

# *Fosgate Signature*

## **Tube Headphone Amplifier**



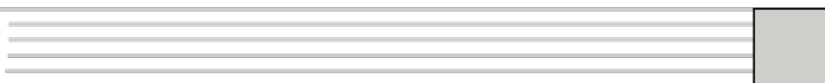
## **Owner's Manual**



# **Musical Surroundings**



**FOSGATE**  
RESEARCH LLC



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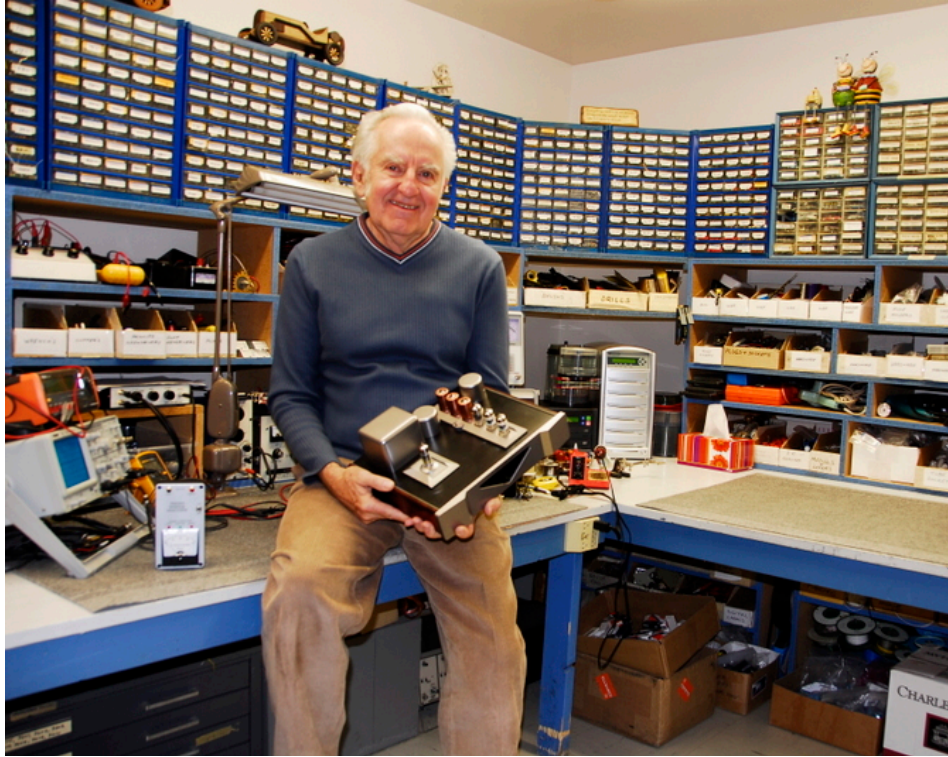
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# Read This First

Please read carefully the following safety instructions, which have been included in compliance with international safety regulations.

- Read this instruction manual prior to connecting and operating this unit. Retain this manual for future reference.
- Retain all packing materials and carton for future need.
- To prevent fire or shock hazard, do not expose this unit to rain or moisture or operate in these conditions.
- This unit contains voltages that can cause serious injury or death. Do not remove the bottom cover at any time.
- To avoid risk of burns, do not touch vacuum tubes when the unit is powered on or within 30 minutes of powering down.
- No user serviceable parts are inside. Service should only be performed by Musical Surroundings or our authorized repair agents.
- In case of fuse replacement (located in IEC receptacle), disconnect AC cord prior to replacement and replace ONLY with fuse of identical type and rating.
- Never place any object or material over this unit, which would restrict ventilation, to avoid risk of fire.

# Introduction



World-class audio engineer Jim Fosgate is the vision and expertise behind the Fosgate Signature Tube Headphone Amplifier. The Fosgate Signature embodies unique and patented circuit topologies, elevating the headphone listening experience. The genesis of the design started over 2 decades ago. Countless man-hours of working with every possible major circuit approach was not just explored, but designed, built, and auditioned by Jim Fosgate himself.

The circuit incorporates 12AX7 vacuum tube amplification in the low distortion SRPP configuration, similar to our Signature Phono Preamplifier, winner of the 2011 Golden Ear Award from The Absolute Sound magazine. High speed, high current video buffers are used to drive headphones directly. This provides a pure audio path with low output impedance, low distortion, and wide signal bandwidth.

The Video Buffers are not Op Amps and have no voltage gain. They offer high input impedance so the vacuum tubes are not loaded down, and low output impedance capable of driving most headphones to high volume levels with no audible distortion or colorations. The smooth, natural sound of the 12AX7 vacuum tubes passes straight through to the outputs.

The bass boost equalizer circuit is designed to give the headphone

listener defined low frequency bass impact without bass boom. This circuit has been used in different forms in many products including Rockford Fosgate Car amplifiers. Jim Fosgate received US patent number 3,883,832 for this circuit in 1975. It is called a "SINGLE ELEMENT CONTROLLED TWIN T FILTER" and has a much steeper curve than a bass or loudness control. It changes frequency and amplitude (Boost) with a single control. When the control is set in the "Min" position, the boost is applied at a lower frequency than when the control is set to the "Max" position.

In order to infuse the sound with a natural sound stage, Jim integrated his surround circuitry design, part of his US patent 5,307,415 "Panorama Control" filed in April 1994. This circuit applies an out of phase cross blend to create a sense of depth and space and moves the dimensional soundstage outside of your head. The control has "Min", "Max", and "Off" positions. In the center "Off" position the surround circuit is bypassed so the signal is unaffected and provides normal stereo output.

The Fosgate Signature Tube Headphone Amplifier's elegant circuit has the tube amplifiers, buffers, bass EQ, and surround processing configured in a single stage. Negative feedback is applied around this stage in a single loop. Output offset is controlled with DC servos, allowing the video buffers to directly drive the headphones with no output capacitors in the signal path. There is only one coupling capacitor per channel in the signal path, and it is enclosed within the feedback loop, thus capacitor colorations are eliminated. Distortion and noise are below the threshold of hearing. The bandwidth is very wide allowing audio signals to pass through without colorations. Bandwidth is an amazing "ten times" the threshold of human hearing, 2 HZ to 200KHZ at -3DB.

The power supply is similar to the one used in our Fosgate Signature Tube Phono stage. It uses separate oversize storage capacitors on each amplification path of each channel to provide a rock solid supply voltage without voltage regulators to affect the signal. The circuit is configured so that audio signal from one channel cannot couple to signal from the other, preserving soundstage width and depth. This power supply provides the benefits of both dual mono and batteries but in a simple AC powered circuit.

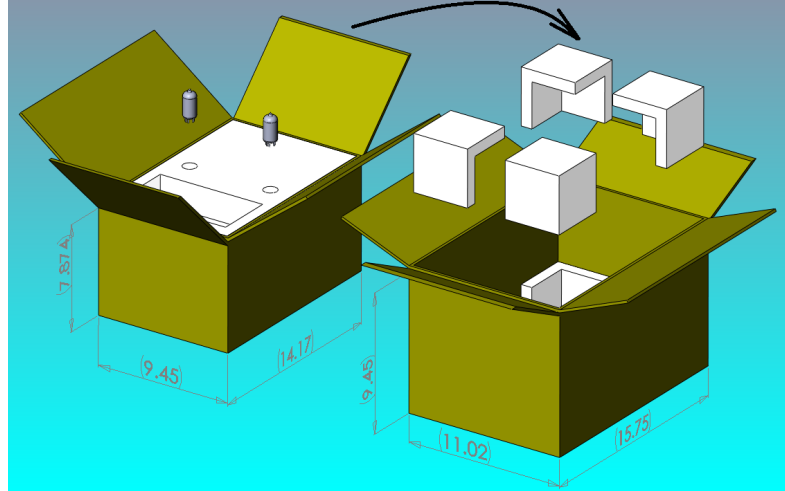
A 35 second muting circuit eliminates turn on/off thumps from the direct coupled output circuit. Two stereo inputs and a stereo tape output are provided for added flexibility.

# Unpacking

**Opening the cartons:** Use caution when opening the cartons. Using a sharp edged tool could cause damage to the contents.

## Foam packing:

When you open the inner carton, you will see a layer of foam covering the headphone amplifier. There are cut outs in the foam containing each vacuum tube, located in the appropriate position.



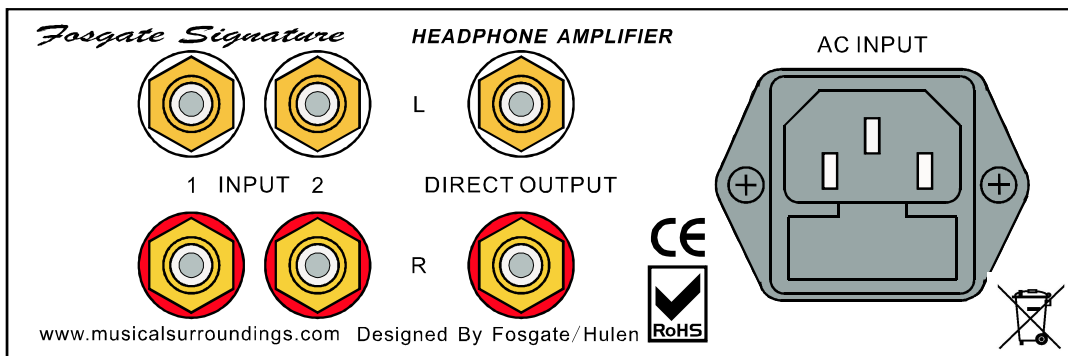
Be careful when lifting the foam so that the tubes do not fall out. Alternately, you can remove the tubes from the foam before removing the foam itself. Please note the location and marking for each tube. Refer to the next page for specifics on tube installation.

**Install the tubes:** Included with your Fosgate Signature Tube Headphone Amplifier is a pair of white gloves for handling both the unit as well as the tubes. This will prevent any finger oil from getting on the tubes. The unit should be powered off with AC cable disconnected. When inserting tubes into their sockets, be very careful not to bend the metal pins.

**Placement:** The Fosgate Signature headphone amplifier is dimensioned for convenient placement when listening with headphones. It should be placed close to where you will be enjoying your music. It is best to position the headphone amplifier away from hum producing sources such as motors, transformers and power cords. Good ventilation is essential for safety and the life of the headphone amplifier. Allow at least 2" of clearance above the unit, and avoid placement on a shelf directly above a heat and noise source such as a power amplifier. Ideally, the shelf or table where it is placed should be constructed of non-resonant material to minimize microphonics.



**Audio connections:** Your headphone amplifier features 2 line level stereo inputs with RCA jacks. You can connect to these the outputs of a phono stage, CD player, DA converter. etc. You may also connect the tape output or loop output of a preamplifier or receiver. These choices will be determined by your listening preferences and system configuration. If you chose to connect your source component directly to your headphone amplifier, you can connect the headphone amplifier's output jacks to an input of your preamplifier or receiver. This is a pass through circuit, similar to a tape loop, and the level is independent of the volume control of the headphone amplifier (unity gain). Due to the high quality sound of your headphone amplifier, we recommend using quality interconnect cables. Consult your Musical Surroundings dealer in this regard.

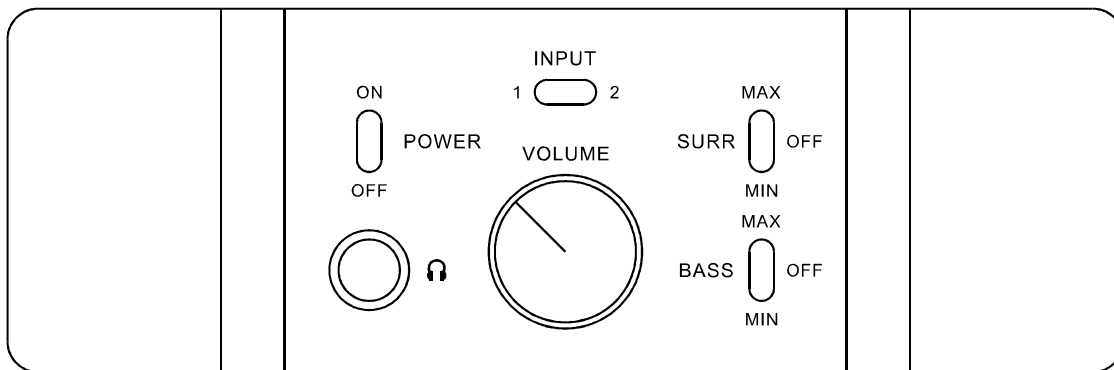


**AC power cord connections:** Your Fosgate Signature headphone amplifier is fitted with a male IEC AC input connector and supplied with a high gauge IEC grounded power cord. With the headphone amplifier power switch in the off (down) position, attach the female end of the power cord to the unit and the 3 prong AC plug to a suitable AC outlet. Due to the high performance of this unit, you may prefer a high quality after-market AC cord. Consult your Musical Surroundings dealer in this regard.

**Headphone connection:** Your Fosgate Signature headphone amplifier is fitted with a high quality ¼ inch phone plug input. This is the industry standard for high quality headphones. Insert the male ¼ phone plug from your headphones completely into the female jack. If you are using headphones with a “mini” connector, you must use a mini to ¼” adapter. Consult your Musical Surroundings dealer in this regard.



**Powering up:** Make sure all connections are in place and your volume control is completely turned down prior to powering up your headphone amplifier. When the unit is powered up, the amber LEDs under the tubes will be illuminated. A 35 second muting circuit eliminates turn on/off thumps from the direct coupled output circuit. Now you are ready to listen. The sound will improve after several minutes of warm up.



**Input selection:** Make sure all connections are in place and your volume control is completely turned down prior. Select the appropriate input for the source you want to listen to.

**Volume adjust:** Make sure your volume control is completely turned down. Slowly increase the volume to the appropriate and comfortable listening level

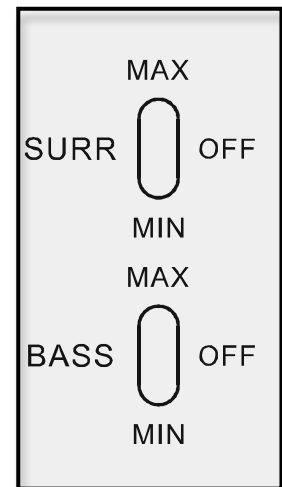
**A note about headphone listening levels:** Headphone listening is the most direct and immediate way of enjoying music. Please use caution when adjusting volume levels, especially when listening over an extended period of time. Excessive volume levels may result in listener fatigue and potential hearing damage.



## SPECIAL FEATURES

**Surround Circuit:** Jim Fosgate integrated his surround circuitry design, part of his US patent 5,307,415 “Panorama Control” filed in April 1994 in his Signature headphone amplifier. This circuit applies an out of phase cross blend to create a sense of depth and space and moves the dimensional soundstage outside of your head. The control has Min, Max, and Off positions. In the center off position, the surround circuit is bypassed so the signal is unaffected and provides normal stereo.

**Bass Equalizer:** The bass boost equalizer circuit is designed to give the headphone listener defined, low frequency bass impact without bass boom. There are three positions on the bass control, Min, Max, and Off. When the control is in the center Off position, the bass boost is bypassed. This circuit has been used in different forms in many products including Rockford Fosgate Car amplifiers. Jim Fosgate received US patent number 3,883,832 for this circuit in 1975. It is called a "SINGLE ELEMENT CONTROLLED TWIN T FILTER" and has a much steeper curve than a typical bass or loudness control. It changes frequency and amplitude (Boost) with a single control.



When the control is set in the Min position, the maximum boost is applied at a lower frequency.

When the control is set in the Max position, the maximum boost is applied at a higher frequency.

**Using the special features:** Depending on the type of headphones you prefer, your listening habits, and the musical selection you chose, experiment with these special features for the greatest listening pleasure. Both features may be used in conjunction. You may find that using the surround circuit for classical recordings will better recreate the ambience of the concert hall and the bass eq will .

**Tube Rolling:** Your Fosgate Signature headphone amplifier ships with two carefully selected, new production 12AX7 tubes.

Do not change tubes when the unit is powered on. To avoid risk of burns, do not touch vacuum tubes when the unit is powered on or within 30 minutes of powering down.

Below is a list of equivalent tubes used in your Fosgate Signature headphone amplifier if you wish to tube roll. Please check with your Musical Surroundings' dealer regarding availability of tubes for this purpose.

Please note that tubes obtained from an independent source that causes damage to your Fosgate Signature headphone amplifier is not covered under the warranty.

Below, we provide a space to notate your personal notes on sonic differences with tube rolling.

V1 and V2 - 12AX7/ ECC83  
Equivalent: 7025, 5751

## **My Notes on Tube Rolling**

# SPECIFICATIONS

Frequency response: 2 HZ to 200KHZ at -3DB

Voltage Gain: 15DB

Signal to noise ratio: 95DB

Headphone impedance drive range: 30 - 500 ohms

Maximum output voltage: 26 volts p-p into 500 Ohm load

Maximum power output: 180MW RMS 500 Ohm load

Maximum power output: 387MW RMS 200 Ohm load

Maximum power output: 1000MW RMS 30 Ohm load

Distortion: .05% @ 165MW 1KHZ 500 Ohm load

Distortion: .05% @ 387MW 1KHZ 200 Ohm load

Distortion: .1% @ 250MW 1KHZ 30 Ohm load

Maximum Bass Boost: 9DB @ 30 HZ

Minimum Bass Boost: 6DB @ 30 HZ

Dimensions: 7" W x 11" D x 5.5" H

Weight: 5 lbs



## **Musical Surroundings**

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**90 DAY LIMITED WARRANTY TERMS AND CONDITIONS**  
(2 Year optional extended service contract)

1. Musical Surroundings warrants the product designated herein to be free of manufacturing defects in material and workmanship, subject to the conditions herein set forth, for a period of 90 days from the date of purchase by the original purchaser. If the purchaser registers the unit with Musical Surroundings by mailing in the warranty card, together with a copy of the bill of sale, within 14 days of the date of purchase, said purchaser will be registered for an extended service contract. The extended service contract extends the 90 days to a period of 2 years from the date of purchase by the original purchaser or no later than 3 years from the date of shipment to the authorized Musical Surroundings dealer, whichever comes first. Tubes carry a 90 day warranty only.

2. **CONDITIONS** - This warranty is subject to the following conditions and limitations. The warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the owner's manual, abused or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being repaired or tampered with or modified by anyone other than Musical Surroundings or their authorized repair stations. To obtain warranty service, you must first contact Musical Surroundings at 510 547-5006 or [info@musicalsurrroundings.com](mailto:info@musicalsurrroundings.com) to obtain a Return Authorization (RA) number. The product must be packed in its original carton and returned to Musical Surroundings or authorized repair station by the customer at his or her sole expense. A returned product must be accompanied by a written description of the defect and a photocopy of the original purchase receipt. This receipt must clearly list model and serial number, the date of purchase, the name and address of the purchaser and authorized dealer and the purchase price. Musical Surroundings reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

3. **REMEDY** - In the event the above product fails to meet the warranty, and the above conditions have been met, the purchaser's sole remedy under the limited warranty shall be to return the product to Musical Surroundings where the defect will be rectified without charge for parts or labor.

4. **LIMITED TO ORIGINAL PURCHASER** - This warranty is for the sole benefit of the original purchaser of the covered product and is NOT TRANSFERRABLE.

5. **DURATION OF WARRANTY** - This warranty expires 90 days after the date of original purchase. If Musical Surroundings receives the warranty registration card, this period is extended to the second anniversary of the date of purchase or no later than the third anniversary of the shipment to the authorized Musical Surroundings dealer, whichever comes first.

6. **MISCELLANEOUS** - ANY IMPLIED WARRANTIES RELATING TO THE ABOVE PRODUCT SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. THE WARRANTY DOES NOT EXTEND TO ANY INCIDENTAL OR CONSEQUENTIAL COSTS OR DAMAGES TO THE PURCHASER. Some states do not allow limitations on how long an implied warranty lasts or an exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

7. **WARRANTY OUTSIDE THE USA** - Musical Surroundings has formal distribution in many of the countries of the free world, in each country the Musical Surroundings importer has contractually accepted the responsibility for product warranty. Warranty should normally be obtained from the importing dealer or distributor from whom you obtain your product.