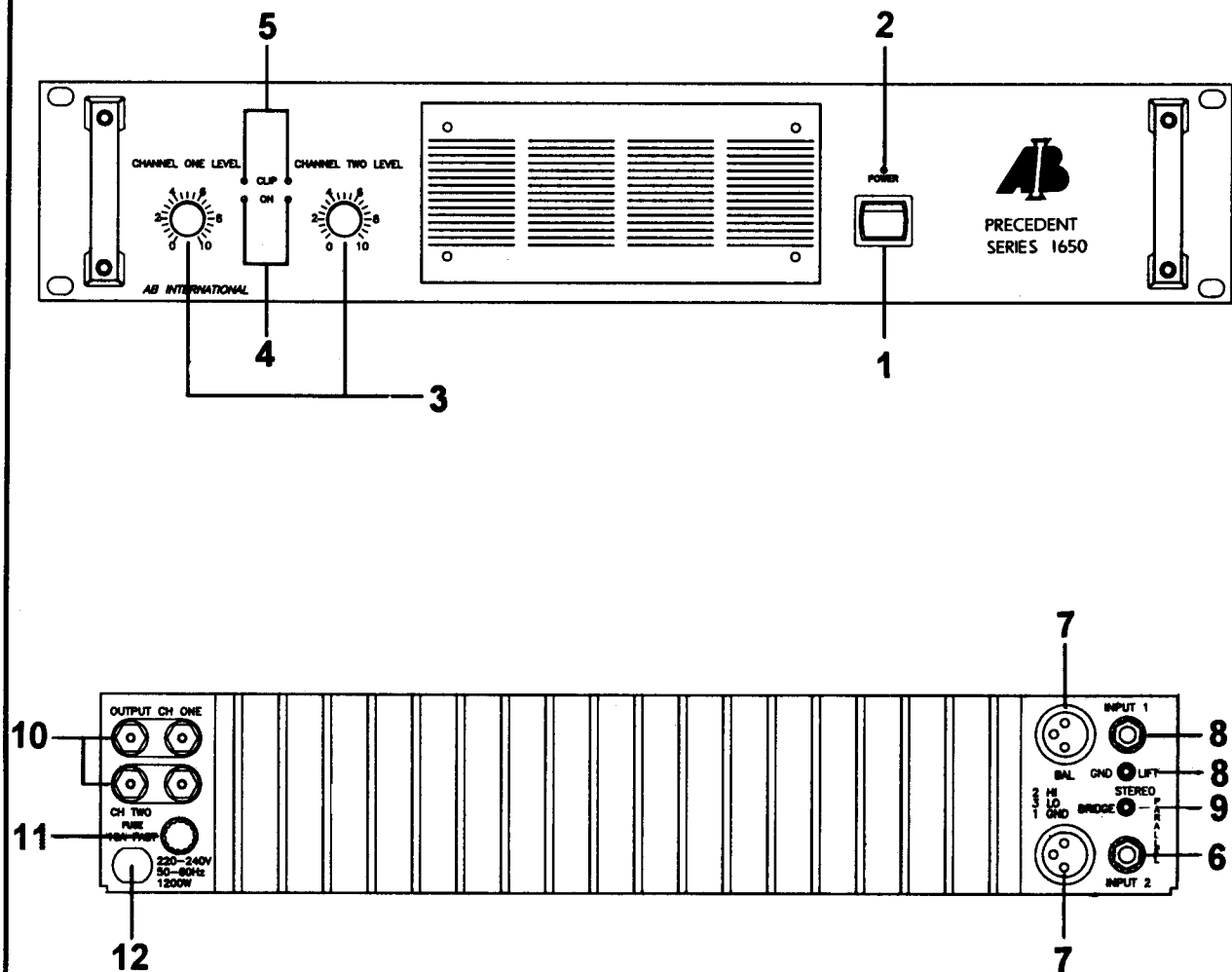
Fan Assist Cooling

To provide continuous operation under adverse operating conditions, a Dual Fan Forced Air Cooling System has been added for extra protection. Temperature is controlled automatically by a thermal switch which turns on the Cooling System when required.

Rear Panel Connections



Front Panel and Rear Panel Controls



1. POWER SWITCH

To turn the amplifier ON or OFF, press the upper or lower portion of this rocker switch.

2. POWER INDICATING LED

This LED indicates power is turned ON.

3. LEVEL CONTROLS

Each channel has a separate low noise 41 click detent rotary level control. Rotate controls clockwise to increase level.

4. SIGNAL STATUS INDICATORS

Two green LED indicators are normally off with no signal present and illuminate when signal is present.

5. CLIP INDICATORS

Two red LED indicators illuminate when the amplifier has reached full power, If the amplifier is driven into a clip condition, a Softclip circuit is activated attenuating the input signal and preventing a Hard Clip condition where the amplifier's output saturates to a DC level.

6. 1/4" JACK INPUT CONNECTIONS

Balanced and Unbalanced inputs can be accepted via the 1/4" Jack.

Balanced inputs: Tip = High, Ring = low, Sleeve = Ground.

Unbalanced inputs: Tip = High, Sleeve = Ground.

Note: The Unbalanced 1/4" Jack parallels the XLR connector for easy daisy chaining of amplifier inputs.

7. XLR INPUT CONNECTIONS

XLR input connectors are provided for balanced input signals.

Please note; Pin 1: Ground, Pin 2; High, Pin 3: Low

8. GROUND/LIFT SWITCH

To eliminate ground loops between this amplifier and a preamplifier in certain installations, a GROUND/LIFT SWITCH is provided.

9. INPUT SIGNAL SELECTOR SWITCH

This switch is used to select one of three input configurations.

1) PARALLEL: The input signal is applied to Channel One only. Channel One and Two inputs are connected in parallel and the same signal at both Channel One and Channel Two outputs.

NOTE: Channel Two's input becomes a signal output for use in Daisy Chaining additional amplifiers.

9. INPUT SIGNAL SELECTOR SWITCH CON'T.

2) STEREO: This is the amplifiers standard mode of operation where channel inputs and outputs correspond.
(Chan. 1 in = Chan. 1 out and Chan. 2 in = Chan. 2 out.)

3) BRIDGED: This mode is used to obtain the highest power output levels possible from the amplifier. Both Channels combine to form a single high power mono output. See Bridged Mono Operation Pg. 9.

10. OUTPUT CONNECTIONS

Output connections are made via five-way binding posts. Polarity is indicated by red and black terminals. We suggest the use of dual banana plugs for convenient and reliable hook-up. They also allow quick connection changes, when reversing polarity, as required during test and calibration of multilevel biamplified and triamplified systems. Heavy Class II wire may be used by unscrewing the large plastic portion of the output terminal and inserting the wire into the hole provided.

EXTREMELY IMPORTANT:

When making wire connections, Double Check that NO wire strands or ends touch an adjacent terminal, shorting the output.

CAUTIONS:

Never strap the two red output terminals together (in parallel).

Never connect either red output terminal to chassis ground.

11. FUSE HOLDER

The Fuse Holder contains the Primary AC Fuse. The fuse should only be replaced with one of the same type. If the fuse continues to blow out, stop replacing the fuse and refer servicing to qualified personnel.

12. AC POWER CORD

Plug the Power Cord into an AC outlet that delivers the proper voltage and current for amplifier operation.

CAUTION:

The 1450 and 1650 amplifiers are a product of the most advanced technology and manufacturing techniques. The amplifiers are fully protected against overheating, input overload and shorted or mismatched loads. As is the case with any precision instrument, some care should be taken in the unit's operation. The following precautions should be noted and adhered to. Damage resulting from their omission is not covered under the terms of the warranty.

- 1) DO NOT PARALLEL THE TWO OUTPUTS OF EACH CHANNEL BY CONNECTING THEM TOGETHER OR PARALLEL THEM WITH ANY OTHER AMPLIFIER OUTPUT.
- 2) NEVER CHANGE A FUSE WITH AC POWER CONNECTED.
- 3) UNDER NO CIRCUMSTANCES SHOULD THE AMPLIFIER BE OPERATED WITH THE COVER REMOVED. THERE ARE NO USER SERVICEABLE COMPONENTS INSIDE THE AMPLIFIER. AVOID POTENTIALLY DANGEROUS SHOCK HAZARDS. REMEMBER TO KEEP THE COVER CLOSED AT ALL TIMES.

BRIDGED MONO OPERATION

1. Set the INPUT SELECTOR SWITCH to BRIDGE.
2. Connect the input signal to Channel One's input jack.
3. Connect the speaker load to the two red terminals of each channel. Confirm the (+) terminal of the speaker to channel one and the (-) terminal to channel two.
4. **DO NOT** use the black terminals of either channel.
5. Assure the speaker impedance is 4 ohms or above.
6. Adjust output using Channel One control and Set Channel Two level to "0"

Precedent Series Amplifiers

SPECIFICATIONS

Type:	Two Channel Audio Power Amplifier	
Gain:	26 dB (per Channel)	1450
	28 dB (per Channel)	1650
Continuous Power	145 watts per channel at 8 ohms,	1450
OUTPUT:	240 watts per channel at 4 ohms,	1450
(120 VAC Line,	200 watts per channel at 2 ohms,	1450
single channel driven)	400 watts bridged mono at 8 ohms,	1450
	300 watts bridged mono at 4 ohms,	1450
Continuous Power	270 watts per channel at 8 ohms,	1650
OUTPUT:	425 watts per channel at 4 ohms,	1650
(120 VAC Line,	290 watts per channel at 2 ohms,	1650
single channel driven)	765 watts bridged mono at 8 ohms,	1650
	600 watts bridged mono at 4 ohms,	1650
Frequency Response:	Plus/Minus 0.5 dB, 20 Hz to 20 KHz	
Distortion:	No more than 0.25% THD or IM, 0.01W to rated power, 20 Hz to 20KHz (0.01% typical)	
Input Sensitivity:	1.0 Vrms Standard with 0.775 Vrms and 1.50 Vrms internally selectable.	
Hum and Noise:	104 dB below rated output (unweighed 20 KHz bandwidth)	
Input Impedance:	15K ohms, nominal	
Transient Inter Modulation		
Distortion:	less than 0.02%	

Crosstalk:	-86 dB	
Damping Factor:	500:1 at 1 KHz	
Slew Rate:	Close loop response greater than 40 Volts/ micro second.	
Thermal Protection:	Thermal sensor controls channel shut down at 95° C.	
DC Protection:	DC Sensor initiates channel shut down if a DC condition exists	
Turn-On Delay:	3 Seconds, solid-state actuated	
Heat Sink and Cooling:	High efficiency, fan cooled with "Venturi Style" assist providing extra power handling utilizing finned heat sink extrusions.	
Input Connectors:	(2) 1/4 Inch Phone Jacks (balanced or unbalanced) (2) XLR (balanced)	
Output Connectors::	5-way Binding Posts	
Weight:	23 lbs. (10.4 kg)	1450
	26 lbs. (11.8 kg)	1650
Controls and Indicators:	(Front Panel) AC Mains Power Switch Power-on LED indicator Channel One and Two Level Controls. Channel One and Two Signal Status indicators. (green active/red clip) (Rear Panel) Three Position Input Selector and Ground Lift Switch.	
Power (Input):	100-130 VAC, 50/60 Hz 90 W (idle)	
	900 Watts (maximum)	1450
	1200 Watts (maximum)	1650
Dimensions:	3 1/2" (8.89 cm) H, 19" (48.25 cm) W 13 1/2" (34.29 cm), behind panel 14 3/4" (37.46 cm) D, over all	