icon Audio

Instruction Manual Covering:

MB90 MK IIm Mono Block Amplifiers

designed by David Shaw

Shown with KT150 output and upgraded driver valves

IMPORTANT!
THIS MANUAL CONTAINS ESSENTIAL HEALTH & SAFETY INFORMATION FOR YOU AND YOUR AMPLIFIER. PLEASE READ & KEEP SAFE AND REFER TO IF NECESSARY

Contents

1 Introduction

Thank you for purchasing the ***MB 90s***. These pure valve mono block amplifiers are the result of years of careful design and listening tests with a huge range of speakers. The amplifiers are hand built using carefully selected audiophile components. The transformers are hand would using low oxygen copper and special Japanese long grain iron. Finally each amplifier is valved, carefully commissioned and tweaked for best performance in Leicester UK.

In order to get the best out of your amplifier, please read the enclosed notes. Even if you are experienced with hi fi **please read the 'quick set up guide'.** Should you be uncertain about anything please contact your dealer or us for advice.

Valve amplifiers do need a little more attention than their solid-state counterparts, but the sonic results are more than worth it. In this manual we have tried to include everything that you need to know. Please let us know if you find any errors or feel that we have missed anything out.

Hi fi reproduction is a long chain of events that includes the recording, editing, mixing etc, before being transferred to a medium such as LP, Digital, etc, before being played through your own source unit, the amplifier and finally loudspeakers.

Your room acoustics will affect the sound before it finally reaches your ear. Whilst the amplifier is arguably the most important part of a system, it is important to remember that the weakest link will always affect the final results. And not all recordings are 'equal'! Therefore a good amplifier will also reproduce recording imperfections. Therefore setting up and testing should be made with a 'clean' well balanced recording.

The ***MB 90*** is a push-pull Ultralinear stereo power amp, capable of running in either Ultralinear (half pentode and half triode) or pure triode mode, using the excellent KT150, KT120 valves. These are in fixed-bias mode which gives maximum power, cool running and even indicates valve condition. You will occasionally need to check the bias. The driver and phase splitting is all triode for best sound quality and low noise. They are sensitive enough to be used with all modern source equipment. Their simplicity coupled with point to point hand wiring without the use of printed circuit boards results in an open euphoric sound that is wonderfully detailed and warm.

Final Inspection - Your Guarantee of Quality

To assure you of optimum performance and reliability, this amplifier has passed our rigorous final inspection and listening test by the Icon Audio team in Leicester. During which the final set up and adjustments were made.

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

Date ..../..../....

Model .....

Amp Serial Number .....

Customer .....

Check amplifier finish	.....	IEC Mains Fuse	.....A
Internal wiring check	.....	Soft Start Fitted	.....
Check Triode mode	.....	Sales invoice	.....
Run min 6 hour test	.....	Bottom label	.....
Check input	.....	Credit card receipt	.....
Output Valve Bias level	v	Customer survey form	.....
Power UL 1 kHz 8Ω	.....L.....R	Bias meter	.....
Power Triode UL 1 kHz 8Ω	.....L.....R	Transformer Protection	.....
Sound Quality	.....	**Upgrades:**	
Channel Balance	.....	HT delay fitted?	...Y / N
Valve Microphony	.....	Output valves	....
Valve Seating	.....	1st Stage valve	.....
Hum level	.....mv	Phase splitter valves	.....
RF Test	.....	Capacitor grade (Audio)	.....
LED brightness	.....	Capacitor grade (Power)	.....
Serial No sticker and recorded	.....	Mains lead	.....
Mains voltage	110 / 230-240V	Interconnects	.....

Signed off by .....

Notes:

Please note we do not test the standard mains lead. The plug UK version normally has a 5 amp fuse.

IMPORTANT READ THESE NOTES THROUGH FIRST!

2 QUICK SET UP GUIDE

1 Unpack unit carefully. Make sure that it is in good condition. If not report to Icon Audio. It is important that you keep the packaging for warranty/service return.[1]

2 If Necessary fit the valves, or check that they are firmly in place. Fit the valves according to the numbers written on the base, normally L 1-5 and R 1-5 as printed on the copper plate. The KT150/120s should be fitted first to the two **REAR** sockets (the two sockets nearest the transformers). To avoid damage to the valves hold the valves as close to the base as possible

NOTE THE "LEFT" and "RIGHT" KT150/120 orientation on each amplifier. Also keep the left and right amplifier valves separate. The right/left amplifiers can be identified by the red or black ring on the input sockets at the rear.[2]

Be careful to note the correct orientation of the central "spigot" between the pins otherwise damage could occur. [3]

The small valves should be gently & firmly pushed into place. The 6SL7 (6188) is fitted to the right hand base (the same side as the triode switch) and the 6SN7 to the left hand base (the same side as the standby switch). The 0D3 should be in the centre.

NOTE: The KT150/120's and 6SL7/6SN7 are NOT interchangeable! This will result in damage and could be dangerous.[4]

3 Connect to source unit, e.g. Phono pre amp, Passive pre amp etc via appropriate phono sockets. Set L & R SENSITIVITY switches on the rear to High (H) or Low (L) as required, see 6a.

4 Connect speaker terminals use "0" & "8 ohm" terminals unless you have 4 ohm speakers (see P5) Make sure that the polarity is correct. (See speaker connections chapter 3). If 'bi-wiring' both 'common' should go to the black terminal and both 'positive' (or red) should go to the red terminals. [5]

5 Connect to mains supply using supplied IEC mains lead to 230v supply. **If for some reason the welded plug must be removed, please remove plug fuse and dispose of immediately.** (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.

6 Before switching on make sure that the "standby switch" is in the "up" position. [6]

SWITCH ON! Leave for at least 60 seconds for the valves to warm up, and then push the "standby" switch into the "down" position. The amplifier should now be working. Most valves should have a visible orange glow from the cathode heaters. With the pre amp volume control set to minimum there should be no sound coming from the speakers except a barely discernable hum. If there are any unpleasant sounds coming from the speakers, switch off and refer to the 'Trouble Shooting' section or contact Icon Audio. We recommend you switch to "standby" when switching off, (to be ready for your next session).

6a High/Low Sensitivity Switch (on rear)

The LOW sensitivity position is designed to work with normal valve and solid state pre amplifiers, giving the best damping factor for "difficult load" speakers, (normal feedback).

The HIGH sensitivity position is for "Passive" pre-amps (without gain) or devices with a volume control (our PS1/PS3 phono stage, MP3, "i Phone/Pod" etc). Purists may prefer this low feedback sound. Feel free to change and choose your preference.

7 Your unit should now be functioning. If not check wiring again. Do not operate at a high volume for the first five minutes to allow the valves to warm up properly.

All these things are normal for valve amplifiers:

A, Valves can get very hot, BEWARE!
B, The power transformer cover will get quite warm
C, The amplifier may smell a little for a few hours.
D, Mobile phone 'breakthrough' is normal.
E, Valves may make a 'tinkling' sound when warming up and cooling down.
F, One channel may come on before the other at switch on.
G, There may be a 'click' when switching off.
H, The occasional "click" or "pop" is normal.

8 Health and Safety. The valves when operating have high surface temperatures. Keep out of reach of children and pets. The use of the supplied guard is recommended in these circumstances. Always unplug when making adjustments. **Like all amplifiers there are potentially lethal high voltages inside (over 500v DC), which when switched off can take twenty minutes 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.** Do not adjust the KT150/120 bias pre sets without reference to the manual. Incorrect adjustment could cause the valves to overheat, with resulting in damage to valves and amplifier.

Bias Adjustment:

The bias adjustment is factory set. No initial adjustment should be necessary. But it is suggested that you test after shipping to ensure the correct operation.

To maintain the best performance of the amplifier you should check the bias of the output valves regularly (say once a month). Full details will be found in section 6.

For use of output valves other than KT150/120 see section 6.

3 Connecting inputs & outputs

Many problems associated with electronic equipment involves connecting leads, which are usually either **'BAD CONNECTION' or 'WRONG CONNECTION'**. So it's worth making sure that you have good connections and that your leads are the right way round.

Inputs

These power amplifiers require some kind of pre amplifier to accomplish switching and volume control. This could either be achieved by either a "passive" or powered unit. Icon Audio make ideal passive and active pre amps. You may wish to consult your dealer. If you wish to use a turntable you will need a suitable phono pre-amp. Your dealer or Icon Audio can advise you. Our PS1.2 MM/MC or PS3 MM/MC all valve phono stages are an ideal partner.

Connecting loudspeakers

It is important to use good quality loudspeaker cable. This should be relatively thick and muti-stranded. i.e. QED 'Original' or better. Take care to connect the correct polarity. The use of 'Banana plugs' or 'spade' connections will ensure a good connection whilst minimising the risk of 'shorts'.

In our experience Icon valve amplifiers are more tolerant of cables, therefore the benefits of some very 'exotic' cables may be less apparent. But this is also personal taste.

As all cables have losses, keeping the speaker cables short is best. It may be better and be cheaper to re-arrange your room and use shorter cables than to spend a fortune on longer cables!

You can either 'hard wire' your cable to the amplifier by baring enough cable to fit in the connector and twist together to avoid any spare strands touching anywhere else (soldering the stands together helps). **WARNING this amplifier does not have an output protection device, which would degrade the sound. So a prolonged short due to strands of wire touching could cause damage.** Alternatively use good quality 'banana' plugs or spade connections, once fitted they are trouble free.

Speaker polarity. When using a pair of MB90s it is essential that you observe the polarity of the terminals; they must be the same for the left/right connections at each amplifier end and at the loudspeaker end. Otherwise the sound will be 'out of phase' with the sound stage 'inside out' with reduced bass. **If you are unable to check this or confirm the polarity** (e.g. if you have 'built in' wiring), try the following; Connect the system up and play some music with plenty of bass (e.g. dance music), preferably in mono (FM tuners are usually switchable to mono) and stand the speakers close together. If correct you should hear plenty of bass, if not **reverse the terminals for one channel only, either at the amp or speaker.** You will now hear more, or less bass. The higher bass output is the correct setting to use. Another alternative is to use a test disc. If you are 'bi-wiring' your speakers only two terminals, you must use only 4 or 8 ohms, not both, as this will not load the amplifier properly.

4 or 8 Ohms?

Many modern loudspeakers have an impedance which can vary from 2-16 Ωohms. The best power match is (1) the loudest, and (2) the most pleasing tonal balance.

The MB 90 is designed to work with full range, low to medium efficiency speakers having impedance between 4 ohms to 8 ohms. Speakers having efficiency of lower than 84db will have greater difficulty in providing a high sound level. But this will also depend upon individual speakers, room size, type of music and positioning etc.

4 Getting the best performance from your amplifier

- Switch on your pre-amp first. This will limit "switch on thump" in your speakers.
- Use the "Standby" switch before switching power on, this will protect the output valves
- Do not leave the amplifier switched on all the time. The valves wear out faster
- Do not switch off and on without a short rest of 60 seconds (to reset the 'soft start')
- Do not adjust the output valve grid bias without reading the manual
- Do not switch from Ultralinear to Triode without first switching to "Standby"
- Do not operate the amplifier without loudspeakers connected (unless temporarily at "0" volume)
- Do not use valves other than listed as there could be danger of shock or damage
- Do check the bias regularly (at least once a month) to be sure of optimum performance.
- Make sure the speakers are in phase (see speaker polarity above)
- Use the best possible source material for setting up and testing your system

What is safe maximum volume?

The MB 90 will run happily all day long at a high undistorted volume; the valves hardly stressed any more than at zero volume. Running into distortion will however stress the whole amplifier. Generally speaking if the sound is not distorted then the amplifier is not stressed. But beware of heavy musical transients at high volume which could also damage your speakers and blow fuses.

Triode Switch. This switch causes the KT150/120s to operate as Triode valves. **As switching "live" could damage the output transformers. Switching should only be done when the amplifier is in the "standby" mode or switched off.** The volume will remain virtually the same, but the maximum output is reduced by approximately 50%. The characteristics of a "Triode" amplifier are different from the

conventional “Ultralinear”. Triode amplifiers are generally more tolerant of difficult loudspeaker loads. How different the sound is in your system will depend upon your speakers and other factors. Generally people find it a little smoother and easier to listen to.

Leaving the amp switched on

We are often asked if the amplifier 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 as valves have a finite life. Use the Standby switch when not continuously in use, to avoid switching on and off unnecessarily.

Standby switch

This switch leaves the valves heated but without power. This prevents “Cathode stripping” at switch on, allows the cathode chemistry to re-form, minimises energy usage, and makes the amplifier available for instant use. However as a general guide it is not recommended that this mode should be continuously used for more than 24hrs.

We would always advise that any item of home electronics is switched off when unattended.

‘Burning in’

Although the amplifier should sound good within about 10 mins it can take up to an hour to sound at its best and will take several months of regular use before it is fully ‘run in’.

Upgrading Valves!

Quality valves should sound better and have a better service. The valves supplied with selected models are the result of careful comparison with other makes. But beware of paying a premium for “New Old Stock” valves where you may be paying for rarity value and not performance. Icon Audio normally keep a range of upgrade valves in stock. As the manufacturer we have wide experience of all types of valves, which we are happy to recommend for your amplifier. For output valves other than KT150/120s see section 6.

Cabinet Care

To remove dust we suggest gentle brushing of the polished stainless steel cabinet with a soft paintbrush. Other marks can usually be removed with a damp cloth. The Perspex valve cover may need a gentle wipe with soapy water and drying with a duster. Never use anything wet on the amplifier, and always clean with the power disconnected.

5 Trouble Shooting

Amplifier Dead

Check the 3 amp mains fuse (5a USA) at the back of the amplifier. To gain access, remove the mains lead. The fuse is in a small plastic drawer, which forms part of the socket assembly. To open insert a flat blade screwdriver or similar and prise open. **The fuse in use is the innermost** the outer is a spare. Should the replacement fuse also blow there is a fault you should disconnect from the mains and seek qualified help or Icon Audio. Replacements should be 3 Amp ‘anti-surge’ (5a USA).

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

No sound

Have you selected the right input? Is the “Tape Monitor” switch up? Are all the connections OK? Is everything switched on? Are the speakers connected?

Distorted sound.

Could it be your source? The speakers or the amplifier, check all wiring, and try swapping things around to eliminate or prove which component if the problem.

Left or right amplifier? If both probably the source unit. Try another source. If one amplifier is distorted check the bias. No bias reading means either a fuse blown or a faulty valve. Distorted sound at higher volumes may be because one of the output KT150/120 valves is not working. This could be due a faulty KT150/KT120 valve or one of the KT150/120 internal fuses blowing. A symptom of this would be no bias voltage showing on the meter. Also the valve would not be as hot as the others. Refer to an engineer or to Icon Audio. Spare internal fuses are secured inside the chassis. Replacements are available free of charge from Icon Audio.

Hum Problems

If you experience hum, try disconnecting all inputs, if hum persists this is probably an amplifier fault.

If not, identify which input is causing hum. Connect one input at a time. A common cause is a ‘hum loop’ caused by having too 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.

Strange noises coming from speakers

Turn volume to minimum on unused input, if the noise disappears, the fault is with the source or the connection. If noise persists, the problem is with amplifier.

If a whole output valve glows red (other than the heater), often accompanied by a hum through the speakers, switch off immediately, and refer to Icon Audio or a service engineer, as this could be valve failure.

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 (the KT150/120s should be held by the base when removing, to prevent damage) numbering them with a marker from left to right as you do so in order that that may be replaced in the same position. They should be well packed in cardboard & foam or similar, and returned to Icon Audio for testing. (Valves are very rugged if packed properly).

Mains Supply

This amplifier is hard wired to work on 220-240v 50-60Hzac. The transformer may be re-configured for 115-120v ac by a qualified engineer. Contact for more information. The IEC fuse will need to 2x higher.

6 Bias Adjustment & Valve Change

Read these notes all the way through first.
If you are unsure about any aspect contact your retailer, Icon Audio or a competent service engineer.

When checking the bias ensure that any "Active" pre-amp or source is "off" with zero volume to prevent false readings. Passive pre-amps should have "zero" volume. On a test bench "short circuit" the input.

The MB 90s use the "fixed bias' mode of valve operation. This has the advantage of higher power, and cooler running. However occasionally it is advisable to check the bias reading using the built in meter to ensure best performance from the amplifier. This is very easy involving the flick of a switch.

1, Tools you will need: A small flat blade screwdriver. Run the amplifier for about 10 mins (if possible) first.

2, Reading the bias:
Check one amplifier at a time.
Move the Bias switch to"V1" the pointer in the meter should be in or near the black section. Repeat for "V2".
a. If V1 and V2 are about the same but between 55 and 75, this is normal.
b. If you find the readings over a few days are generally high or low, adjust for the average.

3. How to adjust:
If one or both valves are high or low, adjust by inserting a small screwdriver in each adjuster for the correct valve.
4. **The adjustment is very sensitive so adjust very carefully.** If the reading appears a little unstable this is normally due to mains fluctuations.
The setting of one valve will affect the other, so repeat until satisfactory results are obtained.

5. Notes
If one or more valves are showing erratic readings or you cannot set the pointer in the black section, then that valve is probably faulty or out of specification. If you are unable to set the reading high enough this means the emission of the valve is low.
If there is no reading at all the internal 500ma fuse individual to each KT150/120 should be checked by a qualified engineer. Spares should be located inside.
If the reading is high and cannot be reduced this valve is faulty DO NOT USE!
If the reading is unstable, this usually a valve fault. Swap with the other valve to confirm, if the fault moves with the valve, suspect the valve.
If the replacement valve is showing the same fault the amplifier may have a fault.

7 Valve Replacement

Important! Do not attempt to change the KT150/120 output valves without reading these notes. Failure to do so could be both dangerous to you and damaging to the amplifier. Keep these notes handy.

Take care that you orient the valve correctly before inserting. Line up the centre "Spigot" first. They are easy to break, do not bend excessively to the side.

The MB90m MK II is specifically designed to use KT120 or KT150 valves. Use of the lower rated KT88, 6550, KT90 etc is not recommended as the lower ratingings may be exceeded and will likely result in early failure.

Health & safety; High voltages are present inside the amplifier and on exposed valve sockets when valves are removed, so take suitable care. It is not necessary to remove the bottom cover. Beware valves get hot in operation!

How do I know when to replace valves?

Generally speaking valve failure may be one of these:
1, The valve continues to work but the emission gets low. In the case of output valves this will result in not being able to set the bias.
2, The valve gets noisy/microphonic. Usually happens to the small valves, can be confirmed by tapping with a pen.
3, Heater fails. No glow in centre of valve. Valve is cold.
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 at all.
4, Dramatic Failure. Occasionally the demise of a power valve may be obvious with internal sparks and noise through the speakers. In that case, switch off and do not use until a replacement is available. Before use see chapter 6 "Bias Adjustment". If there was any associated burning smell etc, we would recommend a qualified person examines the inside of the amplifier first.

If the amplifier sounds OK the valves are probably fine. If the emission drops you will have difficulty setting the bias for the output valves.
5. Visible Failure:
Not all faults are visible, but the following may be a sign of failure:
Heater not lighting, (valve stays cold).
Valve assembly glowing red, whole or part.
Blue glow inside the glass.
Arcing or sparks inside.
Glass loose on base
Crack in glass.
Silver "getter" coating inside glass turning white or being eaten away.
Excessive rattle when shaken.
Visible debris inside (often white flecks) inside glass.

6. Valve life will depend upon such things as hours of use and number of on/off cycles, Use of the "Standby" switch to warm the valves up before use will extend the life of the valves. It is not good practice to remove the valves unnecessarily as this can strain the pins and glass and cause tiny air leaks.

7. Changing valves: If possible check the bias setting before you attempt to change the valve(s), in order to familiarise yourself with the procedure.
If changing all the KT150/120s be ready to adjust the bias in order not to overload the power supply. Don't worry how low the reading goes this will not cause damage. Do final adjustment when the amplifier is fully warmed up.
If all is well there should be no more than a barely detectable hum from the speakers, and the amplifier should sound OK when tested.

8. To avoid damage to the amplifier and electric shock hazard you must use only valves marked KT150/120, 6SL7 (6188, 6N9), 6SN7 (CV181, 6N8) 0D3 (VR150, WY4). Use only valves which you know to be new or good condition and test the amplifier thoroughly before resuming normal use.

9. Replacing the small valves:
6SL7 and 6SN7. Neither of these requires any set up procedure. Care should be taken when removing and inserting not to break the locating spigot and keyway. (Accidental swapping of these two valves will not cause damage). SG Treasure, Full Music (TJ), Tung Sol are recommended.

Icon Audio are happy to test your valves, check and bias your amplifier free of charge.

Bias Meter reading power

When the yellow bias meter switch is in the OFF position it indicates the instantaneous audio power of the amplifier. You may be surprised that it hardly moves most of the time. As full power is approximately 110 watts you can see therefore an indication of:

10= 1.0w
20= 4.4w
30= 10w
40= 17w
50= 27w
60= 40w
70= 54w
80= 70w
90= 90w
100=110w

This is assuming a 4 or 8 ohms load

8 Specification & Features

(Typical conditions @ 235v 50Hz)

- KT150/120 output valves or eqv
- 6SL7 double triodes for first stage
- 6SN7 double triodes phase-splitter
- 0D3 voltage regulator
- Hand wired point to point components
- No printed circuit board
- Ceramic valve bases for low noise/leakage
- 110w RMS (KT150/120) Ultralinear
- 60w RMS (KT150/120) Triode mode
- Signal to noise level -95db
- Freq response 20Hz-20kHz +or- 0.1db
- Power bandwidth -3db=10Hz-30kHz
- 0.1% THD typical 8w (0.015% 1w) 1khz
- Custom hand wound transformers using Japanese long grain steel
- Tertiary wound output transformers.
- Choke regulated power supply inc output
- Supplied with attractive safety guard
- Minimal feedback used
- High quality oversized metal film & wire wound resistors
- Audiophile High quality polypropylene audio caps
- Jensen Copper foil in paper and oil (upgrade)
- Internal wiring using silver/copper PTFE wire
- Valves carefully matched for best performance
- Gold plated Input & speaker terminals
- 450 mv sensitivity for full output (High)
- 900 mv sensitivity for full output (Low)
- 230/240volts, 150watts (zero signal)
- Standby switch function
- 3 amp (5a USA) T mains rear fuse (with spare)
- 500ma AS HT fuses (with spares)
- W:20cm. D:50cm. H:23cm. Weight:20kg
- For shipping 56cm x 32cm x 35 21kg each plus 3rd box for valves and vave cover 62 x 27 x 35 4kg
- IEC mains lead, (5amp fused none in USA)
- FCC CE certified. ROHS & WEEE compliant

Specification subject to change without notice.

We expect our amplifiers to give a service life of approximately 20 years, with regular maintenance. During this time we will make every effort to supply spare parts and repair them at an economical cost.
Supply of some parts may subject to availability from third party suppliers which Icon Audio is not responsible for. This does not cover unique parts including remote control systems, meters and cosmetic parts.

9 Guarantee

Thank you for purchasing one of our amplifiers. We hope you will be pleased with it.

This amplifier is guaranteed by the dealer you purchased from for 12 months from the date of purchase for parts and labour, excluding shipping. Valves are consumables and therefore on a 12 months pro-rata wear basis. Please keep your receipt as proof of purchase, this will be needed.

All units are individually tested for performance for 48 hours before despatch to you. In the unlikely event that you believe the unit is not functioning correctly, it may be helpful to contact us first as we may be able to assist you. Then we would request that you return the item to us for further action.

You are advised to inform us of any change of address or change of ownership in order that we may keep you up to date of any upgrades or improvements. Check our website.

Exclusions

Claims for any damage to either amplifiers or valves must be reported within three days of receipt.

This amplifier is designed for normal domestic hi fi use. It is not guaranteed for commercial, Public Address use, or use in other situations. The guarantee becomes void if the unit has been modified in any way not approved by Icon Audio.

10 Packing Instructions

It is essential that the original box and packing be kept in good condition, as this provides vital protection during transit. Please do not write on box, but use removable labels. Should the original box and packaging be lost or become unusable a repacking charge of one hundred pounds will be made.

- Re-use the supplied plastic bag to keep the amplifiers clean and free from damp.
- The mains lead fits in a foam cut-out underneath the amplifier.
- **Never ship with valve guard in place, it will almost certainly get damaged, and damage the paint work of the amplifier. KEEP THE VALVE GUARD when returning the amplifier for service.**
- Valves should be removed, numbered and packed in “Bubblewrap” or similar for protection inside the valve cover.
- If the amplifier is stored in the box, keep upright.
- Do not store in damp conditions as this will corrode transformer windings etc.
- If the amplifiers are shipped insurance is desirable due to the high unit value.

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Footnotes

[1] PACKAGING. The expected life of your amplifier is approx 20 years, during that time it will need the occasional service and valve replacement. The supplied packaging provides essential protection for shipping, and is difficult to replicate. If space is short you may find it easier to keep the packaging flat.

[2] LEFT AND RIGHT AMPLIFIERS are not different, this marking is only for reference. Occasionally amplifiers may not be marked in which case customers may find it useful to use their own L R marking.

[3] Broken valve spigots may often be repaired for new/good/rare valves, especially if the spigot has broken cleanly. Return to Icon Audio with £5 for each valve with £5pp. UK/Europe only.

[4] Accidental swapping of the 6SN7/6SL7 will cause no harm as they are similar, they may be substitute tested in this way, but gain and performance will be impaired.

[5] Most loudspeakers have a range of impedance from as low as 2Ω to as high as 20Ω, so the correct setting is your preference in your system in your room. Generally the 4Ω taps will sound a little quieter with slightly more bass weight. The 8Ω taps being slightly louder with a lighter balance. In practice most customers choose the 8Ω taps. The SENSITIVITY and TRIODE/UL switch will also combine to affect the sound.

[6] STANDBY SWITCH. Should be “UP” before switching on. And “UP” before switching off. This prevents power surges damaging the cold cathodes. Valves last longer if they are given a chance to warm up before applying power. The standby switch also allows you to save power for short periods, with the amplifier ready to start instantly. Occasional “switch on” without using the standby switch will not damage the valves or amplifier any more than amplifiers without this facility.

Engineers Notes

These notes are only intended for use by an engineer qualified to work with high voltage triodes like the 845/805. Owners should refer any problems to a dealer or service agent.

The amplifier may be inverted by supporting the transformers on non abrasive surface (e.g. dense foam, books etc) which allows space between the KT150's and the work surface.

Safety
Before removing base disconnect the power cord. Always allow 20 minutes for the HT to discharge, or measure before proceeding. Use a bleed resistor of around 5-10KΩ will speed this up, and check that the HT voltage has discharged.

Amplifier dead.
Check the 20mm mains fuse in the IEC socket at rear of the amplifier, if dead there is a spare included. Or the fuse in the plug (if applicable). If not either check in-line power switch fuse adjacent to IEC socket.

Amplifier lit but not working.
There is a 500ma HT fuse located on the chassis, with spares attached to the base. If the fuse blows again a VARIAC or variable transformer will be useful to operate the amplifier on reduced power in order the trace the fault or overload.
Make sure the bias for the KT150's is correct. If the AC fuse is blowing with the HT fuse disconnected suspect the bridge rectifier or power supply.
Also check that the 6SL7/6SN7 6.3v supply is working.

230v to 115v Conversion.
Take the precautions as above. It is necessary to change the primary power windings from series to parallel. Remove either AC lead from the bridge rectifier and join it to the other terminal. The "centre" tap are the two leads that will be found joined together. Replace with these two and solder to the first terminal. A larger value AC fuse will be needed in the IEC socket.

115v to 230v Conversion.
This is changing the two primary windings to series.
Remove either pair of AC leads from an AC input to the bridge rectifier. Join together and insulate. The other pair of AC leads should be separated and soldered to each AC input of the bridge rectifier. A lower value AC fuse will be needed in the IEC socket.