

STEP BY STEP CONSTRUCTION MANUAL

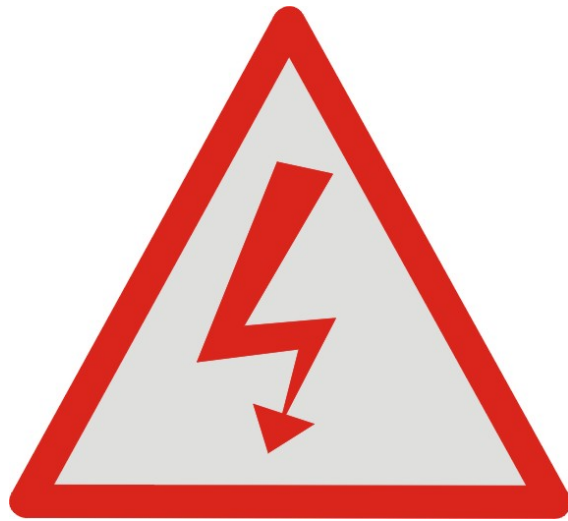
for the

VANDERVEEN-TRANS-SE10 VALVE AUDIO AMPLIFIER



By: Menno van der Veen and Tentlabs

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Caution !

Risk of electric shock.

The Vanderveen-Trans-SE10 amplifier operates with dangerously high voltages. Do not attempt to build this amplifier without proper training.

It is the buyers responsibility to ensure that the constructed amplifier is safe to use.

Dear Buyer,

Thank you for buying the Vanderveen-Trans-SE10 valve amplifier kit.

This amplifier was born out of extensive research and experience. Combine this with the love for music, faithful music reproduction and exceptional spatial image and the observation of micro details. The result is this product with new properties unknown in valve amplifiers.

The latest techniques and knowledge are applied. Some of the details are outlined below:

- The output transformers are Toroidals, designed by Vanderveen. See our website, section publications, to find the intensive research and experience built-in in these exceptional products.
- Our new amplifier circuit applies the so called “Trans-technique”, in which distortions of any kind are prevented. This in contrast to designs where distortions are allowed to occur and next are cured by means of global negative feedback. Again see our website for many publications and details about Trans.
- Music consists of transient signals and is not the sum of continuous test tones. This made us study what happens anywhere in our circuits when transient signals shake each component. Especially the magnetics of the output transformer is very sensitive to transients. We created a “Trans-condition” where magnetic distortions are minimized.
- Our general understanding was that harmonic distortion, with harmonics that decline with their order, creates a warm pleasant sound, often named “valve sound”. However, we found that lowest harmonic distortion with focus on lowest H2 (second harmonic) is essential in revealing micro details unnoticed until now. Applying this, we removed the so called “H2 curtain” that blurs micro detail observation.
- The general understanding is that only pure triode valves in Single Ended valve amplifiers are the best. We discovered that pentode valves in Trans-circuitry perform equal or even better. However, with twice the efficiency of triodes.

We could reveal further facts, but advise to read the many articles and books about ‘Trans’, that are listed on our websites in the sections ‘publications’ and in the projects of ‘TubeSociety’.

We hope that you will experience a lot of pleasure from building this special valve amplifier, together with a great joy in listening to your favorite music.

Should you have any questions, please contact us at:

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info@mennovanderveen.nl
+31-(0)515 576 191

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5622 AK Eindhoven
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Menno van der Veen, Guido Tent
2020-09-01: Hichtum and Eindhoven

GENERAL INFORMATION

about the Vanderveen-Trans-SE10 amplifier kit

ALL RIGHTS RESERVED:

The text, content, figures and circuit diagrams included in this construction manual are protected by and are the property of Ir. bureau Vanderveen; all rights are reserved.

Copies of the content, or parts of it, in any material or digital form, are prohibited without the explicit written permission of Ir. bureau Vanderveen.

All rights of the electronic design of this kit, including circuit boards, diagrams, principles, and transformers are fully reserved by Ir. bureau Vanderveen.

SUPPLIER:

Ir. bureau Vanderveen (design) and Tentlabs (manufacturing) are worldwide the sole suppliers of the Vanderveen-Trans-SE10 kit.

CONSTRUCTION MANUAL:

This manual is not available in bookshops; it is only available with the Vanderveen-Trans-SE10 kit.

SERVICE:

Service from Ir. bureau Vanderveen or Tentlabs consists of two elements:

- a) Answering of questions by phone or email.
- b) Checking and adjustment of the buyer's constructed amplifier for a basis charge of € 150 incl. VAT but excl. shipping charges.

Please ensure that the amplifier is well packed before sending it to either Vanderveen or Tentlabs:

- Ir. bureau Vanderveen; Schwartzbergweg 18; 8743KZ Hichtum; The Netherlands
- Tentlabs; Egelstraat 2; 5622AK Eindhoven; The Netherlands

After inspection and repair, the amplifier will be returned after a payment of costs and shipment. If repair costs might exceed € 150, this will be first discussed and agreed on with the client. Shipping is at risk of the customer. Inspection and repair will take a maximum of two weeks. The customer will be notified if it takes longer.

GUARANTEE:

- 1) Guarantee conditions and terms of delivery are defined in the "Algemene Voorwaarden voor de Instrumentenbranche".
- 2) The guarantee period is a total of 6 months from the date of purchase, (see below).
- 3) All elements of the construction kit fall under these guarantee conditions. The guarantee does not cover destruction or damage by misuse. This is determined exclusively at the discretion of Ir. bureau Vanderveen and Tentlabs.

The following example clarifies this: Every output transformer is checked completely before delivery. If it is found that the output transformer is defective, Vanderveen or Tentlabs could conclude that the damage has been caused by misuse. For instance: by damage due to a short circuit through the transformer caused by the incorrect positioning of a valve in its socket. Because we are dealing with a DIY construction kit, damage is possible if the construction directions are not followed in full. Therefore, the guarantee does not cover any damage if it is due to faulty construction.

TERMS OF DELIVERY:

1) The Vanderveen-Trans-SE18 amplifier kit is only sold as a complete construction kit, inclusive the construction manual.

2) Individual components for the kit will only be supplied for the replacement of defective or incorrectly supplied parts, to the original owners of the kit.

3) Delivery will only take place after the purchase price has been paid in advance into the international bank accounts of Ir. bureau Vanderveen or of Tentlabs, in cash on delivery.

PayPal payment is only for deliveries outside the European Union.

If you wish to personally collect the kit please contact us first.

4) Acceptance by the buyer only takes place when the buyer has taken careful notice of the safety instructions of this manual and his/her responsibility for safe operation of the amplifier.

5) Ir. bureau Vanderveen and or Tentlabs will not entertain any claim, under any circumstance, if it is the result of not or only partially following all safety and building instructions and not having realized his/her responsibility for safe operation.

SAFETY INSTRUCTIONS:

- 1) This construction kit employs high voltages (115 or 230 Volt AC and 450 Volt DC). These voltages are potentially lethal if they come in contact with the human body. This is why you must take the greatest care in avoiding accidents or damage of any kind.
- 2) If you don't have the skills or experience to work safe with tube audio amplifiers and their high internal voltages, please ask for help and guidance from an experienced person, to ensure safe construction and operation. Safe operation is your sole responsibility.
- 3) Only work on the opened amplifier cabinet after the mains plug has been removed from the mains socket AND after the amplifier's high voltage supply has been discharged (10 minutes after switch off)
- 4) Never work with both hands placed in the amplifier at the same time when it is switched on, or when there is still a high voltage present in the set. This situation is extremely dangerous, as leakage or discharge currents may flow from hand to hand via the heart.
- 5) Only use the prescribed fuses.
- 6) Take care to ensure that all high voltage leads are insulated and positioned far away from metal parts.
- 7) DO NOT SHORTEN THE LEADS OF THE OUTPUT TRANSFORMERS as this will cause irreparable damage to the transformers.
- 8) Do not insert conductive objects into the cabinet.
- 9) Thoroughly check that the electrolytic capacitors are mounted as instructed, take care not to mistake the negative pole with the positive pole, as this could cause acid to leak or for the capacitor to explode.
- 10) Thoroughly check that transformer leads are connected to the PCB and other parts in accordance with their prescribed color scheme.
- 11) Ensure that valve sockets (particular the Octal types) are mounted the right way round in accordance with the diagram and PCB-layout.
- 12) When switching on for the first time explicitly follow the "test procedure" given for the completed set.
- 13) Make sure that there is sufficient room around the amplifier for ventilation; at least 3 cm is required each side and 10 cm above. Take care to prevent any fluids from entering the amplifier. If this happens, immediately disconnect the set from the mains supply and send the amplifier to Vanderveen or Tentlabs to be checked. Also note that the valves will become very warm. Take care at all times to prevent the valves from being touched (paying special attention to children). Again with children in mind, position the amplifier so that it becomes impossible to poke metal objects into the cabinet.
- 14) This amplifier has to be earthed – ensure that the mains socket has an earth connection.
- 15) With soldered joints, hook the wire in place to form a mechanically stable joint before soldering. This ensures that the wire cannot become loose to cause potential damage or to become a hazard. A piece of heat shrink sleeving around this type of joint not only prevents you from touching the bare terminal, but is also gives extra protection against the contact from working loose.
- 16) Where two or more wires are soldered in close proximity to each other on the PCB or for instance on the volume control, they have to be secured in place by the use of a cable tie. This prevents the wires from drifting about in the cabinet if they accidentally become unsoldered.

HOW THIS CONSTRUCTION MANUAL FUNCTIONS

CONCEPT of this manual:

- This manual is not “a many words manual”.
- It contains many photos, which you can enlarge, or make smaller, to look at important details.
- Inside the photos, text is placed to explain what to do or not to do.
- Every new action has its new photo, enabling you to check previous actions and the new one.
- You find the following maps with their main actions:
 - MAP-1: Construction of the main printed circuit board
 - MAP-2: Construction of the mains printed circuit board
 - MAP-3: Construction of the input circuit board
 - MAP-4: Construction of the volume control circuit board
 - MAP-5: Construction of the casing and mounting of the transformers and connectors
 - MAP-6: Placing of all printed circuit boards into the casing and their wiring
 - MAP-7: Start-up procedure, and placing of the bottom plate.
- After finishing all steps one by one, in the indicated sequence, your amplifier is ready.

ONLINE IMPROVEMENTS of this manual:

It might occur that you think that some steps are not clear, or even could be improved. Then please send an email to info@mennovanderveen.nl where you explain your ideas.

If we agree, we will improve that photo or its text and place it as soon as possible on this online manual. In this manner all SE10-owners can directly benefit from any improvements.

FUTURE MODIFICATIONS:

In the past, for more than 20 years, I brought to market (together with Amplimo) my UL40-S2 amplifier. This kit taught me, that even a very good design never is ready. I discovered improvements, as did UL40-S2 buyers who informed me.

Following I slowly and careful started to publish improvements as modifications. Most of them were small and simple. They costed almost nothing, but had an important impact on functioning and sound quality.

I expect exactly the same to happen with the “Vanderveen-Trans-SE10”. So, regularly check our websites to see if any thoroughly tested good quality new modification is available.

CONTACT about the manual:

If you have any comment or modification, please mail me directly at: info@mennovanderveen.nl. Give your email the clear title “SE10-comment-modification”.

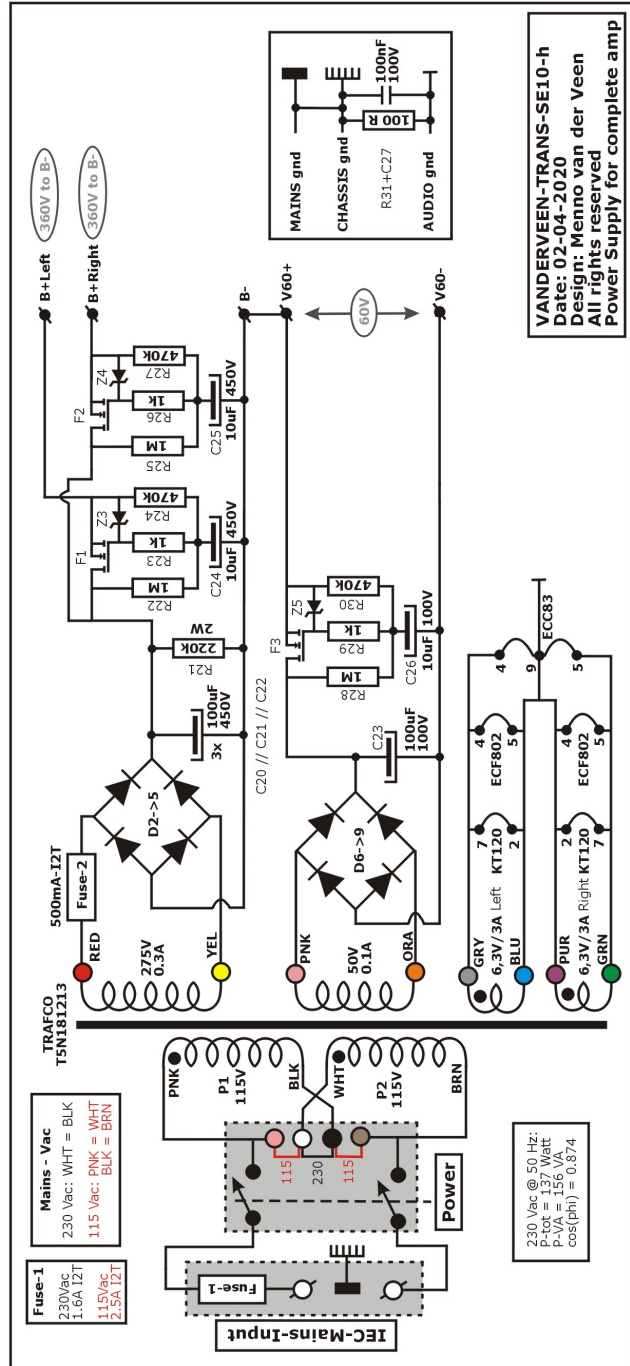
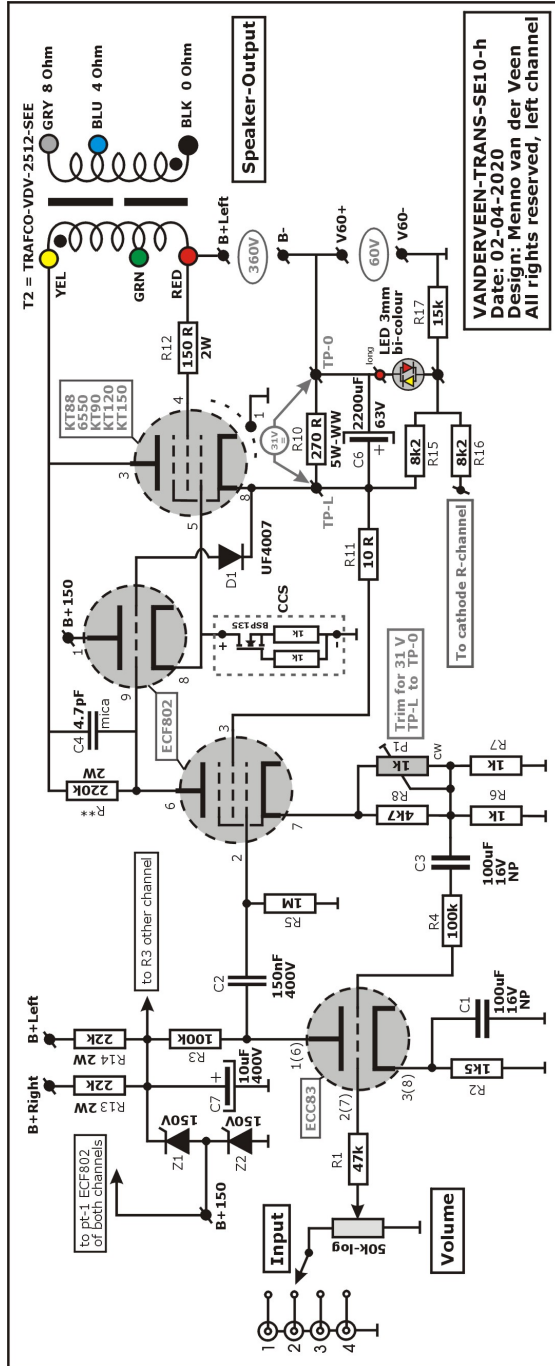
It might take some time before you get a reaction. I need time to study and test your remarks.

THANK YOU for your valued cooperation:

2020-09-01: The Netherlands; Ir. bureau Vanderveen; Menno van der Veen
www.mennovanderveen.nl

Vanderveen-Trans-SE10

Electronic Circuit



Vanderveen-Trans-SE10-Specifications

| | |
|-----------------------|---------------------------------------------------------------------------------------------------------------------|
| Amplifier | : Vanderveen-Trans-SE10 All-Valve Amplifier-Kit |
| Output Power | : 2 x 10 Watt (2 x 12 Watt at onset of clipping) |
| Valves per kit | : ECC83; 2 x ECF802; 2 x KT88 |
| Alternatives for KT88 | : 6550 or KT90 or KT120 or KT150 |
| Inputs | : 4 stereo RCA-inputs |
| Input sensitivity | : 310 mV for 10 Watt in 4 Ω load |
| Volume control | : 50 k Ω Alps |
| Speaker outputs | : 4 Ω and 8 Ω |
| Frequency range | : 9 Hz to 60 kHz (-3 dB @ 1 W in 4 Ω) |
| Distortion | : 0,05 % (DH2 @ 1kHz @ 1 W in 4 Ω) |
| Power Bandwidth | : 30 Hz to 60 kHz (- 3 dB) |
| Damping Factor | : 7 (at 4 and 8 Ω outputs) |
| Mains voltages | : internally selected 110-120 or 220-240 Vac @ 50/60 Hz |
| Dimensions | : W x H x D = 22 x 23 x 33 cm |
| Mass | : 8 kg |
| Shipment box | : W x H x D = 29 x 30 x 39 cm |
| Shipment weight | : 9 kg |
| Shipment volume | : 34 l |
| Specifications | : subject to change or improve without any further notification. |
| Distribution | : Mennovanderveen.nl & Tentlabs.com |
| Price and delivery | : Inside EU: the price mentioned includes tax and shipment. Outside EU: we will inform about costs and delivery. |
| Date | : 2020-09-01 |