icon Audio

Instruction Manual Covering:

Stereo 25

3 Stage Ultralinear Push Pull Amplifier

Contents

1 Introduction

Thank you for purchasing the **Stereo 25**. A great deal of care has been taken in the design, selection of components and production of this amplifier. We are sure that you will hear the difference.

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 to do with your amplifier please contact us for advice.

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, CD, or FM, before being played through your own source unit, the amplifier and finally loudspeakers.

Your room acoustics will also 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 when making judgements. And not all recordings are 'equal'! Therefore an amplifier which faithfully reproduces the input signal will also reproduce imperfections in the tonal balance and the recording itself. Therefore setting up and judgements should be made with a 'clean' well balanced recording.

The **Stereo 25** is a push-pull Ultralinear stereo power amp, capable of running in Ultralinear mode (half pentode and half triode). Using the excellent 6L6/EL34/6CA7/KT66/KT88 valves. These are in semi auto-bias mode which whilst rarely requiring attention gives maximum power, cool running and wear indication. The driver and phase splitting is all triode for best sound quality and low noise. The pre-amp is a high quality 'Passive' circuit using silver Teflon audio cable and an ALPS 'blue' volume control. It is sensitive enough to be used with all modern source equipment having an output of 300mv or greater. It may also be used as a power amplifier being driven by a separate pre amplifier. Its 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 sounding. The overall design is inspired by the Leak Stereo 50 design. The wide range of output valves that is capable of using make it extremely versatile and you can customise it to your own taste. Recommended upgrades are Jensen Copper foil in paper and oil capacitors and various output and driver valves that we upgrading to Jensen metal foil in paper and oil capacitors to further enhance to sound.

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.

Date	…./…./….
Model	…….
Amp Serial Number	…….
Customer	……

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

Signed off by …….

Notes:

Please note we do not test the standard mains lead.

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 packaging for warranty/service return.

2 If necessary fit the valves, or check that they are firmly in place. The output valves should be fitted first observing the numbers 1,2,3,4 on the rear of the valve; this corresponds with the four **REAR** sockets from left to right viewed from the front. This was the position the valves were tested in. **Do not push or pull these valves by the glass envelope**, this could cause the glass envelope to become detached from the base, damaging the valve. Be careful to note the correct orientation of the central "Spigot" between the pins otherwise damage could occur. (Damaged valves are not covered by our warranty)
The small valves are normally numbered 1, 2, 3 and should be gently pushed into place. The middle valve is ECC83/803/12AX7 and the outside pair are ECC81/12AT7.

3 Connect to source units, e.g. CD, Tuner, Phono pre amp, MP3, AV etc via appropriate phono sockets. No "recording" or line output facilities are provided. For this you could use our "Passive" or "Passive R" remote control pre amp.

4 Connect to speakers Make sure to get the correct polarity of speaker cables. (See speaker connections chapter). If 'bi-wiring' both 'common' should go to the black terminal, and both 'positive' (or red) should go to the red terminals. Most speakers have a "spread" of impedance between about 3 and 14 ohms. As there is some "overlap" between the 4 and 8 ohm outputs, you may wish to try both to experiment which tonal balance you prefer.

5 Connect to mains supply using supplied IEC mains lead to 230/240v supply (or 110/120 if modified see label). **If for some reason the welded plug must be removed, please remove fuse and dispose of immediately.** (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.

6 SWITCH ON! The blue mains indicator should light up. Leave for at least 60 seconds to for the valves to warm up. The amplifier should now be working. All valves should have a visible orange glow from the 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. If there are any unpleasant sounds coming from the speakers, switch off and refer to the 'Trouble Shooting' section or contact Icon Audio. If the optional "HT delay" is fitted, this will automatically switch on after about 60 seconds.

7 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. Do not operate at a high volume for the first five minutes to allow the valves to warm up properly.

Please note all these things are normal for valve amplifiers:

A, Valves can get very hot, BEWARE!
B, The transformer cover will get quite warm
C, The amplifier may have a "new" smell for a few weeks.
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.

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 400v 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 bias pre set without reference to the manual. Incorrect adjustment could cause the valves to overheat, with resulting in damage to valves and amplifier.

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

In this manual we have attempted to give you all the information to enable to get the best out of this amplifier, without being overly long or too technical. However we are always keen for feedback on errors or omissions on the information within!

3 Connecting inputs & outputs

Many problems associated with electronic 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 amplifier will work with any standard piece of hi fi/audio e.g. CD, Phono pre-amp, Tuner, Tape Deck, Mini Disc, TV, Video Recorder, DVD etc having an output of 300mv or more.
All the inputs are technically the same.
If you wish to use a turntable you will need a suitable phono pre-amp. Your dealer or Icon Audio can advise you. Our new PS1 MM/MC all valve phono stage is an ideal partner.

To use as a power amplifier.
As the ST25 is essentially a power amplifier with a volume control, the volume control will be virtually invisible to the pre-amplifier if turned to the full clockwise position. If you have too much gain, "back off" the volume no more than necessary. If you still have too much gain Icon Audio can modify the sensitivity to your specification. The tape input will provide the most direct signal path. Good quality leads should be used, making sure that you have good connections at both ends.
If the amplifier is permanently required to work as a power amplifier, we can modify to your specification. This is then easily reversible.

Connecting a tape deck. (Or CDRW/MP3 etc)
The STEREO 25 will work with any tape deck having suitable output, it is not possible to record.

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 polarity correctly. 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). **Be warned 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 damage the valves.** Alternatively use good quality 'banana' plugs or spade connections, once fitted they are trouble free.

Speaker polarity. It is essential that you observe the polarity of the terminals; they must be the same for the left/right connections at the 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.
The STEREO 25 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

- Do not leave the amplifier switched on all the time. This is not necessary
- 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 operate the amplifier without loudspeakers connected
- Do not use valves other than listed as there could be danger of shock or damage
- Make sure your speakers are in phase.
- Use the best possible source material.
- Use efficient, well-designed speakers. Generally the bigger the better!

What is safe maximum volume?
The Stereo 25 will run happily all day long at maximum power; the valves are not stressed any more at full power than at zero volume. Running into gross distortion will however stress the whole amplifier. To find the maximum safe volume, play full range music and advance the volume until distortion occurs, (this is normally between 12 and 3 o'clock on the volume control) back off the volume control about 30 degrees, this is approximately full power. However this position will vary according to the level and type of music and the output of the source unit. For example CD players tend to be higher than say tuners. Be careful of high level transients which could damage the amplifier, speakers and blow fuses.

Leaving the amp switched on
We have been asked 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 as valves have a finite life.

'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, have a better service life and maintain their performance longer. The upgrade 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.

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. On no account use anything wet on the amplifier, and always clean with the power disconnected.

5 Trouble Shooting

Amplifier Dead
Check the 1.6 amp 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 you should disconnect from the mains and seek qualified help or Icon Audio. Replacements should be 1.6 Amp 'anti-surge', these are available FREE OF CHARGE on request.
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 volume control advanced? Are all the connections OK? Is everything switched on? Are the speakers connected?
If the amp lights up but there is no sound it could be the internal HT fuse. This should be checked by a competent electrician with the bottom off. REMOVE POWER FIRST. There are spare fuses inside. Repeated blowing of the fuse would indicate a fault.

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 it is likely to be an amplifier problem.
Distorted sound at higher volumes may be because one of the output valves is not working. This could be due a faulty valve. A symptom of this would be no 7v bias voltage at the test point. Refer to an engineer or Icon.

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.
If you have connected both to a known good input and a known good speaker to a particular channel without success the fault is probably within the amplifier.

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.
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, the HT Delay Circuit if fitted will extend the life of the valve by not stressing the cathode when it is cold. 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 (the output valves 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 230/240v ac. The transformer may be re-configured for 110/120v ac by a qualified engineer. Contact for more information.

6 Bias Adjustment

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.

The Stereo 25 uses the Icon "semi fixed bias' mode of valve operation. There is only one adjustment, this affects all valves. ***This will only rarely need adjusting if at all*** as the amplifier can compensate for some valve deterioration. This has the advantage of higher power, and cooler running. However occasionally (say once a year, or if you suspect a problem) it is advisable to check the bias reading using the optional meter to ensure best performance from the amplifier. This is a safe procedure which involves measuring 7.5v DC (9v for KT88) in the four sockets next to each output valve and adjusting if necessary.

1, Tools you will need: The optional meter or one set to measure approx approx 20v (DC), and a small flat blade screwdriver. Adjustment is done at zero volume with speakers connected. Run the amplifier for about 10 mins if possible. Icon can supply a suitable meter for £13 + P&P at May 2008).

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 20v or the 'black mark'. See pics.


Making the 'earth' connection.

3, Checking Bias: You should get a reading of ideally 7.5v if each valve is conducting correctly. But this will vary from about 6v to 8v. About 20% should be the maximum variation. Bear in mind that your mains voltage fluctuations can affect your readings up to about 10%. There is no provision to adjust individual valves, which is not necessary on the ST25.


Showing a probe reading 1st output valve

4, Adjusting: If all the valves are high or low, set the 7.5v by using the single adjusting screw. If one valve is significantly higher or lower, then it may be faulty or life expired. The adjustment is very sensitive so adjust very carefully. If the reading appears a little unstable this is normally due to mains fluctuations. The Stereo 25 uses semi-fixed bias, where the output valve is allowed to find its own individual fine bias level. Only occasional checking should be necessary. Bear in mind that valves with an output of up to 25% below the others are unlikely to have much of an audible effect of the sound at normal listening levels.

7 Valve Replacement/Problems

Valves are semi-consumables like the tyres on a car or the stylus on a turntable. Most problems with the amplifier will be valve related. If the amplifier sounds

OK and the bias voltages on the output valves are OK then the amplifier is probably best left alone.
Likely reasons for valve failures include: (i) heater stops working = cold valve. (ii) internal short = valve glowing or arcing with noise from speakers. (iii) air leak = valve glows blue inside and noise from speakers. And the "silver" coating will turn white (iv) intermittent with any of above. (v) loss of emission over time with consequent power loss (usually over a long period of time). But this is not a comprehensive list.
The most common problem with the small valves is when they become excessively microphonic. This can usually be identified by tapping with a pen. Sometimes they can go "noisy" rustling/spitting/hissing. The small valves are double triodes, so you should see a "double glow" inside. We are able to provide telephone assistance with valve problems. And can test and supply single valves to match up with a relatively new matched set.
ALL SUPPLIED VALVES ARE TESTED IN THE SAME/SIMILAR UNIT BEFORE DESPATCH TO ASSURE YOU OF THE BEST QUALITY/RELIABILITY!

Important! Do not attempt to change the output valves without reading these notes. Failure to do so could be both dangerous 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.

Should you accidentally break a spigot on a valve, return to Icon with the broken piece(s). We can normally repair this for £5 plus £2 P&P,

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!

Changing valves: If possible check the bias setting before you attempt to change the valve(s), in order to familiarise yourself with the procedure.
Use good quality matched output valves. This will stop wide variations in bias voltage. Matched sets and odd replacement valves may be obtained from Icon Audio.
If changing all the output valves be ready to adjust the bias in order not to overload the power supply. Do not allow the reading to go above 12v. 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.

6, If you cannot set up 7.5v, then the valve is probably faulty or is unsuitable. (if all the readings are zero the HT fuse may be blown, spares inside).

7, To avoid damage to the amplifier and electric shock hazard you must use only valves marked 6L6/EL34/6CA7/KT66/KT88. Use only valves which you know to be new or good condition and test the amplifier thoroughly before resuming normal use.

8, Replacing the small valves:
ECC81/12AT7 (outside pair) ECC83/12AX7 (centre) Neither of these requires any set up procedure. It's just 'plug and play' although care should be taken when removing and inserting not to bend the pins. If this happens gently bend the pins back into shape. (These valves are similar with the same pin connection; accidental wrong insertion would not cause damage, or you could change them round for test purposes). Unnecessary removal and insertion is to be avoided due to the formation of micro cracks around the pins.

Icon Audio are happy to check the valves/amp or your re-bias your amp free of charge.

8 Specification & Features

(Typical conditions EL34 valves@ 240v 50Hz. 8 Ω)

- 6L6/EL34/6CA7/KT66/KT88 output valves
- ECC83 double triode for first stage
- ECC81 double triode phase-splitter
- Hand wired point to point components
- No printed circuit board
- No tag board
- Ceramic valve bases for low noise/leakage
- HT delay circuit to protect cathodes (optional)
- 30w RMS per channel Ultralinear (EL34)
- 15w RMS per channel Triode (hardwired option)
- Signal to noise level -90db
- Freq response 20-20khz +0 - 0.5db 1W
- Bandwidth 10Hz (0db) -55kHz (-3db) (12.5W)
- Bandwidth 18Hz – 62kHz -3db (25w)
- 0.2% THD
- Custom hand wound transformers using Japanese long grain steel
- Supplied with attractive safety guard
- Minimal feedback used
- Audiophile high quality oversized resistors
- Audiophile High quality polypropylene audio caps
- Japanese 'Blue' ALPS volume pot.
- Internal wiring using silver Teflon audio cable
- Valves carefully matched for best performance
- Gold plated Input & speaker terminals
- 3 line Inputs for CD, Tuner, Phono etc
- Gain= 70 (8ohms)
- 250 mv sensitivity for full output
- 230/240volts, 180watts (max signal)
- 1.6 AS amp rear fuse (with spare in fuse holder)
- 320W, 310D, 230H, 23kg
- IEC mains lead, (5amp fused)
- CE, ROHS & WEEE compliant

Specification subject to change without notice.

9 Guarantee & Shipping

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 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. 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 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 custom box and packing be kept for shipping as this provides vital protection during transit. Do not write on box, but use labels. Should the original box and packaging be lost or become unusable replacements are available for £50.

- When returning units for service, do not send the valve cover, remote control or mains lead unless requested.
- Valves should be removed, numbered and packed in "Bubblewrap" or similar for protection inside the valve cover, or space where the valve cover would normally fit.
- **Insert the piece of cardboard between the transformer cover and the valve guard; this will prevent transformer damage to paintwork during shipping.**
- Re-use the supplied plastic bag to keep the amp clean and free from damp.
- **If returning the valve cover, it is essential that adhesive tape be wrapped all the way over valve cover and underneath the amplifier to prevent the valve cover from coming loose and causing damage.**
- The mains lead normally fits in a foam cut-out underneath the amplifier.
- If the amplifier is stored in the box, keep upright.

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