

MANLEY  
LABORATORIES, INC.

absolute  
HEADPHONE AMPLIFIER



OWNERS MANUAL



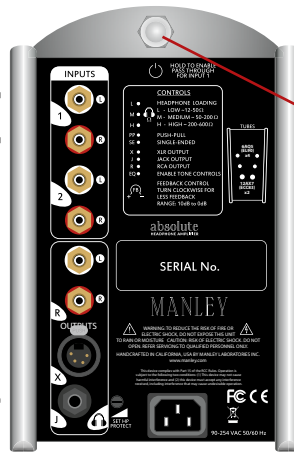
VOLUME



MANLEY

**1** connect a stereo source to Input 1 with unbalanced RCA cables

**2** plug your your headphones into Output "J"



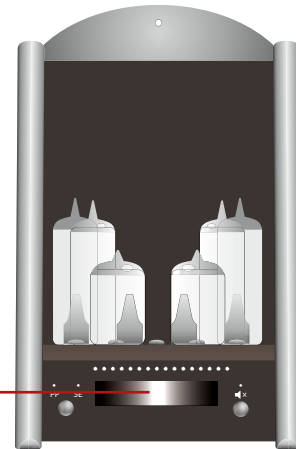
**3** push the POWER button

select OUT "J"

select IN "1"



**6** increase volume thumbwheel to listen



QUICK  
START

## **Congratulations, you are now the proud owner of an Absolute Headphone Amplifier from Manley Labs!**

Manley has combined its engineering skills in the professional audio and high-fidelity worlds, developing this exciting and groundbreaking product.

Whether it's operating as a high-end preamplifier or a headphone amplifier, the custom hand-wound air-gapped MANLEY IRON® output transformers and a multitude of independent controls, combined with a transparent relay stepped volume control, make this unit a formidable addition to any system.

With its striking visual appearance, this amplifier makes a statement in many ways: as an art piece for the home, or an heirloom for the future.

Thank you again for selecting Manley. May the Absolute Headphone Amplifier bring you many years of enjoyable listening as an integral part of your high-fidelity system!

*This manual provides general and technical information for use, installation, and operating instructions for the Manley Headphone Amplifier. Manley Laboratories, Inc. reserves the right to make changes in specifications and other information contained in this publication without prior notice. Manley Laboratories, Inc. shall not be liable for errors contained herein or direct, indirect, incidental or consequential damages in connection with the furnishing, performance, or use of this material. No statement contained in this publication, including statements regarding suitability or performance of products shall be considered a warranty by Manley Laboratories, Inc. for any purpose or give rise to any liability of Manley Laboratories, Inc.*

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Please take a few moments to read through this manual carefully. It contains essential information for the proper operation of your Manley Absolute Headphone Amplifier.

Also in the following pages you will find useful hints and tips, allowing us to help you achieve the utmost performance from your equipment.

On the right are the following conventions, used to pick out particularly important parts of the manual. The symbols are found in the margin next to the body of text of interest.



**Especially Useful Tip**



**Caution! Pay Attention!**



**Important Information,  
Please Read Carefully**



**Refers to another section  
in this Manual**

## Unpacking your MANLEY Absolute Headphone Amplifier



The Absolute Headphone Amplifier is secured in foam packaging, comprised of a bottom and top cradle. Remove the top cradle pieces and simply lift the unit out of its bottom cradle while holding each side. It is a heavy unit, so please be careful. Then remove the plastic bag.

After it has been unpacked, remove the foam center section which keeps the vacuum tubes in place. Check that nothing is loose inside when handling the unit.

As the unit is shipped with the vacuum tubes installed, make sure they are not loose and they are standing upright in their sockets.



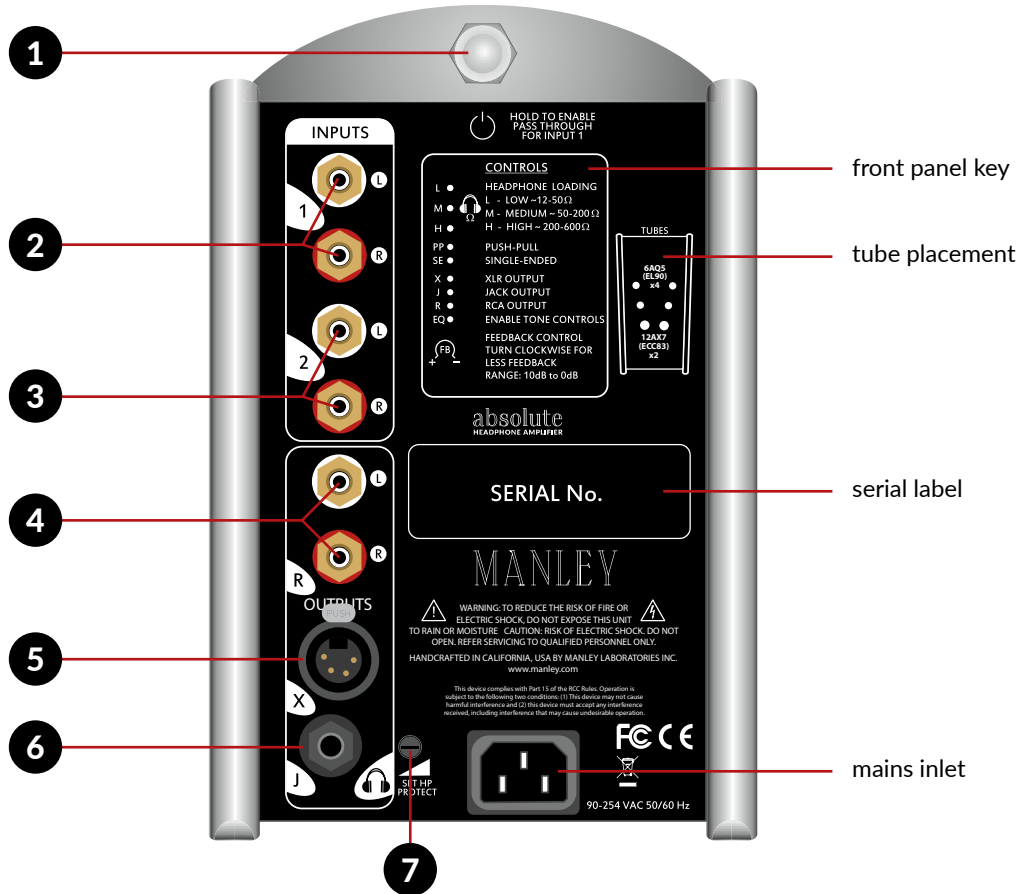
It is advisable to keep the original packaging. In the event of servicing or relocating, the original packaging ensures that the unit will always be shipped safely. If in the event the packaging is lost, please contact Manley Labs to purchase replacement packaging.




## Package Contents

This package contains the following from Manley Laboratories:

- 1 x Absolute Headphone Amplifier
- 1 x Absolute Headphone Amplifier Owner's Manual
- 1 x Remora RF Remote Control w/ 9V battery
- 1 x IEC Power Cable
- 1 x Warranty Registration Card
- 1 x Warranty Statement

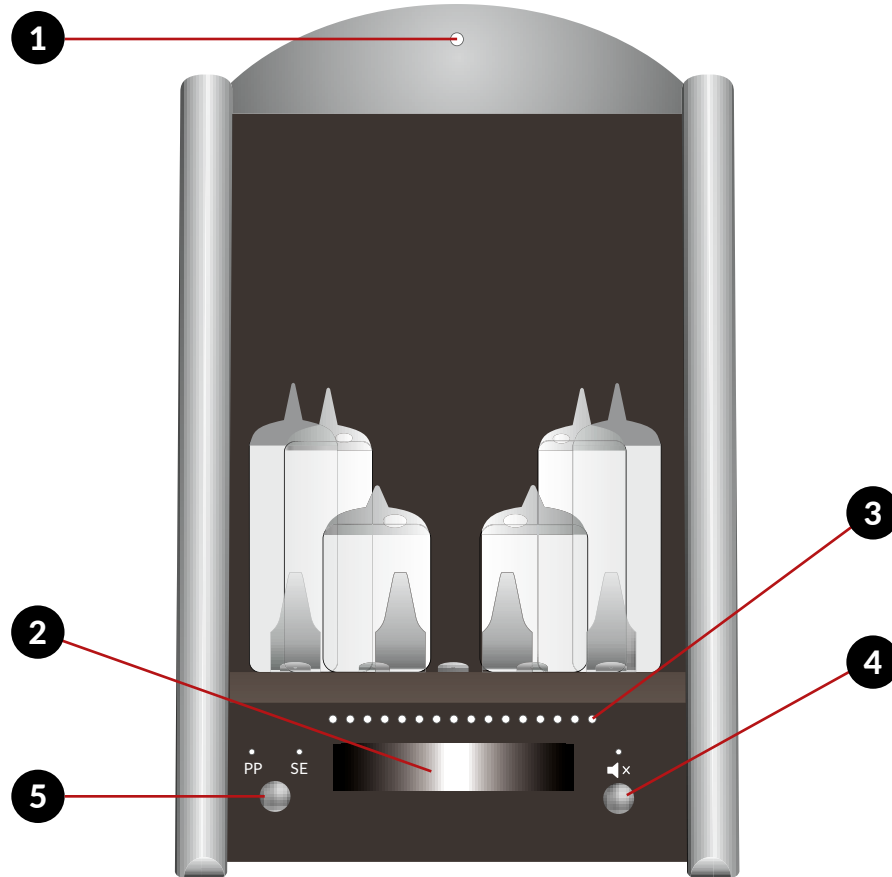
*If any of the above items are missing from your packaging, please contact your Manley dealer for support.*



-  **1 Power Button** - This switch controls the amplifier's powering up and down cycle. When the Absolute Headphone Amplifier is connected to the mains supply, the red LED on the front of the amplifier is illuminated, indicating standby. Pressing the power button will start the amplifier's warm-up procedure and the red LED will start to flash white. When this LED stops flashing the unit can be used. Also: when switched on, if this button is held down for a few seconds the amplifier will switch off, and BYPASS will be engaged. A red LED is illuminated inside the unit between the output tubes, indicating BYPASS mode. *(See pages 6 & 7)*
-  **2 RCA Input 1** - Stereo Line Level input on a pair of RCA jacks (L = white, R = red), will accept line level analog sources such as a DAC or media player's analog outputs. This input is selected via the control panel button labeled IN by selecting 1. This input is also routed through to the RCA output when the unit is powered down and BYPASS is activated. *(Please refer to Bypass Mode on page 7)*
-  **3 RCA Input 2** - Stereo Line Level input on a pair of RCA jacks (L = white, R = red), will accept line level analog sources. This input is selected via the control panel button labeled IN by selecting 2.
- 4 RCA Out (R)** - This pair of outputs allows the Absolute Headphone Amplifier to be used as a preamplifier. Connect a pair of RCA interconnects from here to your power amplifier. This output is selected via the control panel button labeled OUT by selecting R. These outputs also become active when BYPASS is activated *(see page 7)*; whatever is plugged into input 1 on the headphone amplifier will output here.
- 5 XLR Out (X)** - This 4 pin XLR connects to a balanced pair of headphones. Please use this output for the best performance. This output is selected via the control panel button labeled OUT by selecting X.
- 6 Jack Out (J)** - This Stereo Jack or TRS connector connects to a pair of Headphones with a 1/4 inch jack plug. This output is selected via the control panel button labeled OUT by selecting J.
- 7 Headphone Protection Control** - This control is out of circuit and inactive when turned completely counter-clockwise (when viewed from the rear). This control is designed to protect expensive headphones from overload - ideal for the younger members of the family. It monitors the output level, and depending where you have the control set, it will automatically start to decrease the volume setting when this threshold is reached.



MANLEY

front panel



absolute  
HEADPHONE AMPLIFIER



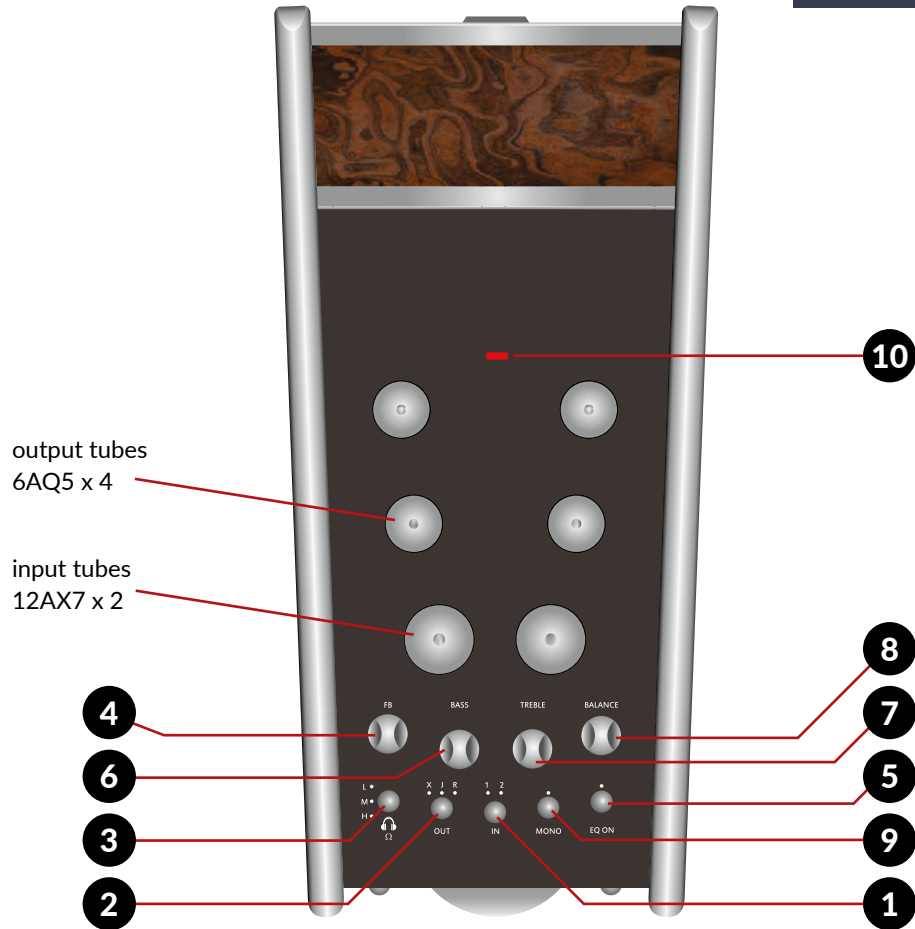
- 
**1 Power Indicator** - After connecting the mains supply the power indicator illuminates red, indicating standby mode. Pressing the power button takes the amplifier out of standby, and the power indicator will begin flashing white. This warm-up period lasts 30 seconds, after which the flashing stops and the amplifier is fully operational.
- 
**2 Volume Control Thumbwheel** - Operated using the thumbwheel on the front of the amplifier. Turning it to the right increases the volume and to the left decreases the volume. When using the volume control audible mechanical clicking can be heard. Do not be concerned, this is the sound of the relays switching. The volume control is relay switched for maximum clarity and perfect channel-to-channel matching. The LED indicator on the front panel will indicate the level of the volume set.
- 3 Volume Level** - Indication shows the volume setting. There are sixteen LEDs, with 127x 0.5 dB steps.
- 4 Mute Control** - Stops sound from passing through the Absolute Headphone Amplifier's output. When engaged, the LED above the button is illuminated white. This LED also indicates any system mutes, which are automatic when the amplifier is either warming up or switching between modes.
- 5 Select** - This control changes the amplifier's topology. The amplifier can be operated

in push-pull mode or parallel single-ended mode. This refers to how the output tubes are configured. When in single-ended mode the signal is amplified by placing the two output tubes in-line or in parallel, so the pair behaves like a single tube.

When in push-pull mode the two output tubes split the signal into two phases, a positive phase and a negative phase. One tube pushes the positive phase and the other tube pulls the negative phase. Both modes have different distortion characteristics, which changes the way music is heard. To elaborate: in push-pull mode distortion is at its lowest and predominantly consists of odd-order harmonics, which generally suits more complex, vibrant music. In single-ended mode distortion is higher, but this distortion is dominated by even-order harmonics which are pleasing to the ear, or more "tube-sounding", adding warmth and euphonics, air and space, especially nice with female vocals and simple compositions. When operating this control the amplifier will mute for approximately 5 seconds. The PP LED indicates Push-Pull mode is active. The SE LED shows that the amplifier is in Single-Ended mode.

**BYPASS MODE** - When the unit is ON, hold the Power Button down for more than two seconds, Bypass is engaged, Input 1 appears on RCA Output (R) and the unit is shut down, with audio from Input 1 routed (hard-wired) through. *Also see Power Button (page 5) & Bypass Indicator (page 10).*





**1 Input Control** - Used to select the desired line-level input. The Absolute Headphone Amplifier has two stereo inputs available labeled 1 & 2. Press this button until the corresponding white LED is illuminated.

**2 Output Control** - Selects where you want the output of the amplifier to appear. There are three stereo outputs available on the amplifier. X for XLR, which is a 4 pin XLR connector for headphones which have a balanced connector. J for Jack, which is the traditional 1/4 inch jack plug as found on most headphones. R for RCA, which is a pair of RCA jacks that can be connected to a power amplifier, when using the unit as a preamplifier. To make the desired selection simply push the button until the corresponding white LED is illuminated.

**3 Headphone Load Set** - The Absolute Headphone Amplifier uses a pair of MANLEY IRON® custom output transformers hand-wound at our factory in Chino, California. This transformer is carefully designed to maximize compatibility with a wide range of headphones available today. There are three different load settings: L=Low which covers headphones with an impedance of 12-50 Ohms, M=Medium which covers headphones in the range of 50-200 Ohms, and H=High which covers headphones with an impedance of 200 to 600 Ohms and above. To select the desired load (L, M, or H) press the headphone load set button until the white LED corresponds with your desired

selection. This setting can be pressed while listening to music. The manufacturer of the headphones that you are using should state the impedance of the headphones; please refer to this to help make the correct selection. You can also simply move through the settings until you are happy with the sound quality. Note: When using the unit as a preamplifier, this setting will also have an effect. Try starting at L and working through to hear what sounds best with your power amplifier - no harm will come to any unit with any setting.

**4 Feedback Control** - This control varies the amount of global negative feedback applied to the amplifier. Feedback is used in most amplifier designs to stabilize the output and reduce distortion. It works by applying a portion of the output signal back to the input. The Absolute Headphone Amplifier allows the user to change the amount of negative feedback from 10dB to none at all (0dB). Turning the control clockwise decreases the feedback. When listening the volume will increase as less feedback is applied. In sonic terms: the more feedback that is applied will make the amplifier more stable or “stiff”, which may be required for dynamic music such as symphonic or rock music. Less feedback may be preferred when listening to simpler arrangements such as a female vocal or a jazz trio where a little more “tube bloom” may be desirable.

The Absolute Headphone Amplifier provides bass and treble tone controls. This is a high-end product designed for maximum clarity and musical performance. Conductive plastic potentiometers are implemented for maximum resolution and silent operation. The tone controls can be used to enhance a recording, but for the purist they can be completely eliminated from the circuit using the EQ control bypass button.

- 5 EQ Control** - Used to activate the tone controls. Press the button and the EQ LED illuminates to show that the tone controls are now active.
- 6 Bass Control** - Turning the control clockwise increases the bass (low frequency) and counter-clockwise decreases the bass. When the control is set in the middle, no EQ is applied.
- 7 Treble Control** - Turning the control clockwise increases the treble (high frequency) and counter-clockwise decreases the treble. When the control is set in the middle, no EQ is applied.

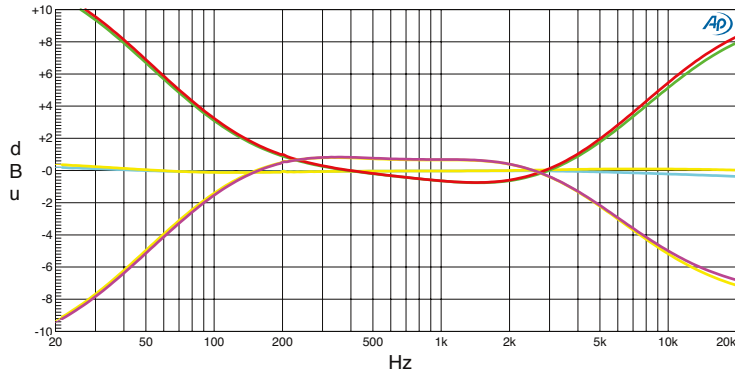


*The Absolute Headphone Amplifier uses a Baxandall circuit to control these frequencies. For a more accurate idea of how these Bass and Treble controls affect the sound, please refer to the EQ plots on the next page.*

- 8 Balance Control** - Allows the user to offset the Left-Right balance of the sound between channels. For example, if a higher level is required in the right channel, simply turn the knob clockwise until the correct level is found, and vice versa for the left channel. To return the balance control to the center position, turn the knob until you can feel the center detent in the control. The balance control is now out of the circuit, and Left and Right levels are equal.
- 9 Mono Control** - Sums the left and right channels together. This control is especially useful when listening to mono LPs with a mono cartridge, “anchoring” the center image. Press the button and the LED above the button will illuminate to show that the amplifier is in mono.
- 10 Bypass Indicator** - This LED is illuminated when the unit is placed in Bypass mode. This mode is activated by holding down the power button for more than two seconds while the unit is fully on. The amplifier will shut down, and whatever is connected to input 1 will be diverted to the RCA output sockets. This is especially useful if you want to share your main source with your headphone amplifier and main system without having to change cables.



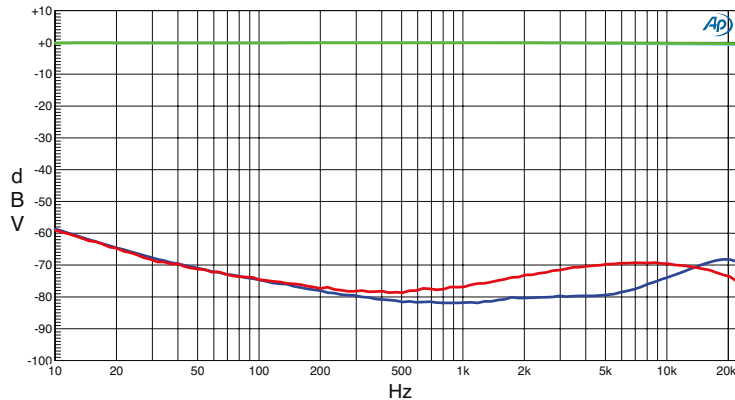
BAXANDALL EQ PLOT



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	1	Anlr.Level A	Left	L-CH
1	2	Yellow	Solid	1	Anlr.Level B	Left	R-CH
2	1	Green	Solid	1	Anlr.Level A	Left	L-CH
2	2	Red	Solid	1	Anlr.Level B	Left	R-CH
3	1	Yellow	Solid	1	Anlr.Level A	Left	L-CH
3	2	Magenta	Solid	1	Anlr.Level B	Left	R-CH

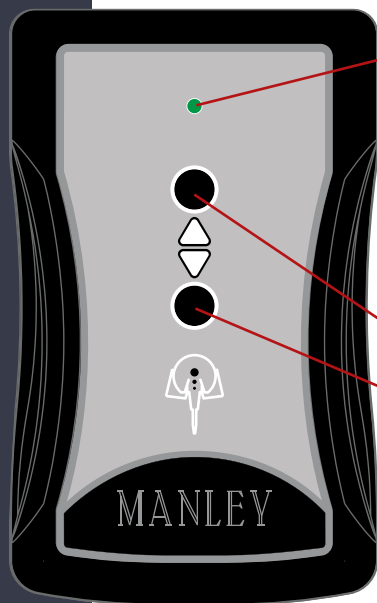
**Manley Absolute Headphone Amplifier - BAXANDALL EQ**  
 - Source: AP, 1kHz SINE, Unb Output, Z=20 Ohm, 225mV RMS.  
 - Analyzer: AP, Balanced Input, BW=22Hz-22kHz  
 - DUT: 4 Pin XLR Output, 0dBu output into 16 Ohm load (40mW), PP Output mode, FB control @ 12:0'clock, Out Z= Low, EQ= IN (LEVEL CUT & BOOST=MAX/ MIN), Mono= Out, Vol= Max, Balance= Center

CROSSTALK PLOT



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	1	Anlr.Level A	Left	L-CH
1	2	Blue	Solid	1	Anlr.Ampl	Left	R-CH
2	1	Green	Solid	1	Anlr.Level B	Left	R-CH
2	2	Red	Solid	1	Anlr.Ampl	Left	L-CH

**Manley Absolute Headphone Amplifier - CROSSTALK**  
 - Source: Audio Precision, 1kHz SINE, Unb Output, Z=20 Ohm, 290 mVac RMS.  
 - Analyzer: Audio Precision, Balanced Input, BW= 10Hz-22kHz  
 - DUT: 4-PIN XLR Output, 0dBV output into 16 Ohm load (60mW), PPoutput Mode, EQ=Out, MONO= Out, Vol=MAX, BALANCE=Center



status indicator

● green - transmit

☀ flash dim red - low battery

☀ flash dim amber - program

☀ flash red - pair up

☀ flash green - pair down

volume up

volume down



The Remora remote control operates using an RF (Radio Frequency) signal. This means the remote can be operated without line of sight, so you can be in another room and still control the volume of the amplifier.

The remote can be paired to a unit, so its code is exclusive for that unit. For example, if you have one Absolute Headphone Amplifier in your bedroom and another in your living room, they can each have different codes so one remote does not inadvertently operate both units.



*To pair a remote to a unit please follow the pairing procedure on the next page.*

The Remora remote control requires a 9V battery (NEDA 1604) for operation - please make sure this is installed before use. If the handset indicator LED flashes a dim red when operating, please replace the battery.

**STEP ONE:****ARM THE REMORA REMOTE CONTROL**

1. Unplug the Absolute Headphone Amplifier's power cord.
2. On the remote, press the Up and Down buttons BOTH at the same time and hold for 2 seconds. The status Indicator LED will start to flash amber.
3. While the status LED is flashing amber, enter a new code of your choosing. Press the Up button X- times, and press the Down button X-times.\*

\* "X" is any number between 1 and 7, and you can choose any combination you want.

4. 2 seconds after the new code has been entered, the status LED will read back the new code to you by flashing Red X-times, then flashing Green X-times. (For example: Code "2 - 3" will flash Red twice and then Green three times.)
5. The indicator LED turns off, and the remote is now armed. **DO NOT PRESS ANY PUSH BUTTONS UNTIL AFTER IT IS PAIRED** (please see next steps on the right side of this page).

**STEP TWO:****PAIR THE REMOTE WITH THE HEAD UNIT**

1. Attach the power cord to the headphone amplifier. Make sure the unit is in Standby mode (Red Power LED is on)
2. Bring the "ARMED" remote control close to the head unit, about 1 foot away.
3. Take the unit out of Standby mode and within 3 seconds, press any of the push buttons on the Remora remote control.
4. The Remora remote control should now be successfully paired and functioning correctly.

**Amplifier Topology:**

Triode Vacuum Tube Output Stage, Switchable Topology Single-Ended or Push-Pull

**Vacuum Tubes:**

2 x 12AX7 (ECC83 / 7025), 4 x 6AQ5A (EL90 / 6005)

**Inputs:**

2 x Unbalanced RCA (Input 1 & Preamp Output = Bypass when amplifier is on Standby or off)

**Input Impedance:**

50 kOhms (Pass-Thru= 300 kOhms)

**Maximum Input Level:**

7.7 VAC RMS (+20 dBu) (Conditions: XLR output, PP mode, 16 Ohms load, VOL max, EQ out, 1kHz tone)

**Gain:**

Load 16 Ohm: 15 dB (Min FB), 7 dB (Max FB)

Load 62 Ohm: 21 dB (Min FB), 13 dB (Max FB)

Load 200 Ohm: 26 dB (Min FB), 17 dB (Max FB)

(Conditions: XLR output, PP mode, VOL Max, EQ out, 1kHz tone)

**Input Sensitivity:**

366 mV AC RMS for an output of 100 mW

1.16 VAC RMS for an output of 1W

(Conditions: XLR output, PP mode, FB 12:00 o'clock, 16 Ohms load, 1kHz tone, VOL up, EQ out)

**Volume Control:**

Precision Stepped Relay Attenuator 0.5dB per step. 127 steps

- 63db total attenuation

**Stereo Outputs: (transformer coupled):**

1 x RCA - Unbalanced (Preamp Output)

1 x TRS 1/4" JACK - Unbalanced

1 x 4 PIN XLR - Balanced

Left Channel Pin 1 = Signal (+), Pin 2= Signal (-)

Right Channel Pin 3 = Signal (+), Pin 4= Signal (-)

**Output Impedance:**

Switchable: L = Low = 12-50 Ohms, M = Medium = 50-200 Ohms, H = High = 200-600 Ohms



**Variable Feedback Control (FB):**

MIN 0dB, MAX 10dB

(Conditions: BAL output, PP mode, 16 Ohms load, VOL up, EQ out)

**Signal to Noise Ratio:**

83 dB (1kHz tone, 100mW output, BW 22Hz-22kHz)

(Conditions: BAL output, PP mode, FB 12:00 o'clock, 16 Ohms load, VOL up, EQ out)

**Noise Floor:**

-82 dBu (45 uVAC) BW 22Hz-22kHz

-85 dBu (85 uVAC) A-Weighted

(Conditions: BAL output, PP mode, FB 12:00 o'clock, 16 Ohms load, VOL up, EQ out)

**Inter-Channel Crosstalk:**

72 dB (1kHz tone, 100mW output, BW 22Hz-22kHz)

(Conditions: BAL output, PP mode, FB 12:00 o'clock, 16 Ohms load, EQ out)

**Balance Control - Maximum Channel Attenuation:**

Left Channel= 72dB (1kHz tone, 100mW output, BW 22Hz-22kHz)

Right Channel= 72dB (1kHz tone, 100mW output, BW 22Hz-22kHz)

(Conditions: BAL output, PP mode, FB Min, 16 Ohms load, EQ out)

**Frequency Response:**

Push-Pull = Flat 10Hz – 20 kHz (-1dB @ 40 kHz)

Single-Ended = Flat 20Hz – 20 kHz (-0.5dB @ 10Hz, - 1dB @ 50 kHz)

(Conditions: BAL output, 100mW output, FB @ 12:00 o'clock, 16 Ohms load, EQ out)

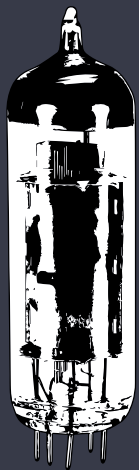
**Distortion:**

Push-Pull= 0.16% THD+N (BW 20Hz-22kHz) Single-Ended= 1.0% THD+N (BW 20Hz-22kHz)

(Conditions: BAL output, PP mode, 1 kHz sine, 100mW output, FB @ 12:00 o'clock, 16 Ohms load, EQ out)

- Supplied with Remora RF remote control
- System Store, will recall the previous user settings after power down
- Operating Mains Voltage: 90-250 VAC, 50-60Hz, universal works worldwide
- Fused Internally: 2A (T) 250V
- Unit Dimensions: 11.5" x 5.5" x 8.2" (L x W x H)
- Unit Weight: 12 lbs.
- Packing Carton Dimensions: 18" x 12" x 15"

**If you are new to vacuum tubes, here is some relevant information which you may find useful.**



Vacuum tubes are used in the Absolute Headphone Amplifier to generate the audio power. As a consequence, when in use they do run hot. Please do not touch the output tubes (6AQ5) as you will mostly likely burn yourself. The smaller input tubes (12AX7) do not run quite as hot, but touching them should still be avoided.

Vacuum tubes need to be replaced after a period of time, as the coating on the cathode degrades due to thermionic emission. The 6AQ5 should last approximately 4000-5000 hours, and the 12AX7 approximately 6000 hours - but sometimes a tube can decide to “go bad” on its own after a shorter period of time. If this occurs, you’ll need to replace the tube.



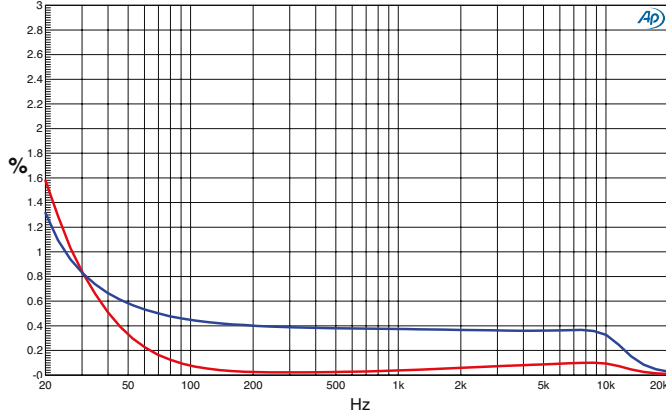
To remove the tube from the unit, power down the unit and make sure it has cooled down for 30 minutes. Hold the tube firmly at its base and simply pull upwards. The tube is located in a tight-fitting socket - try not to rock the tube from side to side when pulling, as the small pins may bend or even fracture the glass envelope.

When plugging in a new tube, make sure the tube’s pins align with its matching socket, observing the gap in the pin arrangement for correct orientation. Once aligned, push down firmly until the tube is fully seated in its base.

The reflective silver top of the glass envelope is normal, and is formed when the tube is manufactured by firing the “getter” to remove the last remnants of oxygen from the tube, producing a tight vacuum and leaving this “getter flash” behind. If the silver top starts to turn milky or clear, that is a sign of a fracture in the glass envelope. Please replace the tube.

There are many different tube brands available today. The term NOS means “New Old Stock”, which means a tube may have been manufactured decades ago, but has never been used. This is OK - because the inside is in a vacuum, they don’t really age. Some of these vintage tubes can sound exceptional, and are often quite rare and sought-after.

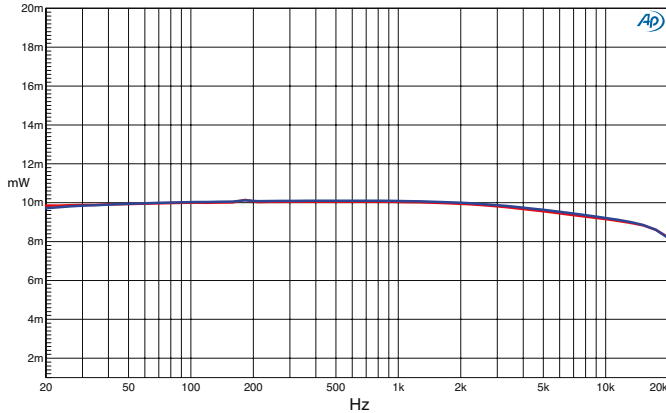
THD vs FREQUENCY PLOT



Sweep	Trace	Color	Line Style	Thick	Axis	Comment
1	1	Red	Solid	2	Left	PUSH-PULL MODE
2	1	Blue	Solid	2	Left	SINGLE ENDED MODE

Manley Absolute Headphone Amplifier - THD+N Vs FREQUENCY  
 - XLR-4 Output Level: 10mW into 16 Ohm Load, BW= 22 Hz-22kHz  
 - DUT: FB control @ 12:O'clock, Out Z= Low

- FREQUENCY RESPONSE -



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Red	Solid	2	Anlr.Ampl	Left	PUSH-PULL MODE
2	1	Blue	Solid	2	Anlr.Ampl	Left	SINGLE ENDED MODE

Manley Absolute Headphone Amplifier - FREQUENCY RESPONSE  
 - XLR-4 Output Level: 10mW into 16 Ohm Load, BW= 10Hz - 30kHz  
 - DUT: FB control @ 12:O'clock, Out Z= Low

Problem	Possible Cause	Corrective Action
No sound	Wrong input or output selected Volume level too low on amp or source	Check that the source media player is connected to the input selected and the volume is set to max on the media player. Check that the headphone output is selected as the appropriate output.
Amplifier not switching on	IEC Plug not fully inserted	Check that the IEC plug is fully inserted all the way into its socket.  If RED standby LED does not illuminate when the IEC mains cable is connected, refer to dealer or Manley Tech Support.
Remote not functioning	Battery not connected Remote not paired	The Remora remote handset uses a 9V battery. Check that it is connected.  If the two buttons are pressed simultaneously the handset goes into program mode. It may become unpaired. <i>See the Remora Pairing section of this manual on page 13.</i>
Volume decreases on loud passages	Headphone protection mode is enabled	The headphone protection system has a threshold setting. To switch it off, turn completely counter-clockwise, as viewed from the rear. <i>See page 5.</i>
Output tube glowing very red	Faulty tube	The plate of a tube is the large grey metal area in the middle of the tube. If it glows very red, the tube is failing. Switch off immediately. Replace the tube, or the set of tubes. <i>See page 20.</i>



**Water and Moisture** – Do not use the Absolute Headphone Amplifier near any source of water or in excessively moist environments.

**Object and Liquid Entry** – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.



**Heat & Ventilation** – When installing the Absolute Headphone Amplifier in a rack or any other location, be sure there is adequate ventilation. Improper ventilation will cause overheating, and can damage the unit. The unit should be situated away from heat sources or other equipment that produces heat. As a general rule, it is wise to keep a 6 inch gap above the unit if possible.



**Power Sources** – The Headphone Amplifier has a universal power supply which can operate in any country. It has an input voltage range of 90-254 VAC at 50/60 Hz.

**Damage** - If after unpacking your Headphone Amplifier there are signs of shipping damage, contact your dealer.

**Servicing** - Do not attempt any servicing without consulting your dealer or Manley Labs. The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel. This unit has high voltages present. DO NOT connect the AC supply cord until all other connections have been made.

**SERVICE & SUPPORT:** [www.manley.com/service](http://www.manley.com/service)

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



The Manley Absolute Headphone Amplifier requires very little maintenance.

### Cleaning

The metal parts are made from aluminum which have been anodized to the specified color. This finish can leave fingerprints. The best way to clean anodized aluminum is with a damp cloth: simply wipe clean and dry with a soft cotton duster. More stubborn marks may be removed with alcohol or methylated spirits.

The curved semi-transparent acrylic on the control panel is best cleaned with a damp cloth and dried with a very soft cotton cloth or micro-fiber cloth. This surface scratches very easily, so be careful when cleaning. More stubborn marks may be removed with alcohol or methylated spirits. Do not use anything stronger, such as nail varnish remover - this will melt the acrylic.

The wooden veneer accents are finished with an oil and wax. To clean these real wood parts, apply a very small amount of furniture polish or furniture wax to a soft cloth, and simply buff the veneer until free of marks.

### Vacuum Tubes

The vacuum tubes in the Absolute Headphone Amplifier have a life span of approximately 5000 hours, after which the tubes should be completely replaced. The tall output tubes (6AQ5) must be replaced with a matched quartet and the input tubes (12AX7) with a matched pair if possible. You may purchase these from Manley or any other reputable tube supplier.

Compatible Output Tube Type Numbers:  
6AQ5, 6AQ5A, 6005, 6669, 6HG5, EL90

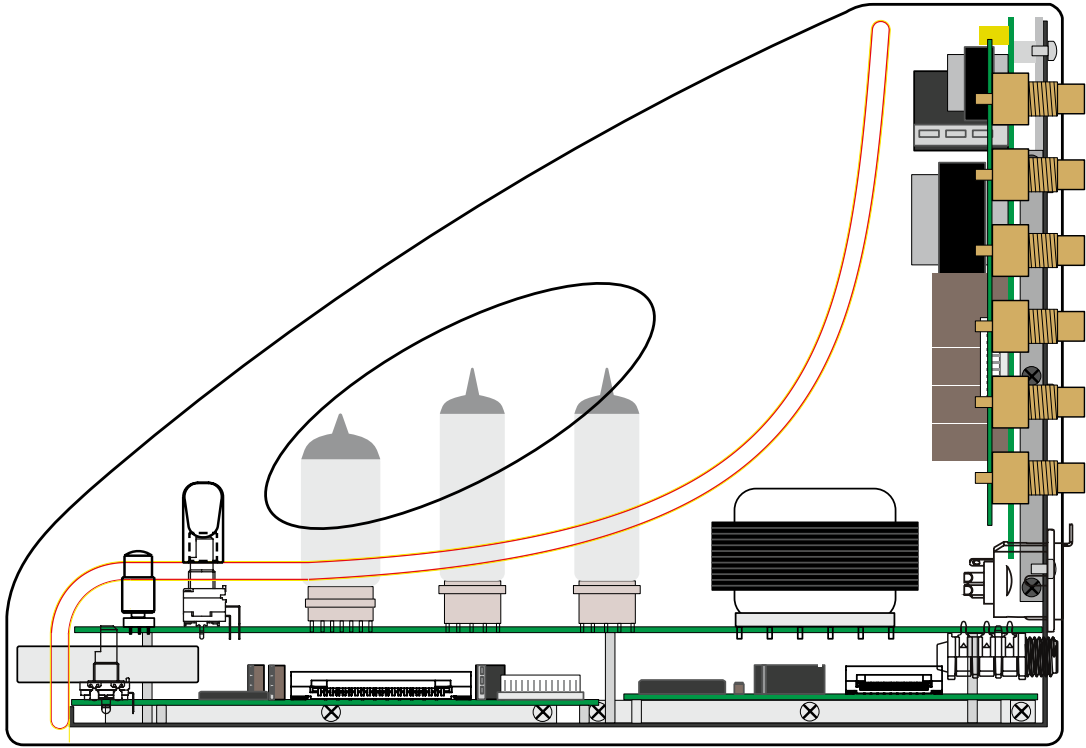
Compatible Input Tube Type Numbers:  
12AX7, 12AX7A, 7025, ECC83, 5751, E83CC



Make sure the amplifier has been switched off for at least 30 minutes before changing tubes, allowing them time to cool down. The glass envelope of the tube remains quite hot. To remove, grasp the tube and wiggle it out of its socket - be cautious when handling so as not to burn yourself. The small input tubes do not run as hot as the output tubes. Vacuum tubes can be cleaned and handled safely when cold.

### Biasing

No biasing or adjustments are required.





MANLEY  
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absolute  
HEADPHONE AMPLIFIER