

General

AB International amplifier products are designed to deliver uncompromised performance in continuous-duty commercial and professional audio applications. The following operating instructions cover the installation and operation of the model 600. New owners are encouraged to read the entire contents prior to placing amplifiers into service.

The output section of each channel incorporates 12 RCA Multiple Emitter Power Transistors, which provide 1800 watts of power dissipation per channel - a 4:1 safety margin. The output stage is arranged in a quasi-complimentary format and biased for class AB/2 operation, with the bias current evenly distributed among all output devices. Bias thermal compensation is accomplished by thermally mating a bipolar semiconductor junction to the heat-producing output devices. Triple diffused high power driver transistors are employed along with high speed, high voltage silicon annular devices for the pre-driver and inverter stages. Utilization of these components provides the required separation of f_t break points for absolute stability. Fully complimentary current source drive and loading is utilized throughout. Only 20dB of negative feedback is used to reduce forward transfer distortion to minimum levels, which accounts for the characteristic 'open' sound of the 900. VI 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 actuate until driving a forty-five degree reactive load of 1.4 ohms at full power.

Under normal operation, the power supply provides plus and minus 70 volt rails for the output devices. Should the input signal envelope exceed the preset threshold, the output rails will automatically switch to plus and minus 90 volts, enabling the full output capability of the instrument to be realized.

Certain conditions of operation (restricted cooling airflow, sustained high power operation in low impedance loads) can result in a rise in output device case temperature sufficient to affect any amplifier's performance. To protect the output stage from thermal overload, the lower set of power supply rails will automatically activate when the heatsink reaches 65°C. This action is inaudible, and reduces the operating (voltage) headroom by 3dB, while substantially reducing the case temperature of the output devices.

Circuit Description

MODEL 600 ONLY

To assure absolute long term reliability, the output section of each channel incorporates 6 Toshiba Multiple Emitter Power Transistors, which provide 900 Watts of power dissipation per channel. The output stage is arranged in a quasi-complimentary format and biased for class AB/2 operation. The bias current is evenly distributed among all output devices. Bias thermal compensation is accomplished by thermally mating a bipolar semiconductor junction to the heat-producing output devices. Triple diffused high power driver transistors are employed along with high speed, high voltage silicon annular devices for the pre-driver and inverter stages. Utilization of these components provides the required separation of f_t break points for absolute stability. Fully complimentary current source drive and loading is utilized throughout. Only 20 dB of negative feedback is used to reduce forward transfer distortion to minimum levels. VI 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 actuate until driving a forty-five degree reactive load of under 2 ohms at full power.

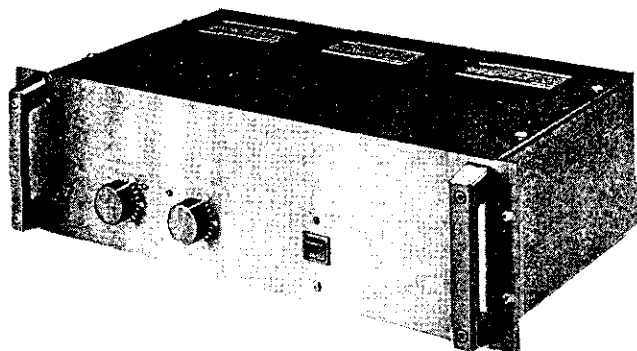
Construction

MODEL 600 & 900

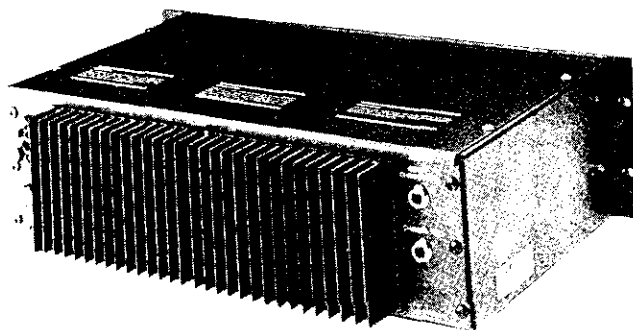
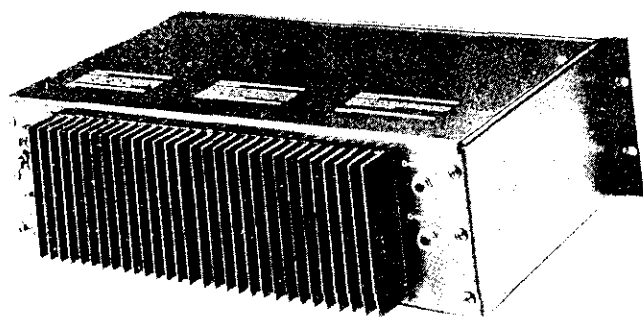
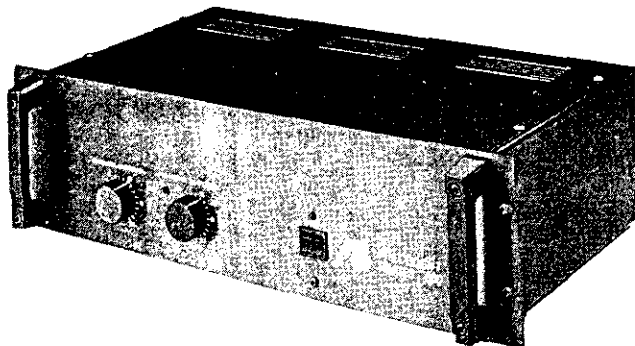
The 600 is designed to an all-modular concept permitting rigorous pre-assembly module testing and maximum service accessibility. Each functional module is fully tested before final assembly. Although components of the highest quality are used throughout, each amplifier is burned in prior to shipment at the worst case operating point to eliminate any possibility of component malfunction. Six screws allow removal of the rear panel with the channel amp board intact. 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 600's compact size and light weight.

The Precedent Series

Model 900



Model 600



SPECIFICATIONS	900	600
TYPE	TWO CHANNEL AUDIO POWER AMPLIFIER	TWO CHANNEL AUDIO POWER AMPLIFIER
GAIN	30.5dB (EACH CHANNEL)	28dB (EACH CHANNEL)
CONTINUOUS AVERAGE POWER OUTPUT	300 WATTS PER CHANNEL AT 8 OHMS 450 WATTS PER CHANNEL AT 4 OHMS	175 WATTS PER CHANNEL AT 8 OHMS 300 WATTS PER CHANNEL AT 4 OHMS
FREQUENCY RESPONSE	PLUS MINUS 0.25dB 20Hz-20kHz	PLUS MINUS 0.25dB 20Hz-20kHz
DISTORTION	NO MORE THAN 0.25% THD OR IM, 0.01W TO RATED POWER. 20Hz to 20kHz (TYPICALLY 0.01%)	NO MORE THAN 0.25% THD OR IM, 0.01W TO RATED POWER. 20Hz to 20kHz (TYPICALLY 0.01%)
HUM AND NOISE	104dB BELOW RATED OUTPUT (UNWEIGHTED 20kHz BANDWIDTH)	104dB BELOW RATED OUTPUT (UNWEIGHTED 20kHz BANDWIDTH)
INPUT SENSITIVITY	1.5V RMS FOR RATED OUTPUT	1.5V RMS FOR RATED OUTPUT
INPUT IMPEDANCE	15K OHMS NOMINAL	15K OHMS NOMINAL
INPUT CONNECTORS	(2) 1/4-INCH PHONE JACKS (UNBALANCED)	(2) 1/4-INCH PHONE JACKS (UNBALANCED)
OUTPUT CONNECTORS	DUAL 5-WAY BINDING POSTS	DUAL 5-WAY BINDING POSTS
CONTROLS & INDICATORS	(FRONT PANEL) AC MAINS POWER SWITCH, POWER ON LED INDICATOR, CHANNEL ONE AND TWO LEVEL CONTROLS, CLIP INDICATORS	(FRONT PANEL) AC MAINS POWER SWITCH, POWER ON LED INDICATOR, CHANNEL ONE AND TWO LEVEL CONTROLS, CLIP INDICATORS
POWER	(100-130VAC, 50-60Hz) 90W (idle) 1400W (maximum)	900W (idle) 750W (maximum)
DIMENSIONS	5 3/4" H (13.3cm) 19" W (48.3cm) 1 1/2" (30.2cm) BEHIND PANEL 13 3/8" (34cm) OVERALL	5 3/4" H (13.3cm) 19" W (48.3cm) 1 1/2" (30.2cm) BEHIND PANEL 13 3/8" (34cm) OVERALL
WEIGHT	40 LBS. (18.1kg)	30 LBS. (13.6kg)
ACCESSORIES	HEATSINK MOUNTING FAN SHROUD	HEATSINK MOUNTING FAN SHROUD

Installation

All AB International amplifiers are designed for mounting in a standard 19-inch equipment rack, or one of the many 19-inch rack-type portable cases available. The model 600 requires 5-1/4 inches of vertical panel space, with 11-7/8 inches required behind the panel. Total depth, including handles is 13-5/16 inches. The front panel is machined from solid aluminum stock, with a black anodized grained 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 heatsink array. If the unit is to be placed on a shelf, or a similar unenclosed area, allow four inches clearance behind the heatsink 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. If the amplifier is to be mounted in an equipment rack or cabinet with heat-producing equipment, be sure that environmental operating temperatures do not exceed 55 degrees C (131 degrees F). Should overheating occur because of inadequate ventilation, the temperature protection circuitry will automatically protect the amplifier. When a safe operating temperature is restored, the amplifier will return to normal operation.

Because the 600 is capable of delivering high power from a relatively small physical package, considerable heat can develop in cabinets containing several instruments. A good rule of thumb to adopt is to force-cool any enclosure containing four or more instruments.

Power Connections

MODEL 600 & 900

The 600 includes a power transformer for operation from 100-125 volt 50-60 Hz mains supply.

Equipment for domestic (USA) consumption includes a captive power 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.

Input Connections

Unbalanced inputs connect directly to the Channel One and Channel Two quarter-inch phone jacks.

Output Connections

Output connections are to five-way binding posts, which are identified as to polarity with a red and a black terminal. We suggest the use of dual banana plugs as a convenient and reliable method of hook-up. They allow rapid removal for polarity reversals, which is handy in the check-out and adjustment of multi-element biamplified and triamplified sound 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. It is extremely important when making wire connections that no wire strand or end touches the adjacent terminal, shorting the output.

CAUTION:

Never strap the two red output terminals together (in parallel). Never connect either red output to chassis ground.

BRIDGING THE PRECEDENT 600, 900

For bridging an AB 600 or 900 amp, look in the Service Manual for the pages "Dual 125W (600) and 250W (900)."

AB 600 - Has one main PCB, but is dual-channeled. Channel One is the left half and Channel Two is the right half of the PCB.

1. You are feeding the output of Channel One to the back of the differential amp on Channel Two, so watch out for what pins you are locating: Channel One pin #14 to Channel Two pins #25 and 26.
2. Jump points #14 and 25, 26 together by using an 18-guage wire. Solder the wire to the pin or the connector.

AB 900 - Has two main PCB's. Channel One is the top PCB and Channel Two is the bottom PCB.

1. You are feeding the output of Channel One to the back side of the differential amp on Channel Two, so watch out for what pins you are locating: Channel One pin #11 to Channel Two pin #3 marked on the schematic and PCB.
2. Jump points #11 and #3 together by using an 18-gauge wire. Solder the wire to the pin or connector.

Thermal Protection

Certain conditions of operation (restricted cooling airflow, sustained high power operation into low impedance loads) can result in a rise in output device case temperature sufficient to affect any amplifier's performance.

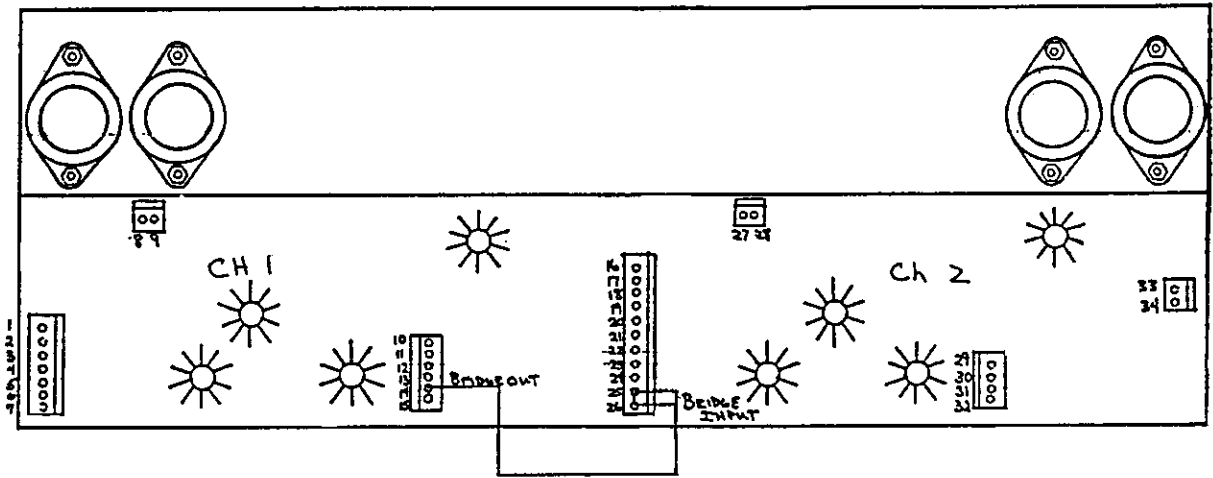
Should the heatsink reach 95 degrees C, the output will be automatically disconnected from the (loudspeaker) load, and will remain disconnected until the temperature drops to below 95 degrees C. The action of removing the load has the effect of eliminating the output current, which, in turn, results in an immediate and rapid drop in temperature. The load will automatically be reconnected when the temperature drops to below 95 degrees C.

Controls and Indicators


The front-panel power switch controls primary power. A red LED pilot indicator is illuminated when the instrument is 'on'.

Level Controls

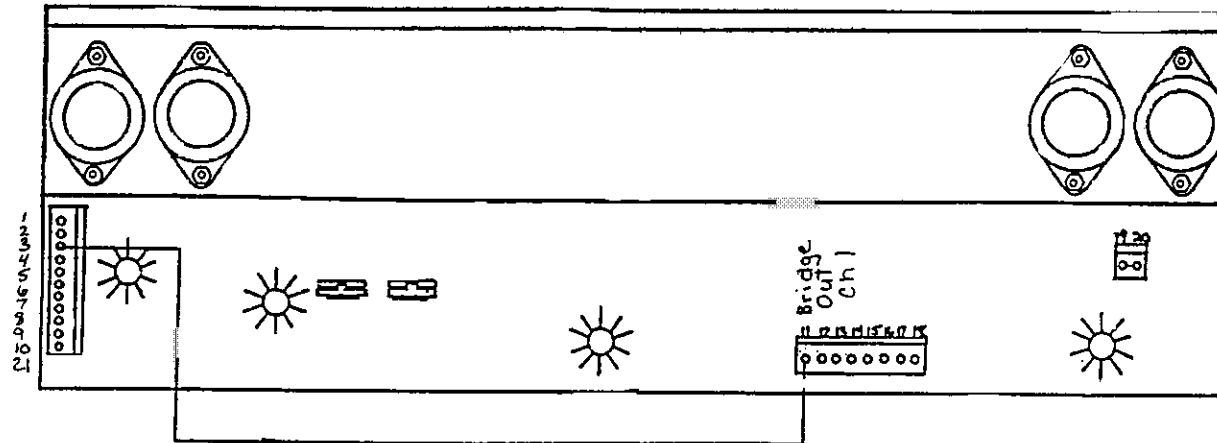
Each channel has a separate low-noise rotary level control. Rotate controls clockwise to increase level.




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	600
Wiring For Mono Operation	

Bridge Input
Ch 2



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 900
WIRING FOR MONO OPERATION