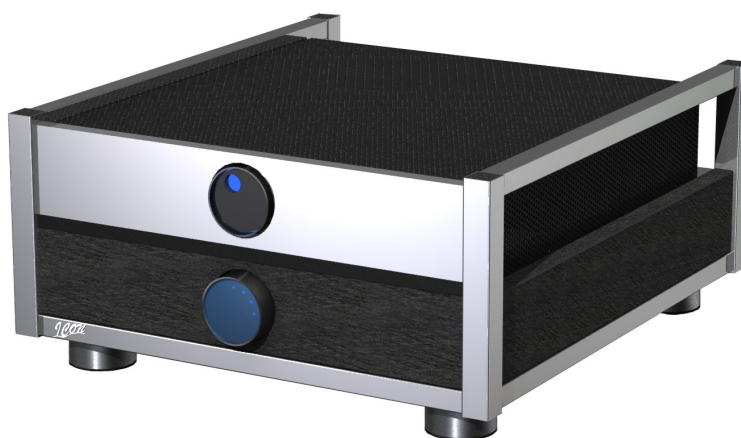


*9CON*

## STEREO TUBE POWER AMPLIFIER



## STEREO TUBE REAMPLIFIER



## USER'S MANUAL



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## **IMPORTANT SAFETY INSTRUCTIONS!**

PLEASE READ THEM BEFORE OPERATING THIS EQUIPMENT.

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



**AVIS** RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING - TO REDUCE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

**NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**

To prevent the risk of electric shock, do not remove cover or back. No user serviceable parts inside.

### **General:**

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. **Warning: To reduce risk of fire or electrical shock, do not expose this equipment to rain or moisture. This unit is capable of producing high sound pressure levels. Continued exposure to high sound pressure levels can cause permanent hearing impairment or loss. User caution is advised and ear protection is recommended when playing at high volumes.**
6. **Caution: to prevent electrical shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.**
- Attention: pour pevenir les chocs electriques pas utiliser cette fiche polarisee avec un prolongateur, une prise de courant ou un autre sortie de courant, sauf si les lames peuvent etre inserees afond ans en laisser aucune partie a decouvert.**
7. Unplug this equipment during lightning storms or when unused for long periods of time.
8. Only use attachments/accessories specified by the manufacturer.

### **Installation:**

9. The equipment shall be installed near the AC Socket Outlet and the disconnect device shall be easily accessible.
10. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
11. Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.
12. Do not use this equipment near water.
13. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.



14. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the equipment. When a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

### **Connection:**

15. Connect this equipment only to the type of AC power source as marked on the unit.
16. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the equipment.
17. Do not defeat the safety purpose of the polarized or grounding-type plug.  
A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
18. Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.

19. To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

**Care of Equipment:**

20. Clean only with a dry cloth.

21. Do not permit objects or liquids of any kind to be pushed, spilled and/or fall into the equipment through enclosure openings.

22. Unplug the power cord from the AC power outlet when left unused for a long period of time.

**Repair of Equipment:**

23. Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.

24. Do not attempt to service beyond that described in the operating instructions. All other service should be referred to qualified service personnel.

25. When replacement parts are required, be sure the service technician has used replacement parts specified by S.T.Innovators or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

26. Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

**Customer Service**

---

If it is determined that your S.T.Innovators product is in need of repair, you can return it to your dealer. You can also return it to the S.T.Innovators Service Department. For assistance on factory repair return procedure, contact the S.T.Innovators Service Department at:

**S.T.Innovators, Ltd.**

1 Tzarichina, Str.

1505 Sofia, Bulgaria

Phone: +359 2 870 21 56

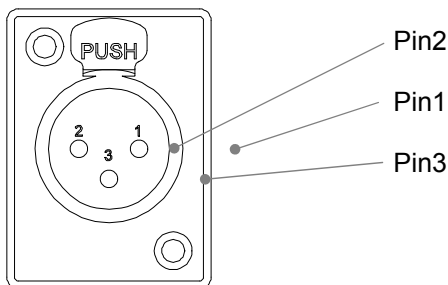
Fax: +359 2 973 37 27

# **STEREO TUBE** **POWER AMPLIFIER**

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## 1 General Notes

1. Caution: To prevent electrical shock make sure that the AC POWER CORD IS NOT CONNECTED TO THE **ICON** when inserting or removing Vacuum Tubes, as there are hazardous voltages present at the pins of the Tube Sockets.
2. If the **ICON** has been ON, please allow the Hot Vacuum Tubes to cool first before removing them.
3. For additional connection information, refer to the owner's manual(s) for any component(s) connected to the **ICON**.
4. It is very important that loudspeaker cables of adequate size be used, so that there will be minimum power loss. The size is specified in Gauge Numbers or AWG, (American Wire Gauge). The smaller the Gauge number, the larger the wire size.  
Connection Terminals will accept up to a 8 AWG wire size:  
*If your loudspeaker cables are 50 feet (38.1m) or less, use at least 14 Gauge.*  
*If your loudspeaker cables are 100 feet (76.2m) or less, use at least 12 Gauge.*
5. Pin configuration for the XLR Balanced Input connectors on the **ICON**:  
 PIN 1: Shield or ground  
 PIN 2: + input  
 PIN 3: - input



## 2 Introduction

**ICON** is an HI-end stereo tube power amplifier with the silky-smooth sound and incredible detail that only a tube amplifier can provide.

Two 100 watt high current output channels will drive any high quality loudspeaker system to its ultimate performance. The **ICON** reproduction is sonically transparent and absolutely accurate.

## 3 Performance Features

- **Power Output**

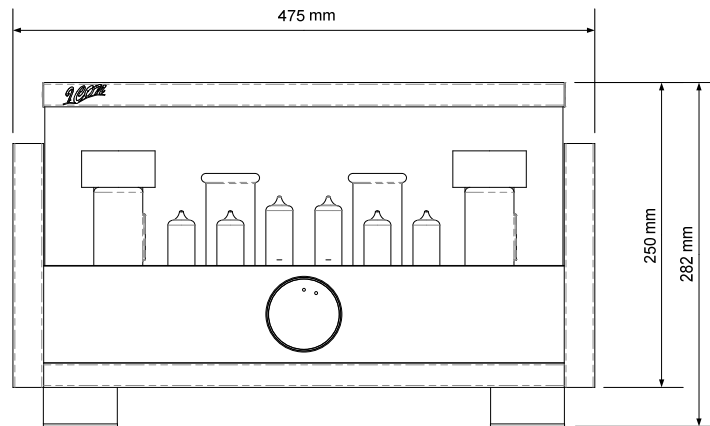
The **ICON** consists of two separate power amplifier channels, each capable of 100 watts into 4 or 8 ohm loudspeakers in stereo. It may also be operated in mono at 200 watts into 2 or 4 ohm loudspeakers.

- **Balanced and Unbalanced Inputs**

Balanced connections guard against induced noise and allow long cable runs without compromising sound quality.

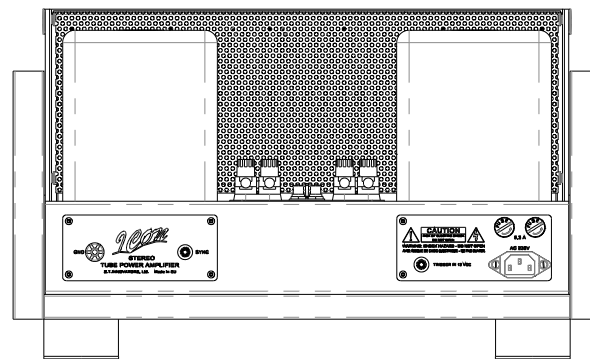
## 4 ICON Stereo Tube Power Amplifier Dimensions

The following dimensions can assist in determining the best location for your **ICON**.



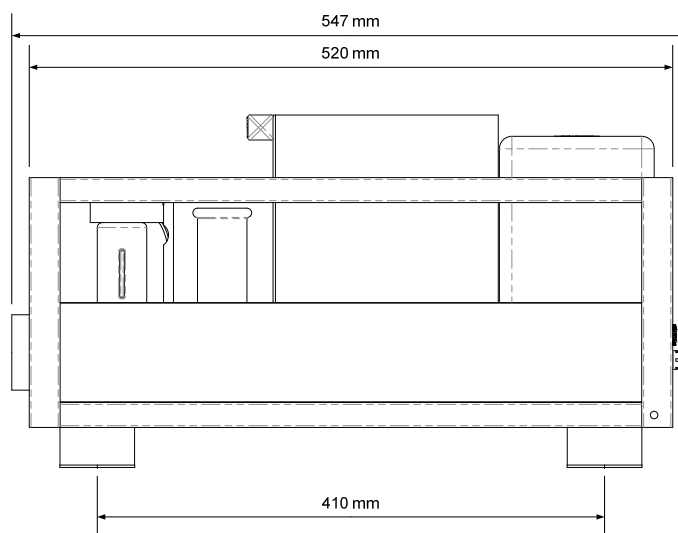
Front View of **ICON**

Figure 1



Rear View of **ICON**

Figure 2



Side View of **ICON**

Figure 3



## 5 Installation of Tubes

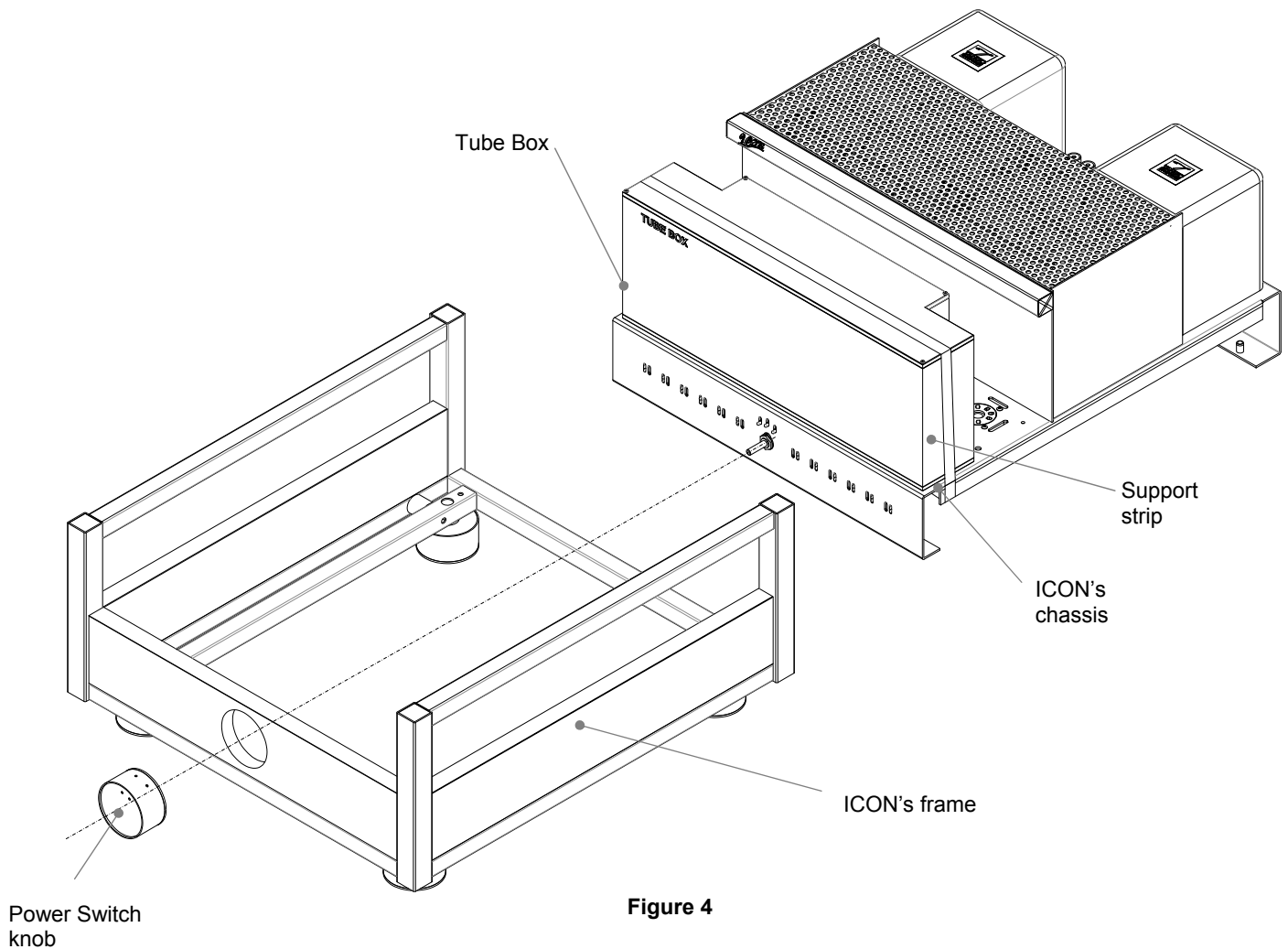


Figure 4

- **General Notes**

**Caution:** To prevent electrical shock make sure that the AC POWER CORD IS NOT CONNECTED TO THE ICON when inserting or removing Tubes, as there are hazardous voltages present at the pins of the Tube sockets.

Your **ICON** has gone through an extensive series of performance tests during the manufacturing process. The **ICON** is supplied with the actual Tubes that were used to test and confirm the performance of this amplifier. To protect the Vacuum Tubes from possible shipping damage, they could be packed in layer of foam and placed into the Tube Box. It is secured to the **ICON** Chassis.

If that is your case then follow the next steps:

**Note:** *Gloves or a soft cloth will prevent "fingerprinting" of the Tubes during their installation.*

1. Using an appropriate screwdriver, remove screw from the bottom of Power Switch Knob and pull it from the Front Panel. Refer to figure 4.
2. Carefully pull out whole amplifier chassis.
3. Orient the **ICON's** chassis so the Front Side is facing you. Cut off the support strip from the Tube Box and carefully lift up the Tube Box.
4. Orient the Tube Box so the "FRONT SIDE" is facing you. Using an appropriate screwdriver, remove four screws from the cover and open the Tube Box. Refer to figure 5
5. Remove the first and second layer of foam to expose the Tubes.
6. Carefully remove the Tubes from the remaining pieces of foam and temporarily place them in a safe location.

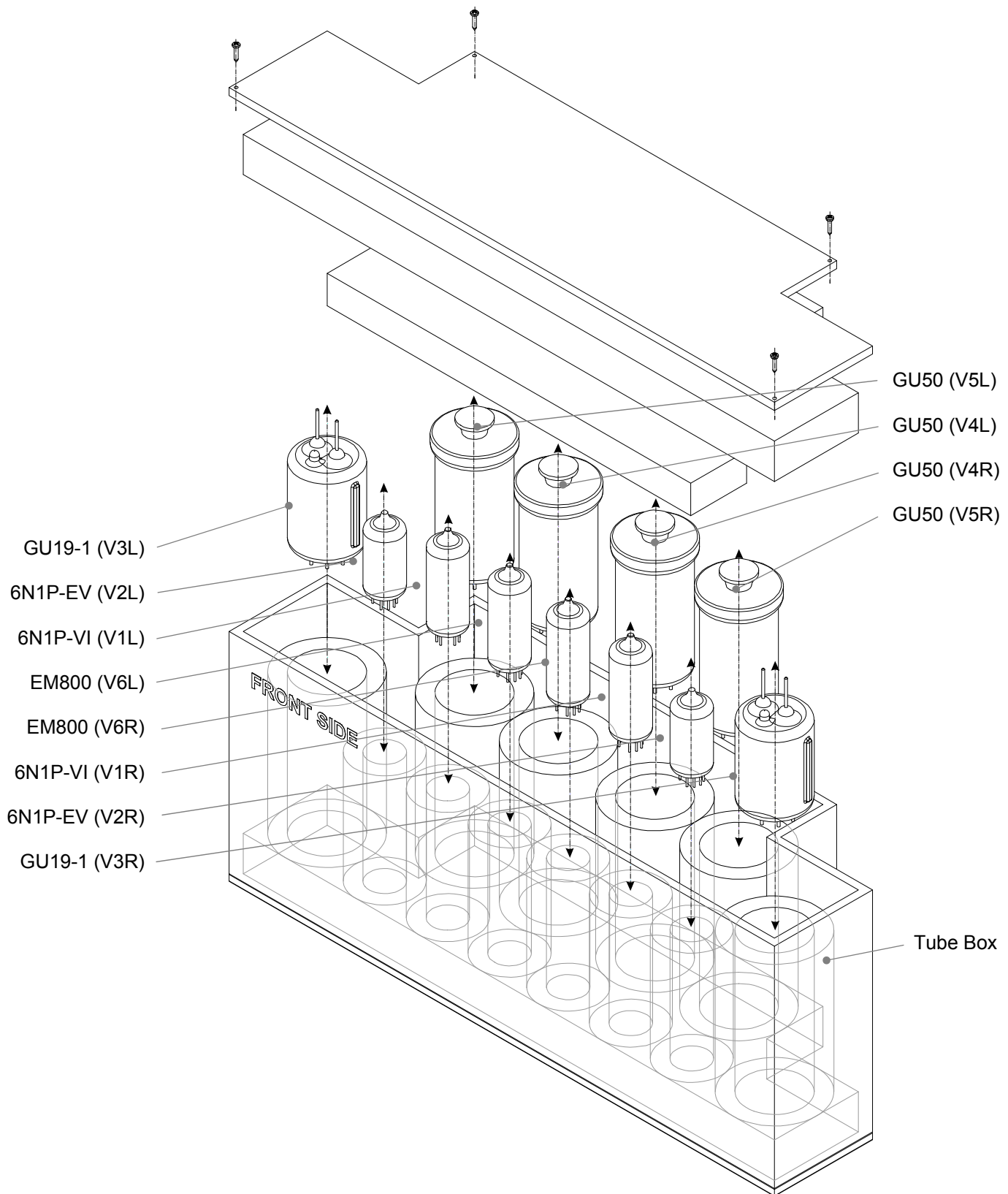


Figure 5

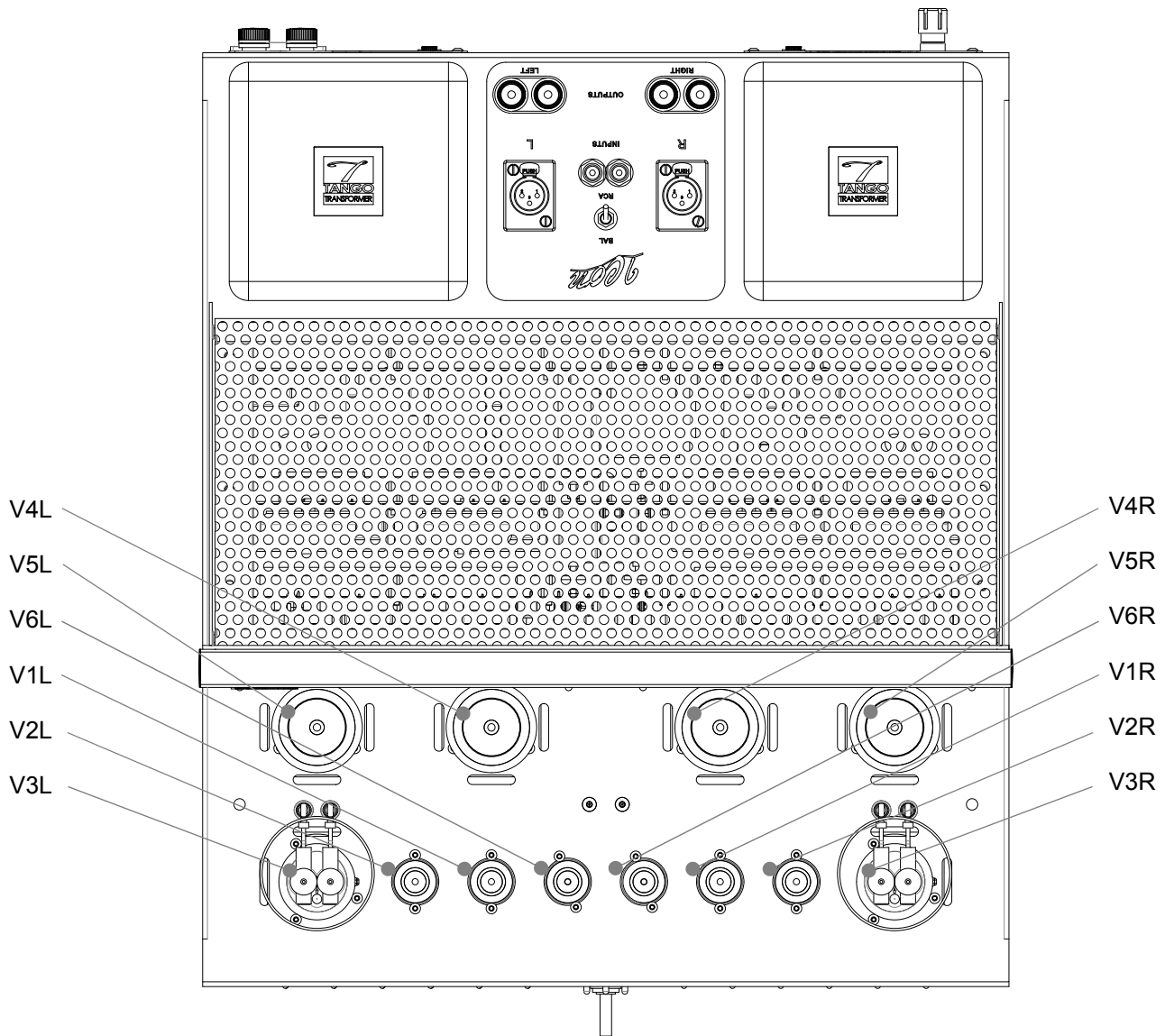


Figure 6

The **ICON** Chassis has nomenclature screened on it to specify both the circuit location and Tube type for each channel. Refer to figure 6.

**Note: It is extremely important to insert the Tubes in the correct location.**

**Note: Do not change the places of right and left channel tubes.**

**Note: It is extremely important removing of Tubes to become when they are fully cooled.**

**Note: Gloves or a soft cloth will prevent "fingerprinting" of the Tubes during their installation.**

#### • Power Output Tubes

1. Orient the Chassis so that the Front Panel of the Amplifier is facing you.
1. Locate a GU50 (V5L) Power Output Tube. Refer to figure 6.
2. On the top left side of the amplifier, locate the Tube Socket that has the nomenclature V5L next to it on the chassis.
3. Orient the Tube so that the key on the base of the Tube is aligned with the corresponding key on the Tube Socket.
4. Carefully insert the Tube into the socket until the base of the Tube is fully seated in the Tube Socket.
5. Repeat the above the steps for the remaining 3 Power Output Tubes (V4L, V4R & V5R).

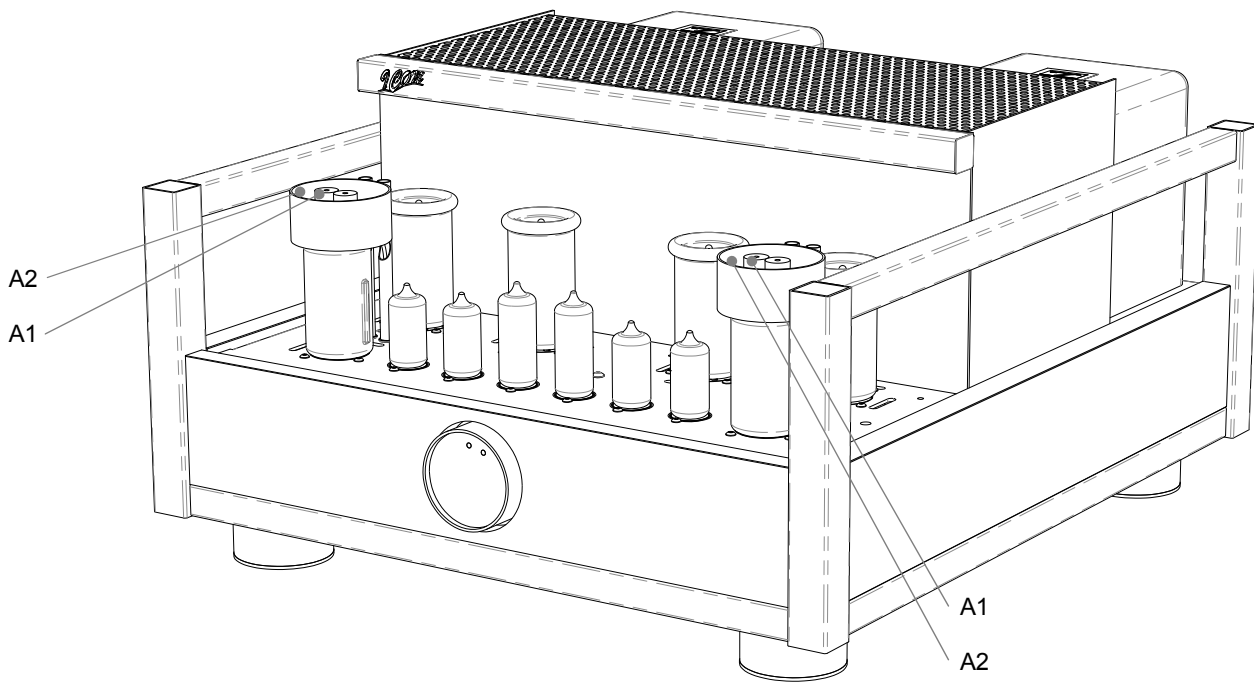


Figure 7

#### • Driver Tubes

1. Locate a GU19-1 (V3L) Tube.
2. On the top left side of the amplifier, locate the Tube Socket that has the nomenclature V3L next to it on the chassis. Refer to figure 6.
3. Orient the Tube so that the key on the base of the Tube is aligned with the corresponding key on the Tube Socket.
4. Carefully insert the Tube into the socket until the base of the Tube is fully seated in the Tube Socket.
5. Slip on two cylindrical terminals to the A1 – top lead and A2 – top lead of the tube. Refer to figure 7
6. Repeat the above steps for the remaining GU19-1 (V3R) Tube.

#### • Indicator Tubes

1. Locate an EM800 (V6L) Tube.
2. On the top left side of the amplifier, locate the Tube Socket that has the nomenclature V6L next to it on the chassis. Refer to figure 6.
3. Orient the Tube so that the area where no pins are located on the base of the Tube is aligned with the corresponding area on the Tube Socket.
4. Carefully insert the Tube into the socket until the base of the Tube is fully seated in the Tube Socket.
5. Repeat the above steps for the remaining EM800 (V6R) Tube.

#### • Small Input Tubes

There are two different types of Small Input Tubes (6N1P-EV and 6N1P-VI) used in each channel. Tube type can be found on the outside of the Tube. The **ICON** will not function if they are inserted into the wrong socket.

1. Locate a 6N1P-EV (V2L) Tube.
2. On the top left side of the amplifier, locate the Tube Socket that has the nomenclature V2L next to it on the chassis. Refer to figure 6.
3. Orient the Tube so that the area where no pins are located on the base of the Tube is aligned with the corresponding area on the Tube Socket.
4. Carefully insert the Tube into the socket until the base of the Tube is fully seated in the Tube Socket.
5. Repeat the above steps for the remaining 6N1P-EV (V2R) Tube.
6. Locate a 6N1P-VI (V1L) Tube.
7. On the top left side of the amplifier, locate the Tube Socket that has the nomenclature V1L next to it on the chassis.
8. Insert the Tube, following the same procedures as in steps 3 and 4.
9. Repeat the steps 6-9 for the remaining 6N1P-VI (V1R) Tube.

After installation of all tubes follow the steps:

1. Orient the **ICON** so the Back Side is facing you. Carefully pull in whole chassis inside the **ICON's** stainless steel cover.
2. Orient the **ICON** so the Left Side is facing you. Using an appropriate screwdriver, screw on six screws to the Left Side of **ICON**.

3. Orient the **ICON** so the Right Side is facing you. Using an appropriate screwdriver, screw on six screws to the Right Side of **ICON**.

4. Slip on the Power Switch Knob and using an appropriate screwdriver put in the screw into knob.

## 6 Location and Ventilation

The **ICON** can be placed upright on a table or shelf, standing on its four feet. Adequate ventilation extends the trouble free life of the **ICON**. The suggested minimum space for operating the **ICON** is 70 cm in width, 60 cm in depth, and 60 cm in height. Always allow air to flow through the ventilation holes on the bottom of the amplifier and a means for the warm air to escape at the top, refer to figure 8

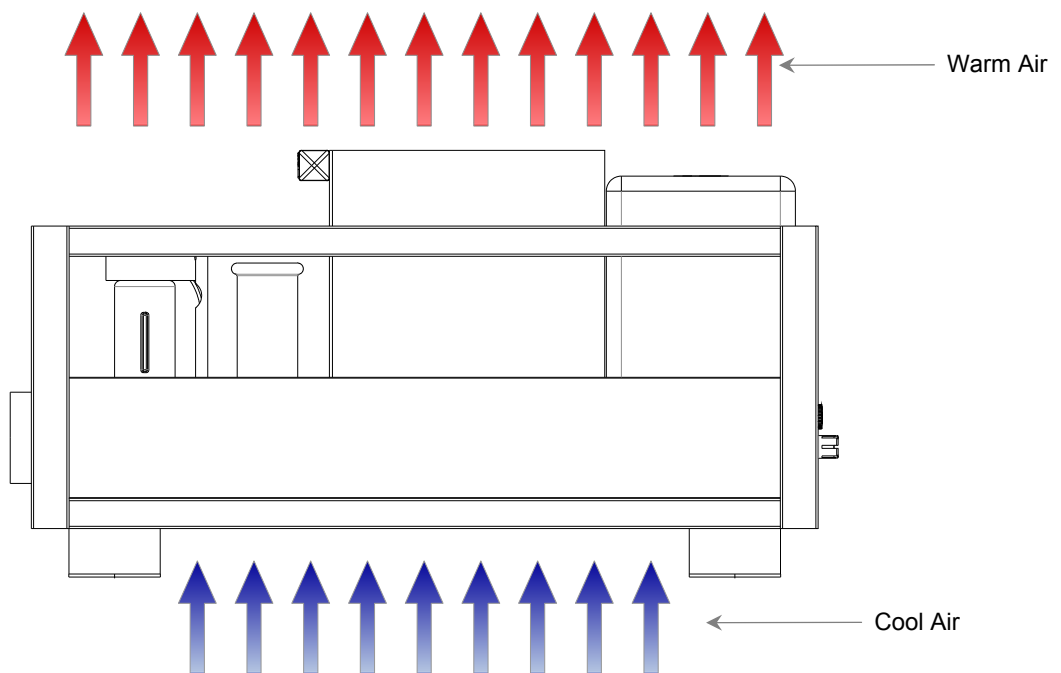


Figure 8

## 7 Tubes, Connections and Switches location

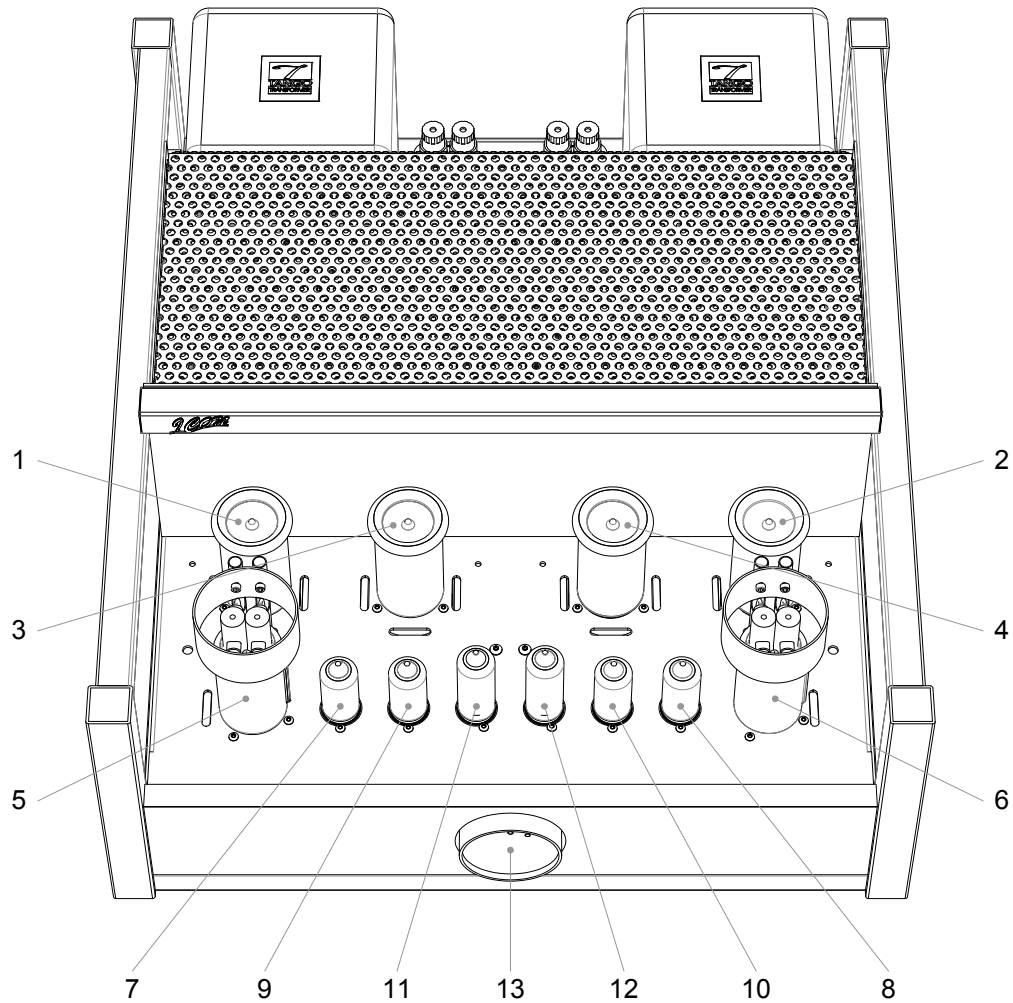


Figure 9

- 1, 3 – GU50 – output tubes for left channel;
- 2, 4 – GU50 – output tubes for right channel;
- 5, 6 – GU19-1 – driver tubes;
- 7, 8 – 6N1P-EV – input tubes;
- 9, 10 – 6N1P-VI – input tubes;
- 11, 12 – EM800 – indicator tubes
- 13 – Power Switch (3-positions: OFF, STBY (standby) and ON).

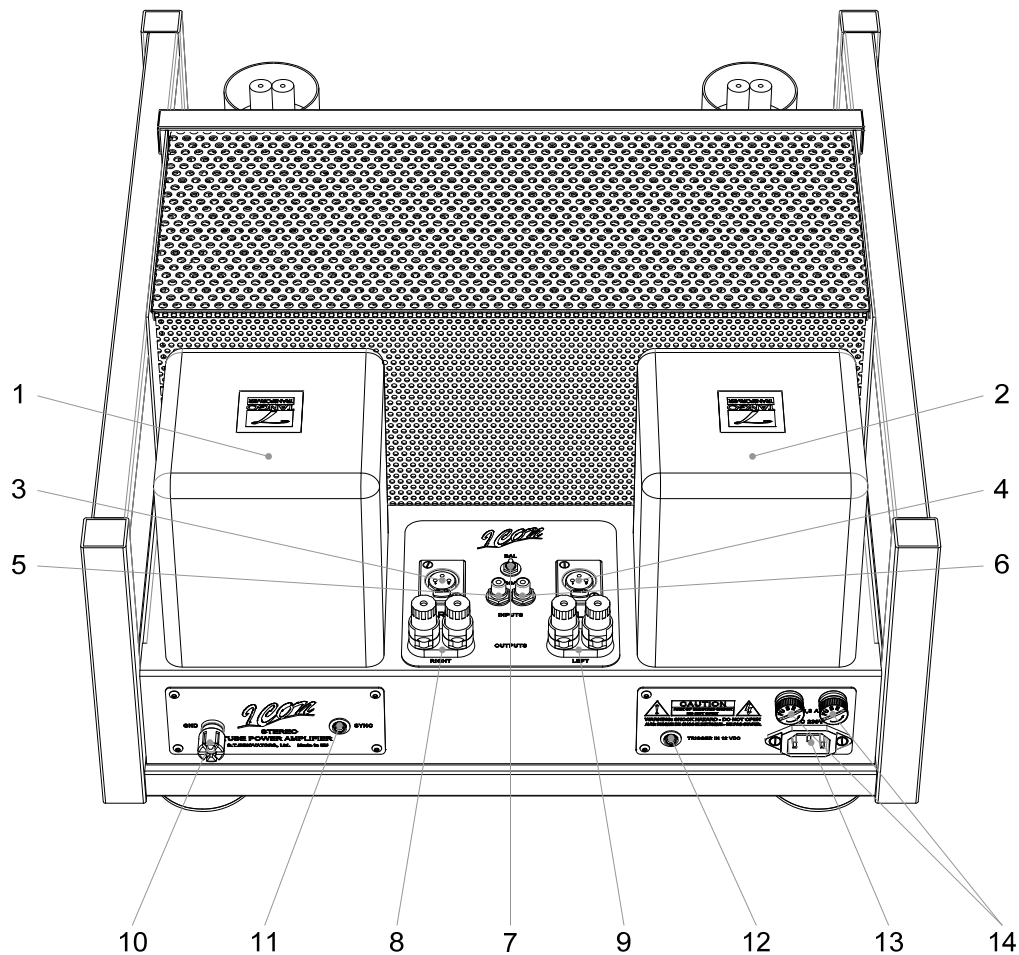


Figure 10

- 1, 2 – output transformers;
- 3, 4 – RIGHT and LEFT balanced inputs - for audio cables from a preamplifier or control center audio outputs;
- 5, 6 – RIGHT and LEFT unbalanced inputs (RCA) - for audio cables from a preamplifier or control center audio outputs;
- 7 – Input switch selects between the BALANCED or UNBALANCED INPUTS;
- 8, 9 – RIGHT and LEFT outputs - connections for loudspeakers;
- 10 – grounding connector;
- 11 – power synchronization connector with preamplifier;
- 12 – Input 12V trigger for remote power control;
- 13 – Power supply connector - Connect the **ICON** power cord to a live AC outlet. Refer to information on the back panel to determine the correct voltage;
- 14 – Fuses 6,3A - Main Fuse holder, refer to information on the back panel of your **ICON** to determine the correct fuse size and rating.

## 8 How to Connect for Stereo

**Caution:** *The supplied AC Power Cord should not be connected to the Rear Panel of the ICON until after the Loudspeaker Connections have been made. Failure to observe this could result in Electric Shock.*

1. Connect cables from the Balanced Outputs of a preamplifier or control center to the **ICON** Left and Right Balanced Inputs.

*Note: An optional hookup is to use unbalanced cables.*

2. Prepare the Loudspeaker Hookup Cables that attach to the **ICON** Power Amplifier Output Terminals by choosing one of the methods below:

Bare wire cable ends:

Carefully remove sufficient insulation from the cable ends. If the cable is stranded, carefully twist the strands together as tightly as possible.

*Note: If desired, the twisted ends can be tinned with solder to keep the strands together, or attach spade lug and/or banana connector.*

Spade lug or prepared wire connection:

Insert the spade lug connector or prepared section of the cable end into the terminal side access hole, and tighten the terminal cap until the cable is firmly clamped into the terminal so the wires cannot slip out.

Banana plug connection:

Insert the banana plug into the hole at the top of the terminal. Tighten the top portion of the terminal post to secure the banana plug in place.

*Note: The use of Banana Plugs is for use in the United States and Canada only.*

3. Locate the Terminal Connection Cover and pass the Loudspeaker Hookup Cables thru the Loudspeaker Cable Openings located near the top of the Terminal Cover.

4. Connect the Loudspeaker Hookup Cables to the output terminals that match the impedance of your loudspeakers, being careful to observe the correct polarities. Output impedance connections of 4 ohm and 8 ohm are provided. If the impedance of your loudspeakers is in-between the available connections, use the nearest lower impedance connection.

**WARNING: Loudspeaker terminals are hazardous live and present a risk of electric shock.**

5. Rotate the **ICON** Power Switch on front panel to the OFF Position and connect the supplied power cord to an active AC outlet.



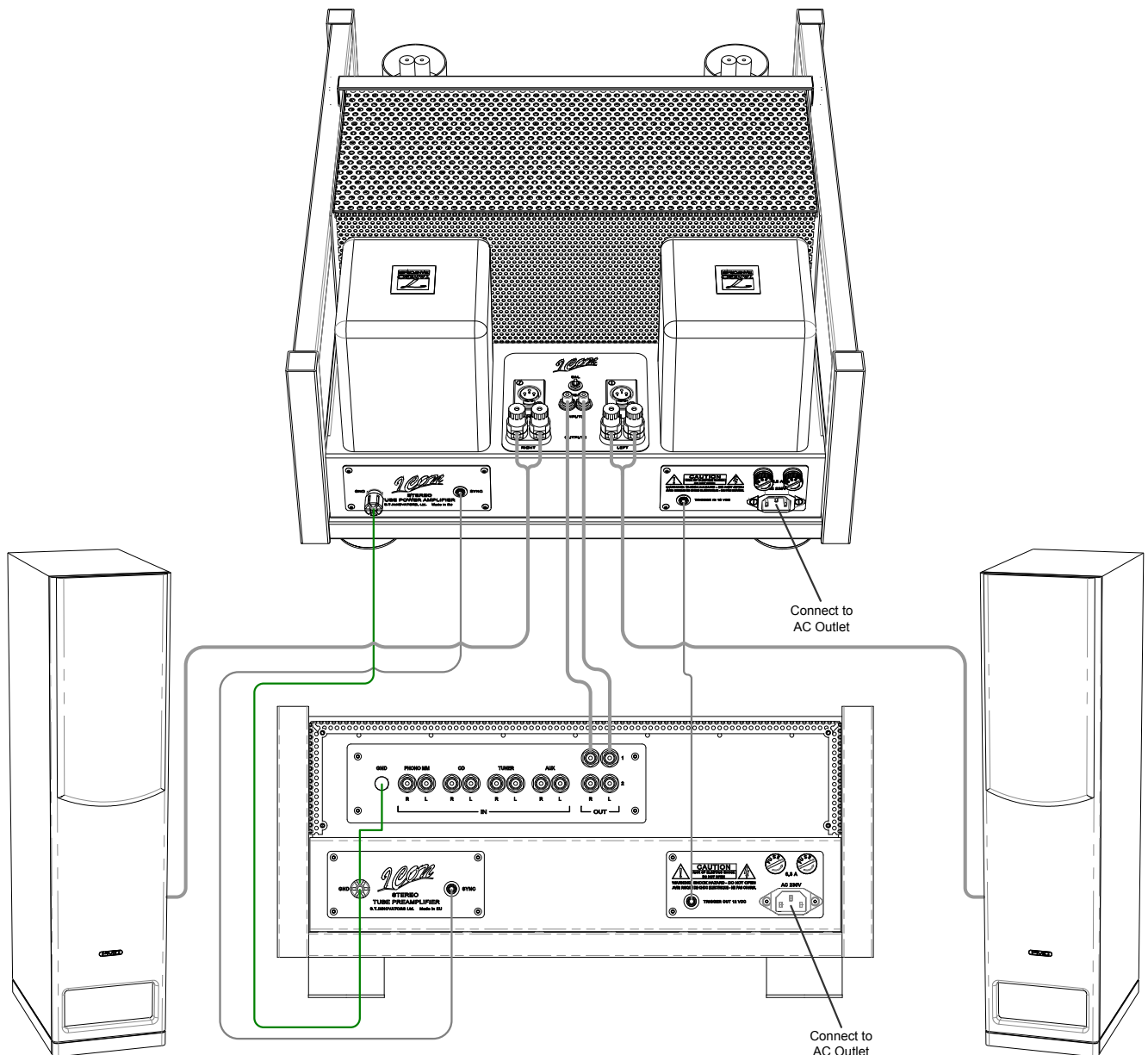


Figure 11 – Stereo Connection

## 9 How to Operate the ICON

- Power On, Stand-by and Off**

Rotate the POWER switch to the ON position and sound will be heard from the Loudspeakers when the tubes have reached their operating temperature. The amount of time it takes is dependent upon the temperature of the Tubes (about 3 min - smooth increment of heating voltage). Rotate the POWER Switch to the OFF position to stop amplifying the audio signal. Refer to figure 12.

- Standby Mode:**

The **ICON** amplifier SHOULD NOT BE LEFT RUNNING WHEN NOT IN USE. Unlike solid state amplifiers, tube amplifiers *should be shut down when not being used*. This will greatly prolong tube life. A standby mode has been provided for short-term use between listening sessions so that the amp will remain in a “warmed up” state. If you will not be listening to the amplifier for more than an hour, it is advised that the amplifier be turned off. The standby switch lowers the voltage on the tubes and heater filaments to ½ of normal operating voltage. Some output (distorted) will be heard so the source material should be turned off when in standby mode.

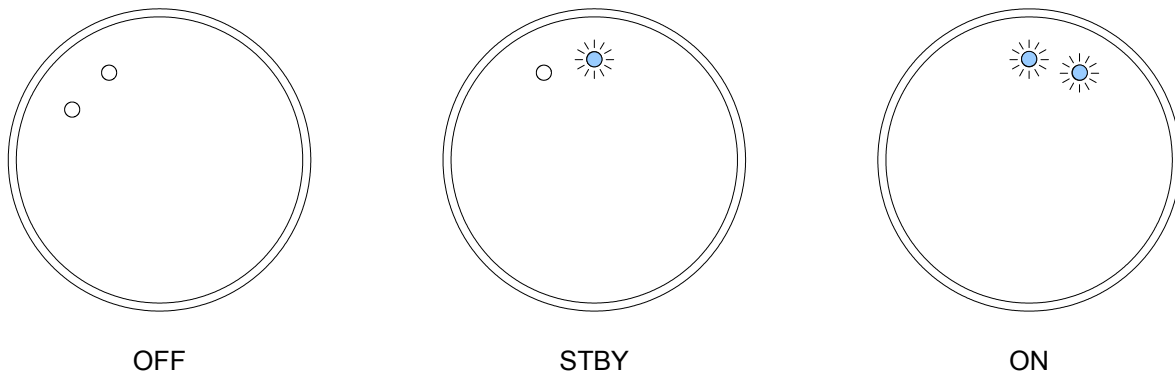


Figure 12

- Input Switch**

When BALANCED Input Connections are used, place the **ICON** INPUT Switch to the BALANCED position (forward). If UNBALANCED connections are used, place the INPUT Switch to the UNBALANCED position (backward). Refer to figure 13.

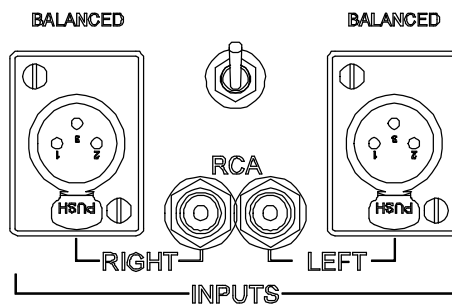


Figure 13

## 10 Setting the Tubes Bias

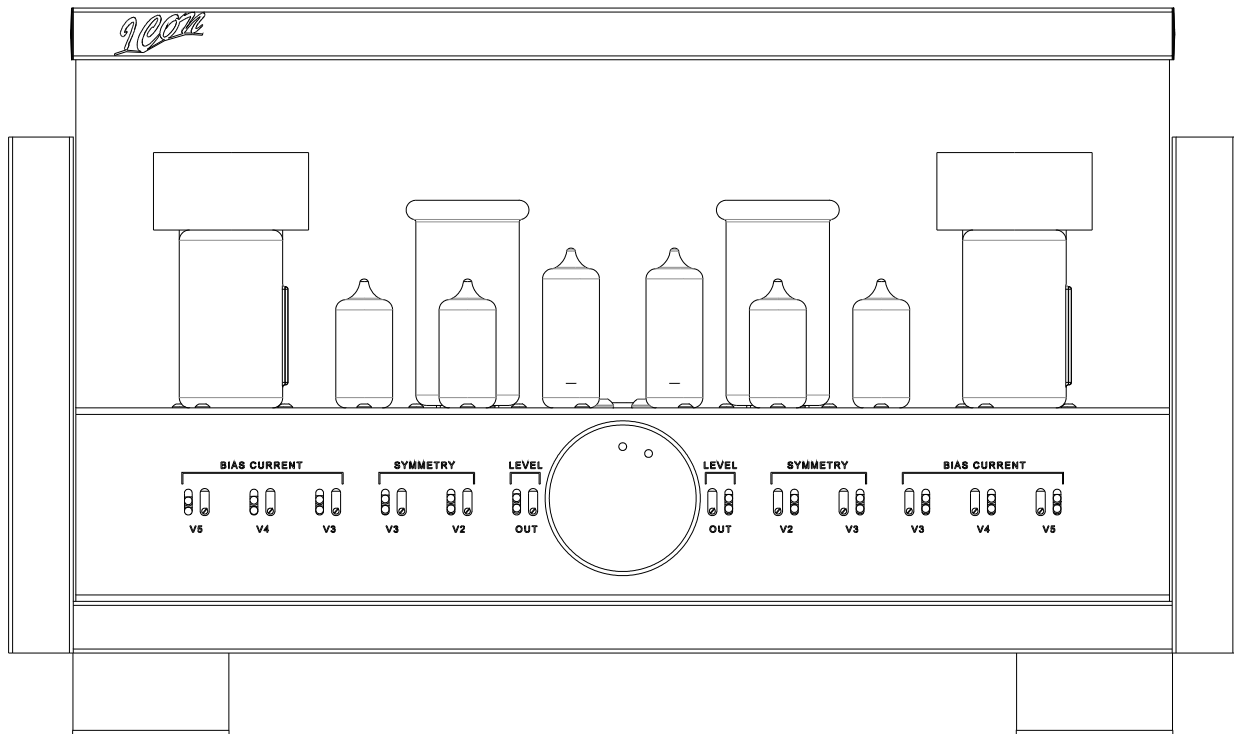


Figure 14

The output tubes and driver tubes (the big ones – V3, V4 and V5) need to be “biased” with a grid voltage that controls the flow of electrical current through the tube. Tube biasing on the **ICON** amplifier has been designed to be both simple and effective. On some amplifiers biasing is done for two or more tubes simultaneously. With this method, the total current flowing through the group of tubes may be correct, but the current flow through any individual tube may vary significantly from the optimal value. With the **ICON** amplifier the bias is set individually for each tube so that the correct operating point is assured. An added benefit to this approach is that, should a tube fail prematurely, the single tube can be replaced without having to purchase a matched set. Use the following procedure to set the tube bias:

**WARNING – There are dangerous and potentially lethal voltages inside this amplifier. Do not touch any part of the amplifier other than as described below. If you are uncertain about any of these instructions, please contact to S.T.Innovators and have them bias the amplifier for you.**

1. Allow the amplifier to warm up for at least 30 minutes.
2. Turn the preamplifier off so that no signal is entering the amplifier
3. Carefully pull forward the front panel.
4. Locate the trimmer potentiometers labeled “BIAS CURENT”, “SYMMETRY” and “LEVEL”.
5. Using an appropriate screwdriver, slowly turn the screw on the potentiometer so that to turn off the corresponding LED.
6. Repeat the above steps for each of the tubes in both channels.

## 11 Specifications

### Power Output Stereo

Maximum output power per each channel

100 W RMS 4  $\Omega$  / 8  $\Omega$  load

### Rated Frequency Band

20 Hz to 70 kHz

### Frequency Response

+0, +0.25 dB from 20Hz to 20,000Hz

+0, -3 dB from 15Hz to 70,000Hz

### Total Harmonic Distortion

Maximum Total Harmonic Distortion at any power level  
from 250 milliwatts to rated power

0.4% for 4 or 8  $\Omega$  load

### Sensitivity

1 V unbalanced inputs

1 V balanced inputs

### A-Weighted Signal To Noise Ratio

100 dB

### Intermodulation Distortion

0.5% for 4 or 8  $\Omega$  load

### Wide band Damping Factor

Greater than 8

### Input Impedance

100 k $\Omega$  unbalanced inputs

200 k $\Omega$  balanced inputs

### Power Supply

Impulse power supply

120 V (from 100 to 135 V), 50/60 Hz at 10 A

230 V (from 195 to 260 V), 50/60 Hz at 5 A

### Warm up time

3 minutes - smooth increment of heating voltage

### Stand-by mode

Available

### Circuit type

PPP – push pull parallel scheme class AB

### Vacuum Tubes

All tubes are military type

Input Tubes: 2 x 6N1P-EV and 2 x 6N1P-VI

Driver Tubes: 2 x GU19-1

Output Tubes: 4 x GU50

Indicator Tubes for output power: 2 x EM800

### Control

Precise electronic control of Bias mode of the tubes  
with indication for symmetry and tubes current tuning

### Overall Dimensions

(H x W x D)

250 x 475 x 520 mm

(H x W x D) including feet and knob

282 x 475 x 547 mm

### Weight

38.7 kg

## 12 Packing Instructions

In the event it is necessary to repack the equipment for shipment, the equipment must be packed exactly as described and shown below.

The **ICON** Vacuum Tubes must be removed from the Amplifier Tube Sockets and placed into the inside openings of the foam packing material. The foam with the tubes located inside are placed into the Amplifier Tube Box and secured to the Chassis. Failure to do this will result in damage to the Vacuum Tubes and possibly the **ICON**.

It is very important that the four feet are attached to the bottom of the equipment. This will ensure the proper equipment location on the bottom pad. Failure to do this will result in shipping damage.

Four M6x50 mm screws must be used to fasten the unit securely to the Shipping Skid. Failure to do this will result in shipping damage. Refer to Figure 15.

Use the original shipping box and interior parts only if they are all in good serviceable condition. If a shipping box or any of the interior part(s) are needed, please call or write S.T.Innovators.

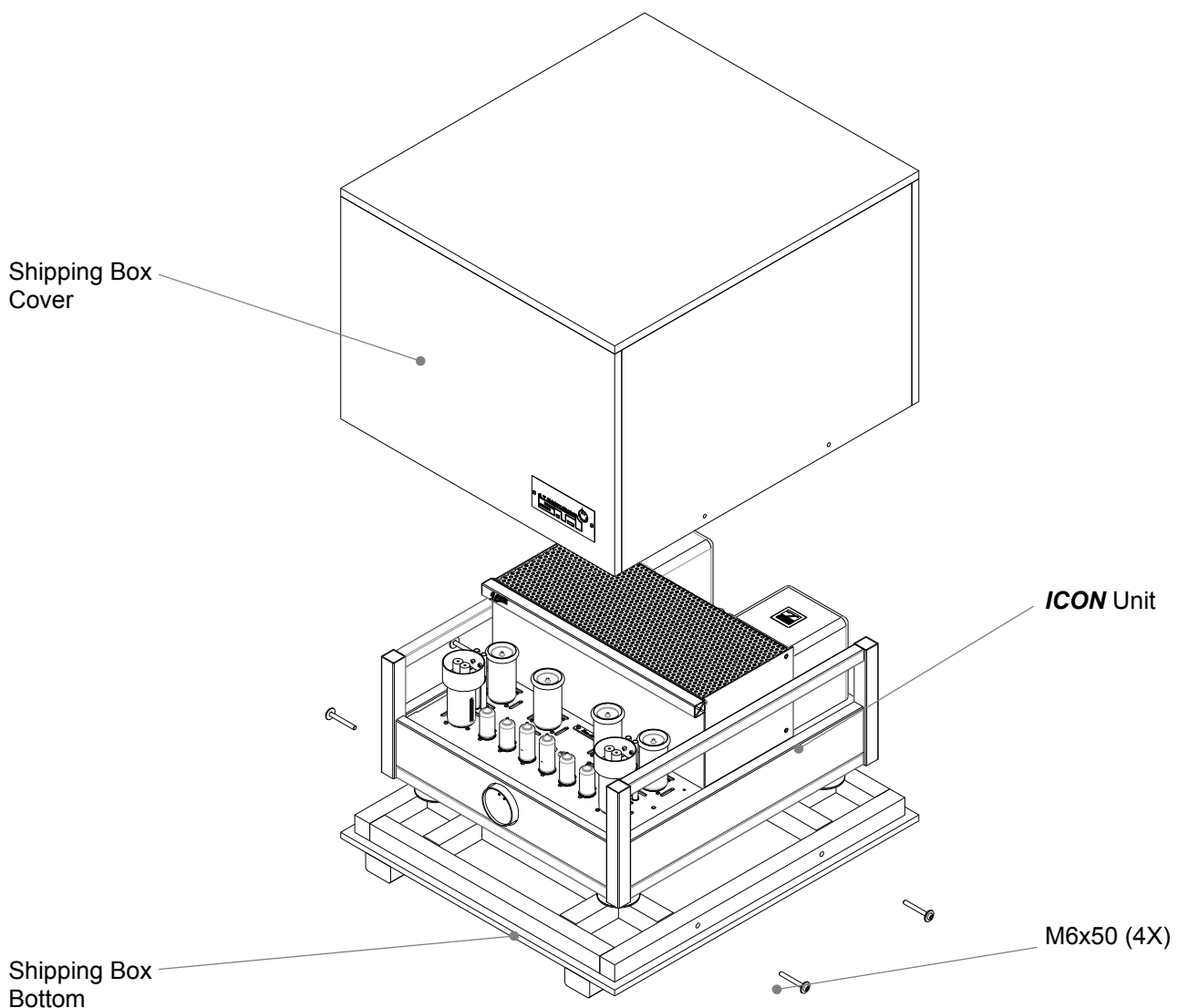


Figure 15

# **STEREO TUBE PREAMPLIFIER**

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## 1 General Information

---

1. The Stereo Tube Preamplifier ICON (ICON Pre) uses Vacuum Tubes for amplifying the audio signal. The ICON Pre is designed to have only qualified Service Personnel perform any part(s) replacement including all the vacuum tubes.

2. The Main AC Power going to the ICON Pre and any other Component(s) should not be applied until all the system components are connected together. Failure to do so could result in malfunctioning of some or all of the system's normal operations.

## 2 ICON Stereo Tube Preamplifier Features

---

- **Four Inputs**

- **Moving Magnet Phono Input**

- **Relay Input Switching**

- **Input Gain Adjustment separately for any of four inputs:  $-18 \dots +12\text{dB}$ /step 3dB**

- **Precision Parts**

Only the finest precision 1% tolerance resistors are used throughout.

- **Power Control Output and Trigger Assignment**

- **Special Power Supply**

Using the same type power supply like ICON Power amplifier.

The following dimensions can assist in determining the best location for your **ICON**.

Side View of **ICON**



## 4 Installation

The ICON Pre can be placed upright on a table or shelf, standing on its four feet. It also can be custom installed in a piece of furniture or cabinet of your choice. The four feet together with the mounting screws should be retained for possible future use if the ICON Pre is removed from the custom installation and used free standing. The required panel cutout, ventilation cutout and unit dimensions are shown.

Always provide adequate ventilation for your ICON Pre. Cool operation ensures the longest possible operating life for any electronic instrument. Do not install the ICON Pre directly above a heat generating component such as a high powered amplifier.

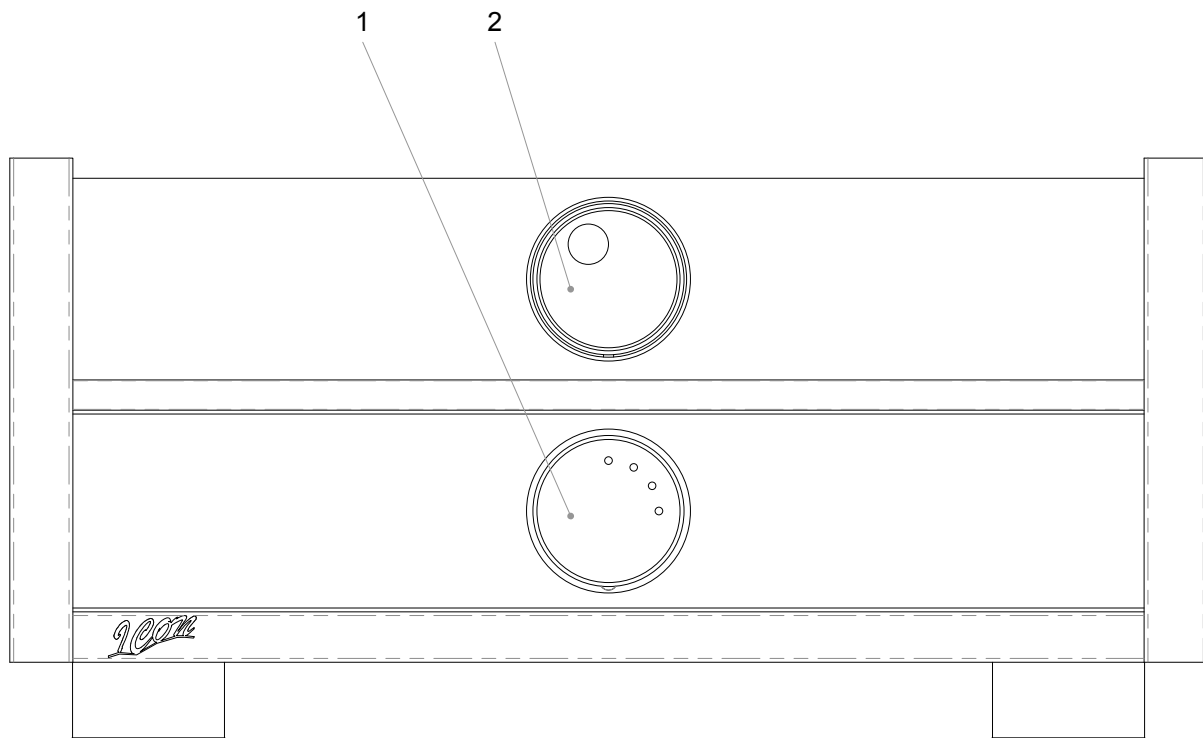
If all the components are installed in a single cabinet, a quiet running ventilation fan can be a definite asset in maintaining all the system components at the coolest possible operating temperature.

A custom cabinet installation should provide the following minimum spacing dimensions for cool operation.

Allow at least 6 inches (15.24cm) above the top, 2 inches (5.08cm) below the bottom and 1 inch (2.54cm).

**Note: The ICON Pre cover can reach 60 °C.**

## 5 Front Panel Controls



**Figure 4**

- 1 – Power On and Source Selection switch;
- 2 – Volume control.

## 6 Rear Panels Connections

Refer to Figure 5 for the Rear Panel Connections.

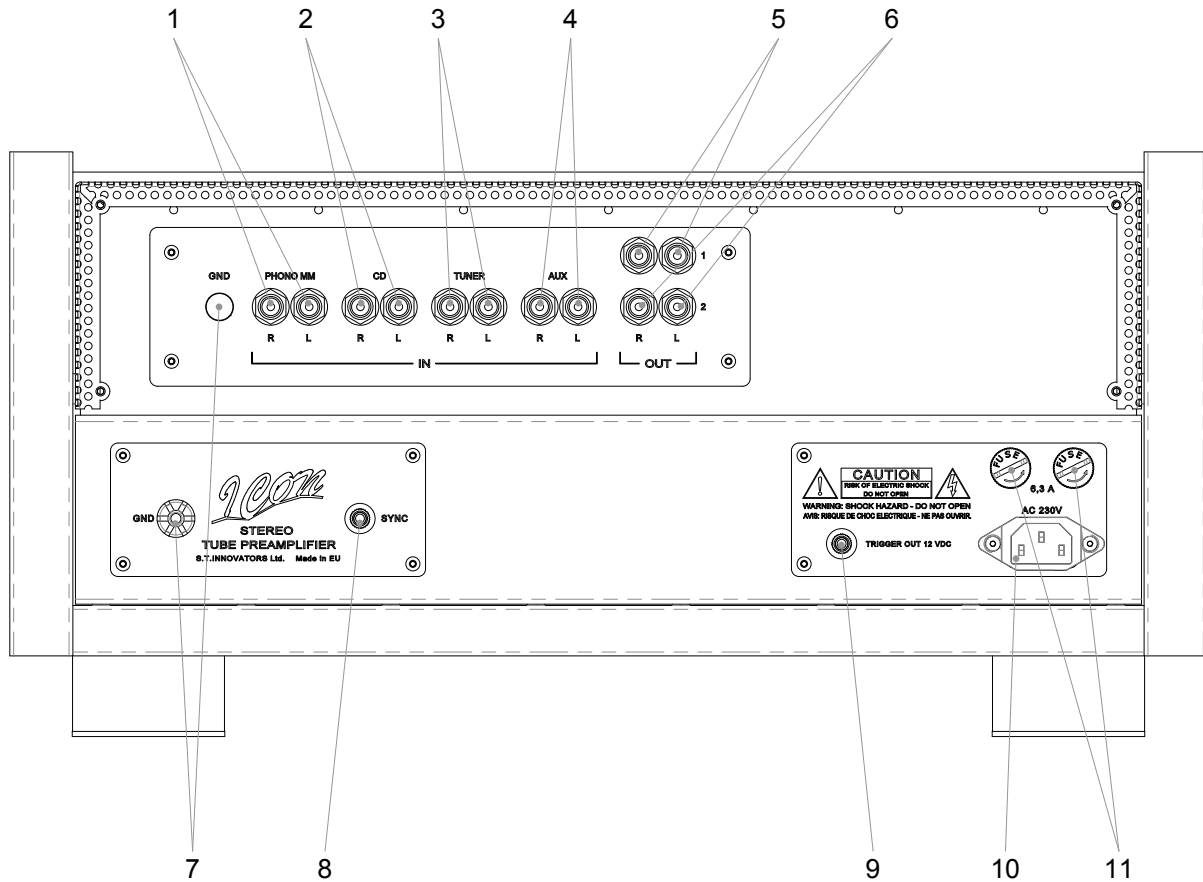


Figure 5

- 1 – Right and Left input for Phono MM;
- 2 – Right and Left input for CD Player;
- 3 – Right and Left input for Tuner;
- 4 – Right and Left input for AUX;
- 5 – Right and Left first output;
- 6 – Right and Left second output;
- 7 – GND terminals;
- 8 – Power synchronization connector with power amplifier;
- 9 – Output 12V trigger for remote power control;
- 10 – Power supply connector - Connect the **ICON Pre** power cord to a live AC outlet. Refer to information on the back panel to determine the correct voltage;
- 11 – Fuses 6,3A - Main Fuse holder, refer to information on the back panel of your **ICON Pre** to determine the correct fuse size and rating.

## 7 How to Connect the ICON Preamplifier

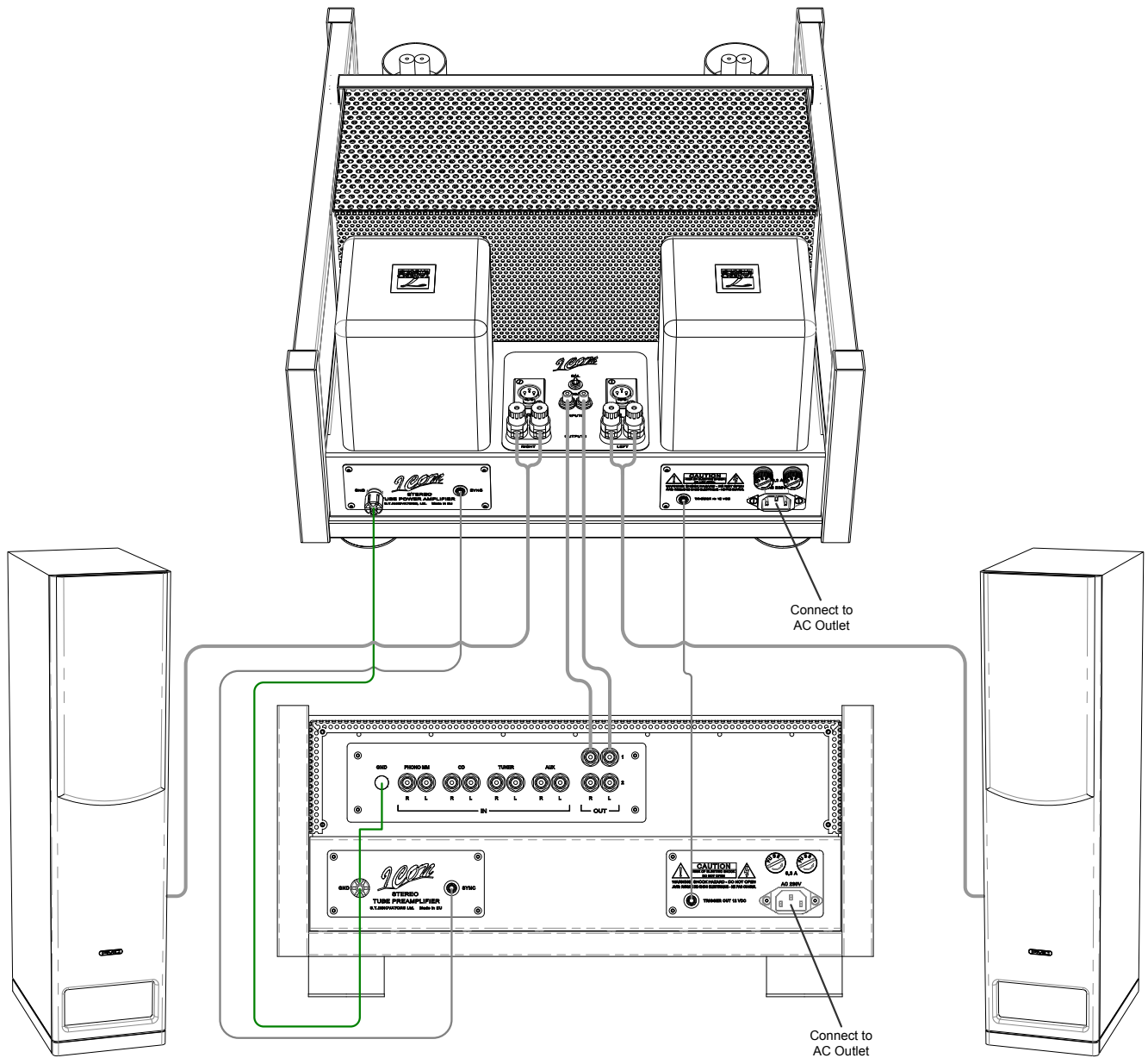


Figure 6

## 8 How to Operate the ICON Preamplifier

### Power On and Source Selection

The Red LED inside the Power On and Source Selection Switch lights to indicate the preamplifier is Switched Off. The Blue LEDs inside the Power On and Source Selection Switch lights to indicate the preamplifier is connected to AC Power. Select the desired source using the **Power On and Source Selection Switch**. To choose one of four sources rotate the Switch.

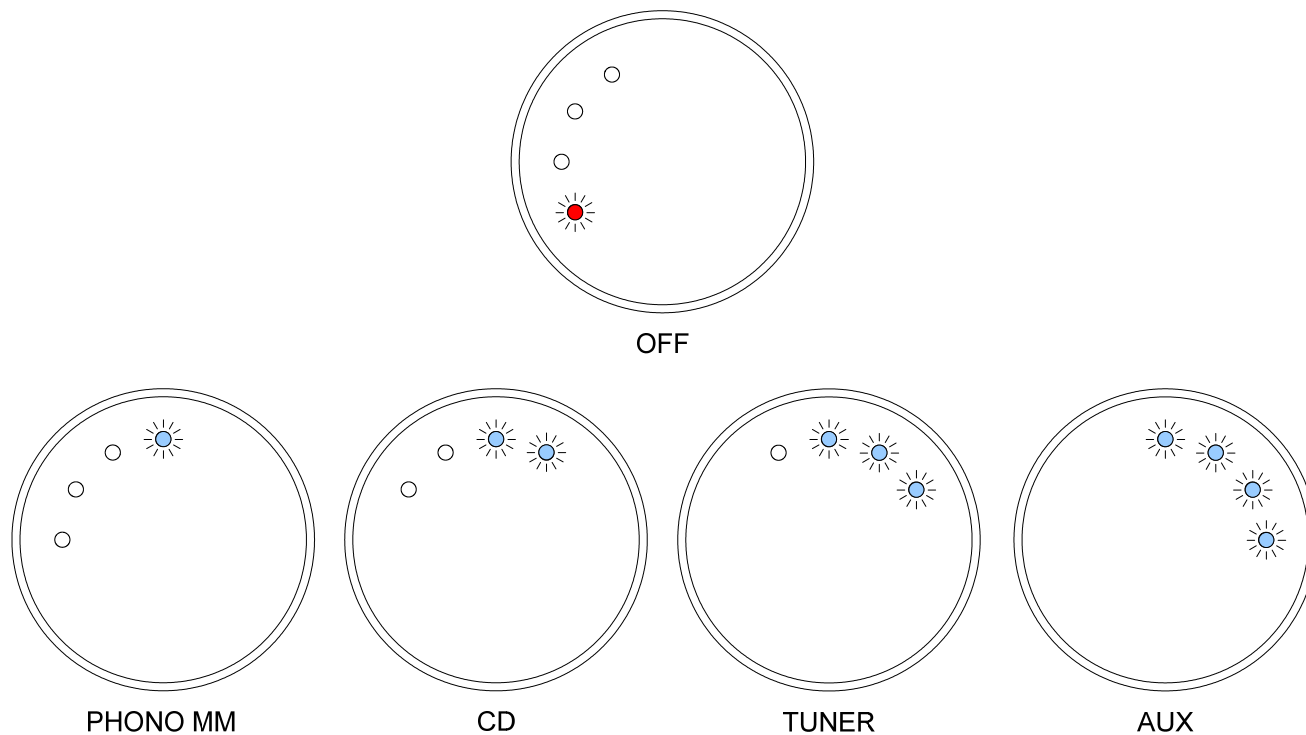


Figure 7

### Volume Control

Rotate the Front Panel VOLUME Control

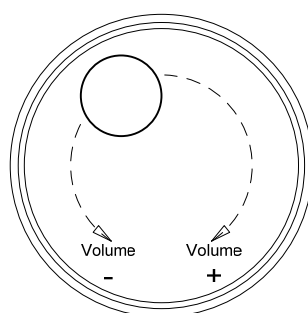


Figure 8

## 9 Ventilation

The **ICON Pre** can be placed upright on a table or shelf, standing on its four feet. Adequate ventilation extends the trouble free life of the **ICON Pre**. The suggested minimum space for operating the **ICON Pre** is 70 cm in width, 60 cm in depth, and 60 cm in height. Always allow air to flow through the ventilation holes on the bottom of the amplifier and a means for the warm air to escape at the top, refer to figure 9

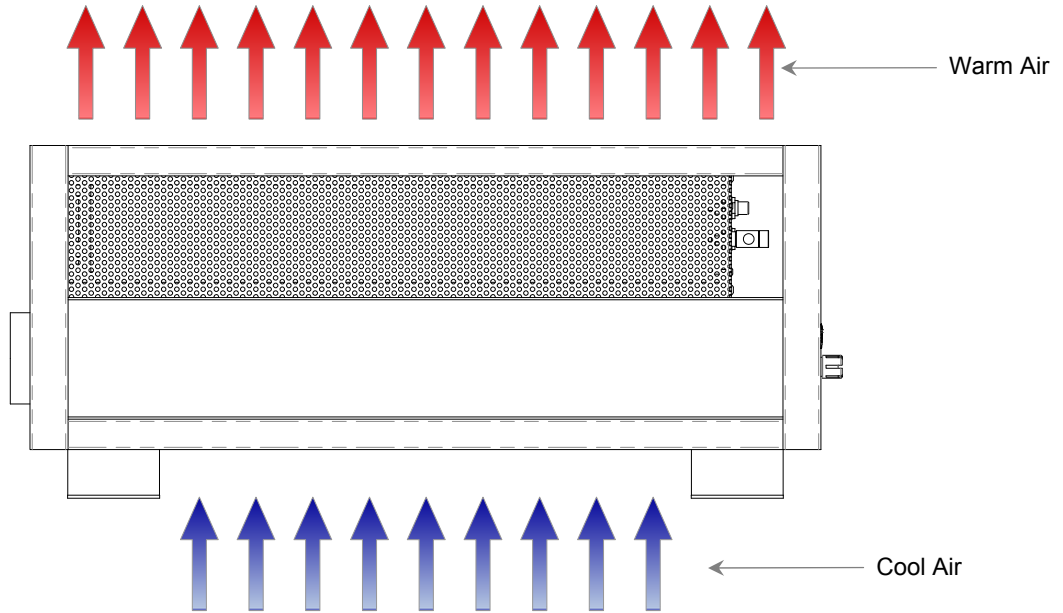


Figure 9

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## 10 Specifications

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<b>Frequency Response</b>	+0, +0.3 dB from 6Hz to 20,000Hz +0, -3 dB from 6Hz to 61,000Hz
<b>Total Harmonic Distortion</b>	0.075% from 20Hz to 20,000Hz
<b>Rated Output (Main)</b>	2.0V Unbalanced
<b>Maximum Voltage Output</b>	8V RMS Unbalanced
<b>Sensitivity (for rated output)</b>	High Level, 500mV unbalanced Phono MM, 3.5mV
<b>Signal To Noise Ratio (A-Weighted)</b>	High Level, 90dB Phono, 82dB
<b>Input Impedance</b>	High Level, 24K ohms unbalanced Phono MM, 47K ohms; 120pF, (Adj 50-680pF)
<b>Maximum Input Signal</b>	High Level, 10V Unbalanced, Phono MM, 50mV
<b>Voltage Gain</b>	High Level to Main Output: -18...+12dB Adj every high level input Phono MM to Main Output: 50dB
<b>Output Impedance</b>	88 ohms
<b>Vacuum Tubes</b> All tubes are military type	10 pcs. – 6N1P-EV 2 pcs. – 6N1P-VI
<b>Power Requirements</b>	185-250 Volts, 50/60Hz at 110 watts
<b>Overall Dimensions</b>	(H x W x D) 200 x 475 x 520 mm  (H x W x D) including feet and knob 232 x 475 x 547 mm
<b>Weight</b>	18 kg

## 11 Packing Instructions

In the event it is necessary to repack the equipment for shipment, the equipment must be packed exactly as described and shown below.

It is very important that the four feet are attached to the bottom of the equipment. This will ensure the proper equipment location on the bottom pad. Failure to do this will result in shipping damage.

Four M6x50 mm screws must be used to fasten the unit securely to the Shipping Skid. Failure to do this will result in shipping damage.

Use the original shipping box and interior parts only if they are all in good serviceable condition. If a shipping box or any of the interior part(s) are needed, please call or write S.T.Innovators.

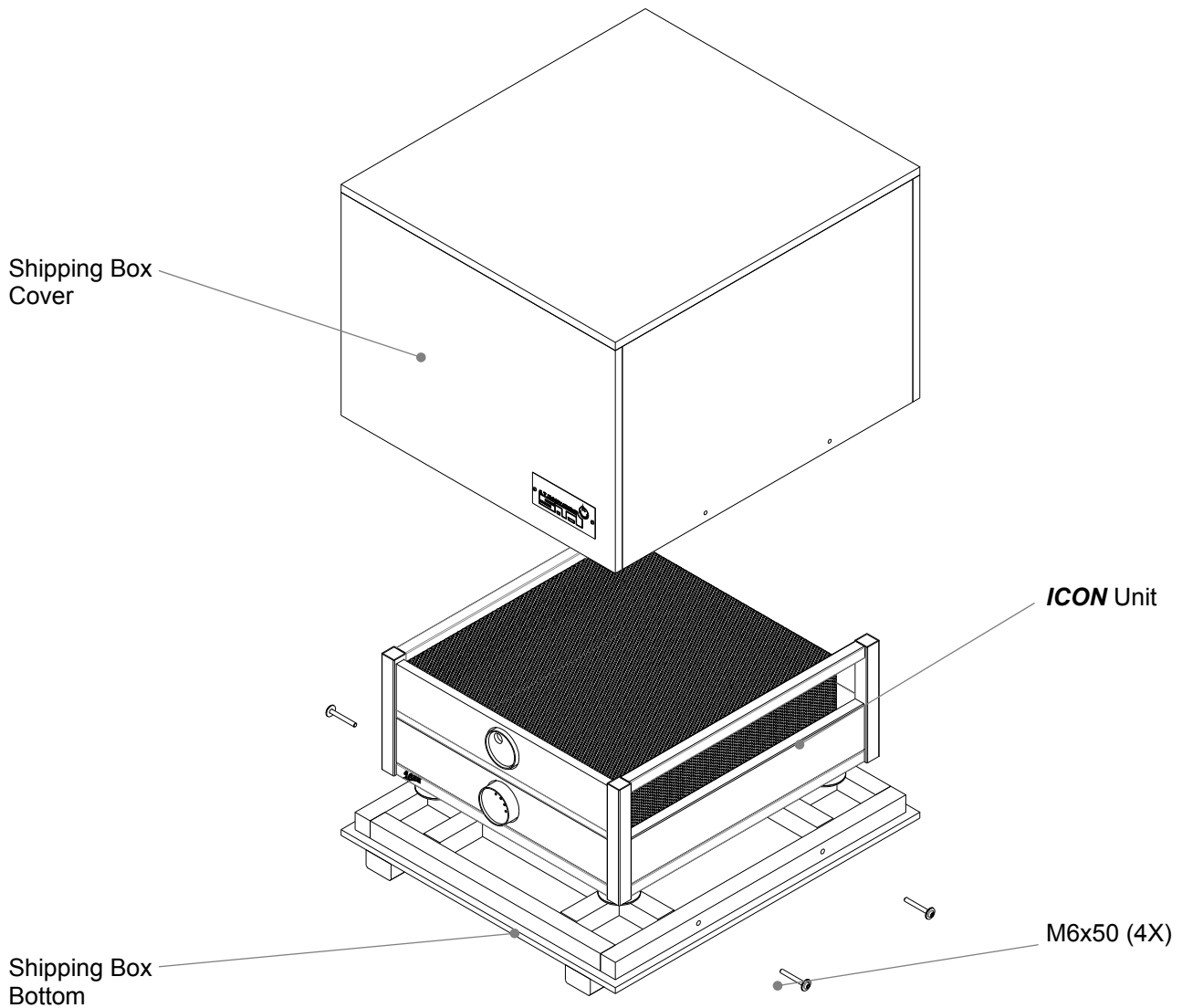


Figure 10

**Contacts:**

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