icon Audio

BA2 MK II Musical Box Instructions
All Valve Line Amplifier

No Compromise High End Pure Valve Buffer Amplifier

About the BA2 MKII

Thank you for purchasing one of our amplifiers, a lot of care has gone into the design, selection of components and production of this amplifier. We are sure that you will hear the difference.

Designed in Leicester by David Shaw,
MD and founder of Icon Audio.

We created the BA2 MKII in order to solve several problems in Hi Fi:

1, A common complaint from customers is the lack of warmth from their (often) "hi end/high spec" transistor equipment often accompanied by excessive "harshness". This is often prevalent in CD/Digital Radio/MP3 sources etc.

2, When driving long and often expensive interconnects it is inevitable that there will be some loss of detail and high frequency, as the output impedance of some pre-amplifiers and other units is either to high, or lacking "muscle" to drive. Conversely the input impedance (load) of some units can be to low, causing the same problem.

3, Sometimes, for various reasons two units of Hi Fi just do not seem to work well together. This could be due to poor impedance matching, poor loading or some other unidentified reason.

Our BA2 MKII "buffer amplifier" is designed to overcome all these problems and give a warmer more musical "valve sound". It is an excellent cure for "listening fatigue" (the "sounds great but I can't bear to listen for more than 30 minutes" syndrome).

The Musical Box is a small all valve pre-amplifier with zero gain. It is based around the superb 6SN7 probably the greatest HI Fi valve ever made. Using one 6SN7 per channel the "Musical Box" has a wonderfully detailed smooth fluid quality. It will add "texture" and make your system more "listenable".

The MK II BA2 uses the same power supply as our award winning PS1 phono stage. This uses a high performance choke regulated power supply which provides the same smooth silent power.

6SN7s have a reputation for a very long life, they are inexpensive and easily replaceable. There is "new production" and lots of "old stock" to experiment with.

The power supply is integrated in the BA2 MKII so its "footprint" is very small. We use a substantial mains transformer which forms part of a generous power supply.

As with all Icon products we strive for the best sonic performance, this demands hard wiring "point to point". The audio cable is Silver PTFE. Using only high quality audio grade full size components.

The chassis using a combination of Anodised alloy plate and polished stainless steel. This gives a

beautiful finish and very solid feel, which also has sonic non-magnetic and dampening qualities.

Connecting:
The BA2 MKII would normally be connected between the output of your source unit (e.g. CD player), or between the output of a pre-amplifier and a power-amp. Alternatively the “record loop” of an integrated amplifier may be used.
But there are many other situations where the BA2 MKII could be used, in studios, AV equipment etc.

What will it do for your sound?
The simple triode design coupled with the superb characteristics of the 6SN7 valve will enrich the harmonic detail of your system adding a new dimension to the sound of any musical instrument. Your system will immediately have a richer warmer, more textured sound But the BA2 MKIIs wide bandwidth and low distortion ensure that nothing is detracted from the purity of your system. There will be no loss of information, a glance at the frequency response and distortion will confirm the excellence of the performance.

To get the best out of the BA2 MKII Please read the enclosed notes. We have tried to give you all the basic information you will need. **We would recommend that everyone follows the ‘quick set up guide’.** Should you be uncertain about anything to do with your BA2 MKII please contact your dealer or us.

Our philosophy is to use traditional valve minimalist, circuitry. The beauty of valve amplifiers is that they are usually very simple; therefore with the use of traditional point-to point construction, modern high performance low tolerance components, it is possible to very high sonic performance. This simplicity enables us to avoid the use of printed circuit boards, which are not ideal for valve amplifiers despite their common use.

Although technical performance is important, we never forget that sound quality takes overriding priority in our design and production. The BA2 MKII 2 has a massive overload capability and even then would go into ‘soft clipping’, which is much more benign and easier on the ear than overload with transistors.

The simplicity of the circuit means that there are much fewer components for the signal to pass through, fewer connections and switches, again adding to the purity of sound.

This simplicity also means that we can use higher quality oversized components, such as 2w resistors.

The use of the fabulous 6SN7 valves, which are still in production, means that obtaining replacements is easy and inexpensive when necessary.

In the process of building the BA2 to its high standard no corners have been cut and we have also paid close attention to the appearance.

The final result is an amplifier with excellent characteristics, with an accurate yet smooth and transparent quality.

To get the best out of your unit and to save time please read this information & keep it to hand for reference

QUICK SET UP GUIDE

1 Unpack unit carefully. Make sure that it is in good condition. It is important that you keep packaging for warranty/service return. If damaged contact your supplier.

2 Fit the valves if necessary.
This is easy as there is only one type of valve. **Do not push or pull the 6SN7s glass envelope**, this could cause the glass envelope to become detached from the BA2 MKII causing irreparable damage to the valve.

3. Connect the power supply. Do not operate the power supply without connection to the BA2 as this will damage the regulator.

4. Position the two units carefully in your system far enough apart to eliminate noise or hum. The power supply should be far away from other sensitive units such as phono pre-amps, arms etc. You may need to do this by "trial and error".
5 Connect between either your source unit or between your pre and power amplifier. e.g. CD, Tuner, Tape, Phono pre amp (if used) and power amp etc via appropriate phono sockets and leads.

6 Connect to mains supply using the attached mains lead to 230-240v supply. **If it is necessary to change to a different type of mains plug, the welded plug must be removed and replaced with a suitable type. Please then remove fuse and dispose of carefully.** (As they can be a danger to children if plugged in). The replacement plug should be wired in the following way Brown to Live terminal, Blue to Neutral terminal and Green/Yellow to Earth terminal.

7 SWITCH ON! The blue mains indicator should light up and unit will take approximately 40 seconds to start working. Both valves should have a visible orange glow from each of the two cathode heaters. With the volume control set to minimum (fully anti-clockwise) there should be no sound coming from the speakers except a barely discernable gentle hum.

8 Your unit should now be functioning. If not check wiring again and/Use selector/tape monitor/volume to choose source program and suitable listening volume. The best sound quality will be when the unit has warmed up for at least 15 mins.

9 Health and Safety. The valves when operating have surface temperatures that are hot to the touch. Keep out of reach of children and pets.
Under no circumstances operate with valves removed!
Like all amplifiers there are potentially lethal high voltages inside, which when switched off can take up to 20 mins to discharge! Do not remove bottom panel unless you are a competent engineer. There are no user serviceable parts inside. **Like other household electrical appliances do not leave unattended whilst switched on.**

Inputs & outputs

Many problems with hi fi equipment involve connecting leads which are usually either **'bad, or Wrong connection'**. So it's worth making sure that you have good connections and that your leads are the right way round.

Inputs
The amplifier will work with any standard piece of hi fi e.g. CD, Tuner, Tape Deck, Mini Disc, TV, Video Recorder, DVD etc.

General points

- Mobile phone 'breakthrough' is normal
- A switch-off 'click' through the speakers is normal.
- Storage in damp conditions could permanently damage transformers, contacts and other parts.

Connecting Leads
Use good quality connecting leads, which are no longer than they need to be.

Leaving the amp switched on
People sometimes ask if the amp should be left running 24/7 without switching off. Whilst the amplifier will sound at its best when it is properly warmed up, there is no advantage leaving it switched on when it is not in use. It is using electricity and valves have a finite life. Conversely the valves and other components are stressed more at switch on; therefore do not switch on and off unnecessarily. **Although the amplifier should sound good within about 15 mins, like most hi fi units it can take up to an hour to sound at its best and will take a couple of months of regular use before it is 'run in' and settled down.**

Cabinet Care
To remove dust from the cabinet and valves we suggest gentle brushing with a soft paintbrush and a duster. Finger marks can usually be removed with a damp cloth. Always clean with the power disconnected.

CAUTION – HEALTH & SAFETY!
When making any adjustments remember to isolate from power supply, and remember that high voltages can remain present inside for some time after switch off.

Trouble Shooting

Amplifier Dead

Check the 1 amp mains fuse which is in a fuse holder which forms part of the mains socket on the power supply switch. Replacements should be 20mm 1Amp 'anti-surge' or "T" type. These are available from Icon Audio should you have any difficulty.

The fuse in the mains plug should be a 3 or 5 amp fuse, although unlikely, this should be checked if the amplifier fuse is OK.

No sound

Have you selected the right input? Are the connections OK? Is everything switched on? Are the speakers connected?

Distorted sound.

Try another source; if sound improves then it's probably something wrong with the first source. If no improvement try different speakers, if no improvement could be an amplifier problem.

Hum Problems

These are generally caused by "bad" earths or bad connections. A common cause is a 'hum loop' caused by having to many earths, and may be identified by unplugging each input source from the mains. One remedy for this is to use an interconnect which only has the screen connected at one end. Other causes of low-level hum can be from adjacent equipment, so experiment with moving equipment around to see if this makes the hum better or worse.

One channel missing.

Usually 'bad' connections are on either the input or the speakers. Try swapping the connection over to establish if the cause is:

(a) Input to the amp. Sound will move to the other channel.

(b) Amplifier or speakers. Sound will not move.

Strange noises coming from speakers

Turn volume to minimum on unused input, if problem corrected either fault with source unit or with connection. If noise persists, problem with amplifier.

A valve that is lit up is not a guarantee that it is working properly; conversely a valve that is not lit up will not be working.

Valve Life and Replacement

Valve life will depend upon such things as hours of use and number of on/off cycles. As all the valves are lightly loaded. As a rough guide we would estimate life of approx 4 to 10 years. But this can vary. For example a unit left on continuously for 6 months is equal to 4,400 hours the nominal life the valves.

What can happen?

A valves is at the end of it life if one of the following happens:

- 6SN7s are twin triode valves. One of the two heaters may fail, causing no sound.
- A valve could get "noisy" or "microphonic"
- The emission (and therefore output and sound quality) may fall off slowly.
- The valve works intemittantly.
- An air leak causes the silver "getter" material to turn white.

It is essential that only the correct valves are used as some similar looking valves have a different pin connection and insertion could result in damage to the amplifier and risk of electric shock.

It is not good practice to remove the valves unnecessarily as this can strain the pins and cause tiny air leaks. Icon Audio are happy to replace valves and check to performance of your amplifier, and advise on the latest upgrades available.

Although the two original 6SN7 valves are normally identical we suggest that if removed, they are replaced in the same position. You could mark them, e.g. with a felt tipped pen.

Service: Should you suspect a problem, you could return the unit to your dealer or Icon Audio for a periodic service or return the valves for testing free of charge. You should carefully remove the valves they should be well packed in cardboard & foam or similar, and returned to Icon Audio for testing. (Valves are very rugged if packed properly).

Specification & Features

- No printed circuit board or tag board
- Choke regulated power supply
- All Triode design
- 2x 6SN7 Double triode
- Signal to noise level -90db
- Freq response 10hz-30khz +0 - 0.1db
- THD 0.01%, @ 1khz, 2v rms
- Hand wired point to point components
- High quality 2w metal film resistors, for audio
- Blue LED mains indicator
- Audio grade Polypropylene audio capacitors
- Wired with silver PTFE audiophile cable
- Rubicon/Nichichron power capacitors
- Ceramic valve holders for minimum leakage
- DC heater power supply for minimum noise.
- Gold plated Input & output terminals
- Gain= 0.94 or -0.6db
- Output impedance 38 ohms
- Maximum output 30 volts
- 230/240volts, 20W 1A anti-surge fuse
- mains lead, (UK plug 5amp fused)
- C E certified
- SIZE and weight (figures in brackets allow for rear connections & ventilation)

(Specifications subject to change, errors & omissions excepted 19/02/20)

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Final Inspection

This amplifier has been carefully checked, tested and final adjustments made by Icon Audio in Leicester.

It has passed our rigorous listening test and final inspection to assure you of optimum performance and reliability.

Date ….…./….

Model …….

Amp Serial Number ……..…….

Customer ……

Check amplifier finish	…….
Run 6 hour test	…….
Check inputs/outputs	…….
Sound Quality	…….
Channel balance	…….
Valve Microphone	…….
Valve Seating	…….
Hum & noise level	…….
RFI Test	…….
Serial No sticker and recorded	…….
Mains voltage	110 / 230-240V

IEC Mains Fuse	……A
Sales invoice	…….
Credit card receipt	…….
Chassis linearity	…….
Bias meter	N/A
Transformer Protection	N/A
Upgrades:	
Output valve	…….
Capacitors	…….
Interconnects	…….

Signed off by ……

Notes: