icon Audio

MB 25 Valve Power Amplifier User Manual

Contents

About the MB25

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.

In order to get the best out of your MB 25, 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 MB 25 please contact us.

The MB 25 are mono-block power amplifiers designed to complement high quality valve or transistor pre-amplifier. They require an input voltage of 1.9v (sine wave) to achieve full output. You may be able to achieve this with a passive pre-amp or direct from a CD player with a built in volume control.

One of the beauties of valve amplifiers is that they are usually very simple; therefore with the use of traditional point-to point construction and modern high performance, low tolerance components, it is possible to very high sonic performance.

The simplicity of the design means that we were able to avoid the use of printed circuit boards, which are not ideal for valve amplifiers despite their common use.

Although good frequency response, low noise and distortion are important in any hi fi unit, there are several other criteria that are often forgotten. Transistors have a poor overload capability, and the resulting distortion is very unpleasant. The MB 25 has a massive overload capability and even then would go into 'soft clipping', which is more benign and easier on the ear.

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 when ¼ w would do.

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

In the process of building the MB 25 to its high standard no corners have been cut and we have also paid close attention to the appearance. Stainless steel has been used for its many properties including: non-magnetic, non-resonant, non corroding and attractive. A painted steel sub chassis has been used to mount the valve holders and smaller components on. The steel transformer cover uses crackle finish enamel. The front and back panels are anodised alloy plate for rigidity.

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

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	…….	Soft Start Fitted	…….
Check Triode mode	…….	Sales invoice	…….
Run 6 hour test	…….	Bottom label	…….
Check inputs & tape monitor	…….	Credit card receipt	…….
Output Valve Bias level	……mv	Customer survey form	…….
Sound Quality	…….	Bias meter	…….
Channel Balance	…….	Transformer Protection	…….
Valve Microphony	…….	**Upgrades:**	
Valve Seating	…….	Phono pre-amp	…….
Hum level left/right	….…mv	HT delay required?	…Y / N
RF Test	…….	Output valves	…….
Serial No sticker and recorded	…….	Driver valves	…….
Mains voltage	110 / 240V	Mains lead	…….
IEC Mains Fuse	……A	Interconnects	…….

Please note we do not test the standard mains lead.

Signed off by

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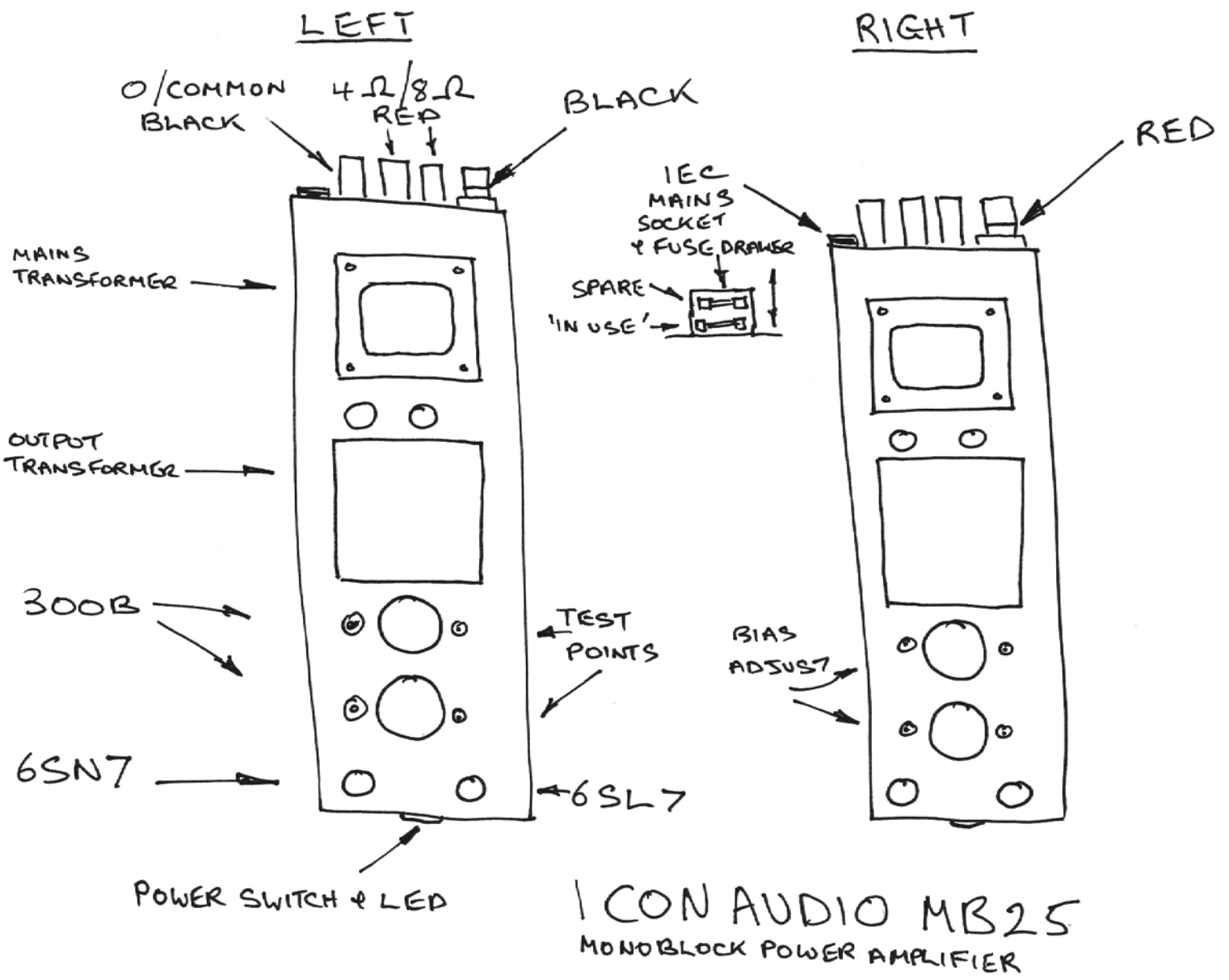
Notes:


LEFT
RIGHT
0/COMMON BLACK
4Ω/8Ω RED
BLACK
RED
IEC MAINS SOCKET & FUSE DRAWER
SPARE
'IN USE'
MAINS TRANSFORMER
OUTPUT TRANSFORMER
300B
6SN7
TEST POINTS
BIAS ADJUST
6SL7
POWER SWITCH & LED
ICON AUDIO MB25
MONOBLOCK POWER AMPLIFIER

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 packaging for warranty/service return.

2 Check that the valves are fitted properly. This can be done by sight as they are unlikely to have moved in transit. Always try and handle by the base, with 300Bs be careful when removing, use a soft cloth.

3 Connect to source or pre-amp.
The left & right amplifiers may be identified by the colour of the input phono socket.

4 Connect to mains supply using supplied IEC mains lead to 240v supply. **If removing the welded plug, remove fuse and dispose of safely** (As they can be dangerous). The replacement plug should be wired: Brown to Live terminal, Blue to Neutral terminal and Green/Yellow to Earth terminal.

6 SWITCH ON! The blue mains indicator should light up and unit will take approximately 40 seconds to start working. All valves should have a visible orange glow from the cathode heaters. With the minimum volume there should only be a barely discernable hum from the speakers.
If you experience a switch on 'thump' through your speakers on starting your pre-amp, try switching on your pre-amp before the MB25s.

7 The MB25s should now be functioning. If not check wiring again and/Use selector/tape monitor/volume to choose source program and suitable listening volume.

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 recommend in these circumstances. Always unplug when making adjustments. **Like all amplifiers there are potentially lethal high voltages inside (500v DC), which when switched off can take up to 15 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.**

3 Connecting inputs & outputs

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

Inputs
The amplifiers will work with any standard hi fi source e.g. pre-amp or CD capable of 1.9v output. The position of the volume control will vary with the input voltage of different units, this has no effect upon performance.

4 Things you must know

The MB25 is a simple design fixed bias amplifier, it does not have complex protection circuitry for reasons of sonic purity.

- Never switch off and on quickly, this could cause damage. Allow at least 60 secs.
- Do not adjust the 'bias' settings without reference to the instructions, this could be dangerous and cause overheating.
- Never operate without the speakers.
- If you notice any abnormal behaviour, eg overheating or hum etc, switch off and consult your dealer or Icon Audio.
- Only use 6SL7 & 6SN7 driver valves. Other types have different pin connections which could result in high voltage being fed back to the input source and risk of shock.
- A switch-off 'click' through the speakers is normal.
- Mains transformers may hum or buzz.
- Mobile phone 'breakthrough' is normal
- Storage in damp conditions could damage transformers, keep the amps dry when not in use.

Connecting Leads
Use good quality connecting leads, which are no longer than they need to be. However good quality leads are not expensive, and once that level is reached further expense will not result in improvement.

Like other units of hi fi hum may picked up from the transformers of other units. This may require careful siting to minimise this. See also 'hum problems'.

Leaving the amp switched on
People sometimes ask if the amp should be left running 24/7. Whilst the amplifier will sound at its best when it is properly warmed up, there is no advantage leaving it switched on when not in use. It is using electricity and valves have a finite life. 300b's are directly heated and warm up very quickly. 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 10 mins, like most hi fi units it can take up to an hour to sound at its best and will take up 200 hours before it is fully 'run in'.**

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. The Perspex valve cover may need an occasional gentle wipe with a damp cloth drying with a duster. On no account use anything wet on the amplifier, and always clean with the power disconnected.

5 Trouble Shooting

When problem solving make sure that the power amp(s) are switched on and connected both to speakers and pre-amp.

Amplifiers Dead

Check the 3amp mains fuse 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 bade 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. Replacements should be 2Amp 'anti-surge'.

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

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 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' connection 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 Replacement (see also section 7)

Valve life will depend upon such things as hours of use and number of on/off cycles. We would expect a life of 3-5 years in normal use. If you are in any doubt about the performance Icon Audio will check the valves free of charge. **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.

Service: Should you suspect a problem, you could return the unit to 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).

6 Specification & Features

(Typical @ 240v 50hz)

- No printed circuit board or tag board
- All Triode design
- 1x 6SL7 Double triode
- 1x 6SN7 Double triode
- 2x 300B Directly heated triode
- Signal to noise level -90db
- Freq response 20hz-20khz +0 - 0.1db
- Total harmonic distortion 0.02%
- Transformers with low oxygen copper and Japanese long grain steel
- Hand wired point to point components
- High quality 2w metal film, & wire-wound resistors
- Blue LED mains indicator
- Audio grade Polypropylene audio capacitors
- Internal audio wiring using silver Teflon cable
- Rubicon/Nichichron power capacitors
- Ceramic valve holders for minimum leakage
- Centre tapped heater circuit for minimum hum
- Polished stainless steel chassis
- 10mm solid aluminium front plate
- Crackle finish enamel transformer cover
- Gold plated Input & speaker terminals
- 2v input sensitivity
- 28watts RMS output
- 4 & 8 ohm speaker matching
- Supplied with attractive safety guard
- Input Impedance 100k
- 230/240volts, 188watts 2A anti-surge fuse
- IEC mains lead, (5amp fused)
- C E certified
- 184W(370pr) 225H(300) 550D(590) 20kg (figures in brackets allow for rear connections & ventilation)

(Specifications subject to change, errors & omissions excepted 23/08/11)

7 Valve Replacement & Bias Adjustment in MB25 amps

Important: Do not attempt to change the valves in the MB25s without reading these notes. Failure to do so could be both dangerous and damaging to the amplifier. If you are unsure contact your dealer or Icon Audio for guidance.

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. Always switch off and unplug. Beware valves get hot!

Changing or checking valve settings is relatively straightforward if you follow our notes carefully. You will get the best performance from your amp. If you are not technical and just to know enough 'to do the job' then you only need to read the bold type.

Some brands of 300B valves are larger than the supplied types (120mm from bottom of base) which will prevent the continued use of the valve cover, you may need to check this first.

The 300B output Valves in this amplifier use the 'Fixed bias' system. This 'bias' voltage needs to be occasionally checked, and also set up when replacing.

How it works: A negative voltage of about –64volts dc (varies with brand and age) sets the correct amount of standing current flowing through the valve. The Higher this voltage is the less the valve will conduct. Conversely. If this voltage is to low the valve will conduct to hard, overheat and could glow red. This could damage the valve and amplifier. It may also blow the mains fuse.

1, Tools you will need: The supplied multimeter or one set to measure aprox 500mv, and a small flat blade screwdriver. Adjustments are done at zero volume with speakers connected. Run the amp for at least 15mins if possible.

2, Connect: the black probe to the chassis 'earth' by unscrewing the '0' speaker terminal and tightening the probe in the exposed hole. And the other in the test socket adjacent to the valve on test. Set the 'Icon' meter to 2000mv or the 'black mark'. See pics.

Making the 'earth' connection.

3, Checking: You should get a reading of 500mv if valve is conducting correctly. But bear in mind that mains voltage fluctuations can affect your readings up to 5% (i.e. 475 to 525). It is more important that both valves of a pair read within about 15mv.

Showing a probe taking a reading

4, Adjusting: If not 500mv, set this by using the bias adjuster adjacent, then check the other valve of the pair. The bias adjustment pots are normally 'mirror image' in rotation, so some will be anti-clockwise and some clockwise. They are very sensitive so adjust very carefully; use tiny turns of the screw.

5, Changing valves: You should if possible check the bias setting before you attempt to change the valve(s), in order to familiarise your self with the procedure.
If you are not experienced, change and check one valve at a time. Remove the first old valve and fit the replacement. Switch on, check & adjust bias for 500mv, then do the same for the other valve.
If the reading goes above 800mv you should act quickly to prevent damage. Don't worry how low the reading goes this will not cause damage. Continue in the same way and fit all four valves. Do final adjustment when the amplifiers are 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.

6, If you cannot set up 500mv then the valve is probably faulty or is unsuitable.
Do not attempt to use am amplifier with only one valve of a pair, this could cause damage. Any drift on the mains voltage will affect your readings, so double check when you have finished. If the valves are brand new, you will need to check again after approximately 10 & 100 hours, after that only occasionally or if you suspect a problem.

7, DRIVER VALVES to avoid shock & damage to the amplifier you must use only valves marked 6SL7 (right hand) 6SN7 (left hand). Make sure they are new or in good condition and test the amplifier thoroughly before resuming normal use. There is no set up procedure for these valves.

icon Audio

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8 Guarantee

Please read carefully…

Thank you for purchasing one of our amplifiers. We hope you will be pleased with it, and it will give you much pleasure

Icon Audio guarantee this amplifier for 12 months from the date of purchase for parts and labour. This includes valves

All units are individually tested for performance for at least six 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. We then may request that you return the item to us for further action.

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

Exclusions

Our carriers insist that any claims for damage to either amplifiers or valves must be reported within three days of receipt. Claims after this time will not be allowed.

This amplifier is designed for normal domestic hi fi use. It is not designed or guaranteed for use outside the specification, or for commercial, Public Address, or use in other situations.

9 Packing Instructions

It is most important that you retain the original box and packaging for transit purposes. This will prevent the unit from damage. The valves should be packed in a separate box.

Should you need to return the unit for service, please contact us first.

The customer is responsible for carriage and insurance thereof. No responsibility will be accepted for lost or damaged units. The customer is strongly recommended to make sure that the unit is covered by insurance. We would recommend that you observe packing instructions in order prevent damage on return. We suggest the use of UPS.

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