

Tenor Audio

OTL 75 (Wp & Wi)

Revised
Owner's Manual
for
Updated OTL
2013

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Safety Instructions

Follow all instructions and warnings marked on the unit. Store this manual in a safe location for future reference.

Always use with the correct line voltage. Refer to the manufacturer's operating instructions for power requirements. Be advised that different operating voltages may require the use of a different line cord and/or attachment plug. Do not install the unit in an unventilated rack, or directly above heat producing equipment. Observe the maximum ambient operating temperature listed in the product specification.

Slots and opening on the case are provided for ventilation; to ensure reliable operation and prevent it from overheating, these openings must not be blocked or covered. Never push objects of any kind through any of the ventilation slots. Never spill a liquid of any kind on the unit. Never attach audio power amplifier outputs directly to any of the unit's connectors and never ground speaker terminals!

To prevent shock or fire hazard, do not expose the unit to rain or moisture, or operate it where it will be exposed to water or excessive dampness. Do not remove vacuum tubes without unplugging power cord from AC mains.

Do not attempt to operate the unit if it has been dropped, damaged, exposed to liquids, or if it exhibits a distinct change in performance indicating the need for service.

Caution!

Only qualified service personnel should open this unit. Removing covers will expose you to hazardous voltages.



Adhere to all warnings on the unit and in the operating instructions. Take precautions not to defeat the grounding or polarization of the unit's power cord.

Do not overload wall outlet, extension cords or integral convenience receptacles, as this can result in a risk of fire or electrical shock. Route power supply cords so that they are not likely to be walked on or pinched by items placed on or against them, paying particular attention to cords at plugs, convenience receptacles, and the point at which they exit from the unit.

The unit should be cleaned carefully and air filters on bottom should be cleaned regularly.

Outdoor Antenna Grounding

If an outside antenna is connected to the playback system, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See figure.

Note to CATV installers: Article 820-40 of the NEC provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Power Lines: An outside antenna should be located away from power lines.

Introduction

Thank you for purchasing the updated Tenor Audio OTL . Please read this manual carefully in order to ensure years of listening pleasure from these carefully designed and crafted amplifiers.

Tenor Audio tube amplifiers belong to a very special class recognized by many audiophiles as the path to ultimate audio amplification. It is called Output Transformer Less (OTL) and achieves unrivaled levels of transparency, clarity and speed by avoiding all known limitations of even the best output transformers available. Our amplifiers are the result of a three-year research program and push the OTL performance envelope to unheard levels of musical refinement. These particular OTLs have been updated/modernized to today's standards with NOS output tubes and new mosfet regulation. Please note that setup of these OTLs have changed from the original setups when manufactured.

Dynamics

All our amplifiers have an impressive dynamic power reserve. Thus, they can momentarily quadruple the rated output power without any perceived signal degradation.

Stability

With two oversized power transformers and ten high performance regulated power supplies, Tenor Audio amplifiers are immune to AC main voltage fluctuations, power demand and speaker load reactance variations.

Harmonic Structural Integrity

No technical white paper can fully describe how our amplifiers preserve the music's natural Harmonic Structural Integrity (HSI). Our complex yet refined circuits are based on a balanced design of high performance triodes, high voltage regulation, two gain stages, and a capacitor-less / transformer-less output stage. The HSI concept can only be experienced when music reproduction is as satisfying as live music.

Unpacking your OTL

Each amplifier weighs 71 pounds and the center of gravity is located just in front of the transformer housings. Grab a firm hold of the amplifier chassis at the center of gravity and lift out of the crate. Help might be advisable because of the physical weight of the amplifier. Carefully remove the protective linings. Inspect the equipment for visible signs of shipping damage. Report any damage immediately to your shipping company!

Make sure that all the tubes and accessories are included and not damaged. It is preferable to install the tubes once the amplifier is positioned for use. List of included tubes, accessories and required equipment per pair of OTLs:

1. Needed: adjustment screwdriver
2. 8 x 6C33C-B output vacuum tube
3. 8 x 6H6n Russian vacuum tubes (known as 6n6p)
4. 1 Owners manual
5. 4 x 12AX7A / ECC83 vacuum tubes
6. 2 Spare mains AC fuse
7. 2 Power cords
8. 2 XLR Brass jumpers when using RCA input

Installing your OTL

The amplifier must be installed on a firm surface allowing adequate ventilation. Do not attempt to operate the unit on a soft surface (i.e. carpet) where the ventilation openings located on the bottom plate could be partially or totally blocked. Keep the unit away from sources of heat or humidity (moisture). Do not stack.

Do not cover or install the unit in an unventilated enclosure. A clearance of 4 inches (10.0 cm) allowed at the rear of the amplifier to reduce strain on the power cord.

A minimum space of 3/4 inches (2.0 cm) is necessary between the bottom plate of the amplifier and the surface on which the amplifier is installed to allow proper convection cooling. The amplifier must always rest on its feet.

Operation and Connection

To ensure maximum performance, only use high quality interconnects and speaker cables with proper termination connectors. Interconnects and speaker cables should have their left and right channels exactly the same length.

Operation OTL 75 Wp (power) Only

Each updated Wp amplifier has one direct single ended RCA input and one balanced XLR. To use only RCA, XLR pin 1&3 (in phase) or XLR pin 2&1 (invert phase) must be shorted with the provided shorting pins. To use only XLR, remove the shorting pin and plug in a quality XLR cable. Only one interconnect cable, single-ended or balanced, but not both, may be connected at any time - otherwise severe damage to the amplifier will occur!

The OTL Wp amplifier must always be powered off before changing input in direct mode or disconnecting speaker cables. Mute function is active when the front panel's lens is lit red. Do not change inputs or outputs when amplifier is powered on!

OTL 75 Wi Operation (integrated with Selector and Volume) Only

Each updated Wi amplifier has one direct single ended RCA input and one balanced XLR similar to the Wp version mentioned above. In direct mode, which bypasses the input selector and volume control, Use RCA #4 with XLR pin 1&3 (in phase) or XLR pin 2&1 (invert phase) shorted with the provided shorting pins. The XLR can only be used in direct mode by remove the shorting pin and plugging in a quality XLR cable. Only one interconnect cable, single-ended or balanced, but not both, may be connected at any time to these direct connections which bypass the input selector and volume control - otherwise severe damage to the amplifier will occur!

To use the Wi as an "integrated" you can only use single ended RCA in RCA #1, #2 or #3. These inputs can be selected using the input selector on the left side of the front face plate. These 3 inputs are controlled by the volume control located on the right side of the front face plate. The OTL Wi amplifier must always be muted before changing input selector for RCA #1, #2 or #3. Mute function is active when the front panel's selector is in the lower position and the lens is lit red.

For RCA #4 or XLR in direct mode, The OTL Wi amplifier must always be powered off before changing input since it is in direct mode. Powering off should also be used for disconnecting speaker cables.

Source Components

Hook up the left channel output of the source component (CD player, Tuner, etc...) to the left amplifier (white RCA or XLR connector) that will drive the left loudspeaker and the right channel output of the source device to the corresponding input on the right amplifier (red RCA connector or XLR connector) driving the right loudspeaker.

Speakers

CAUTIONARY NOTE: OTLs will not power all speakers properly and damage can occur as a result. OTLs are designed for medium to high efficiency speakers with an nominal impedance of 8 ohms or higher. Using speaker of low efficiency will shorten the life of the tubes and other electronic components and could cause catastrophic failure!

Connect the speaker making sure to respect polarity: the positive (+) output should be connected to the positive speaker connector (labeled generally "+" or red color connector) and the negative output (-) to the negative connector of the loudspeaker (labeled "-" or white connector). **Speaker output terminals are "floating" outputs, they must never be grounded or in contact with the metal chassis or serious damage will occur!**

Bias Current & DC-Balance Adjustments

Ensure the AC power cord is disconnected from the unit, the power switch on back set to the “off” position and the mute switch on front is set to “lower” position. Verify that the fan’s air filter underneath is properly installed and free of obstructions and has sufficient “free space” to do its job of breathing! Install tubes as labeled. **Please note that the tubes are labeled on the bottom chassis plate but V5 & V6 are now changed to 6n6p (6H6n Russian) on the updated OTLs.** The location numbers are marked on each tube box - V8L or V8R as an example. Note that the tubes are matched for the left or right amplifier and remember OTL Right = Red RCA and OTL Left = White RCA.

Ensure the speakers are connected to the output terminals securely.

Set the DC-Bal. control (left knob on the top of the unit) to “Ref” or 12 o’clock position.

Connect audio interconnects and AC power cord then set the power switch located on the back of the OTL to “on” and run the unit for **30 minutes** with the mute switch on front in “lower” position or “mute”. The power indicator light will not change from red to green at the end of the one minute soft start cycle since the OTL is in mute mode. This is normal.

BIAS and DC-BALANCE adjustments

1. Ensure that the amplifier is in mute. The bias meter located on the amplifier top plate is operational in mute mode only so make sure the mute switch is in the lower position.
2. Set the bias rotary selector to V7 and look at the meter for the bias reading. The normal operating bias for each 6C33C-B power tube in an updated OTL is 250mA. The meter range is 0 to +500mA. On delivery from the factory, the updated OTL should only need a little touch up to get to the 250mA since everything has been calibrated at the factory.
3. Next set the bias rotary selector successively to V8, V9 and V10 to perform the same adjustment in 2. for each tube.

4. Minor adjustments in 2 and 3 above may be required until 250mA is achieved as changing one tube bias can affect the others until equilibrium is achieved.
5. Set the Bias rotary selector to DC-Bal. and read the DC imbalance on the meter. If step 4 was precisely executed the DC imbalance should be less than +/- 50mV.
6. Turn the DC-Bal. control knob slowly (left knob on the top of the unit) in order to read 0 mV on the meter. The meter range in this mode is +/- 250mV.
7. Set the bias rotary selector to off.
8. After 2 or 3 hours of listening, check the meter readings and readjust if necessary.

ADDITIONAL IMPORTANT NOTES

During the first 50 hours of operation, it may be necessary to periodically check and adjust the bias current and the DC-Balance after 2 to 3 hours of operation. The 6C33C-B tube takes approximately 50 hours to completely stabilize after being shipped. After this initial period, the amplifier will remain stable (less than +/- 5mV imbalance) for long periods of time. To obtain maximum tube life and ensure optimal performance, a monthly check of the bias and dc balance is recommended.

WARRANTY

90 Day Limited Warranty on Updated OTL

PROOF OF PURCHASE REQUIRED

Tenor Inc provides a limited warranty for this updated OTL referred to in this manual to be free from defects in materials or workmanship, for a period of 90 days (not including tubes) from the date of the original purchase. This warranty does not include liability for damage resulting from accident, misuse, abuse, alteration, improper connection or incorrect line voltage. This warranty is limited to the original purchaser of the updated OTL. Due to the sensitivity and the potential for improper installation, vacuum tubes are not covered under the limited 90 day warranty.

Although Tenor amplifiers are exceptionally stable on low impedance loads, speakers with difficult or reactive loads below nominal 8 Ohms will require the output stage to deliver excessive current and consequently risk the overload and damage of the output tubes and possibly the loudspeaker. Use in such circumstances is at your own risk and will void the Tenor OTL limited warranty. Damage to your loudspeakers is not warranted by Tenor Inc.

Should the unit become defective during the limited warranty period, Tenor Audio will elect to repair or replace the unit free of charge. Shipping to/from the Tenor factory is the sole responsibility of the OTL owner and should be labeled as follows:

Tenor Inc.
1001 rue Lenoir A-209
Montreal, Quebec
H4C 2Z6 Canada
Attention: Service

Tenor Inc will not accept packages without prior authorization, original wood shipping crates, pre-paid door to door freight and proper insurance. Please email service@tenoraudio.com or call 705 717 1705 to request a return authorization number.

The use of tubes not supplied by Tenor is ill advised since they are not matched properly for the delicate OTL circuit and will cause poor performance, overheating and possible catastrophic loudspeaker damage. Using tubes not properly selected for the OTL circuit voids the limited warranty!

Attempting to repair or modify an OTL is not recommended due to the special knowledge required and will void the limited warranty! Missing or altered serial numbers automatically voids the limited warranty.

Specifications per Chassis

Amplifier type	Mono Power amplifier
Rated power: 4, 8, 16 Ohms	60, 75, 75 W
Load impedance	4 – 16 Ohms (med. to high efficiency)
Recommended load	8 Ohms or higher
Dynamic power @ 8 Ohms	225 W
Pure Class A power @ 8 Ohms	40 W
Power Bandwidth (-3 dB)	2 to 160 000 Hz
Harmonic distortion + noise	less than 0,5%
Intermodulation distortion	less than 0,5%
Signal to noise ratio	100 dB A weighted
Input impedance	40 K Ohms
Output impedance	0.4 Ohms
Input sensitivity	350 mV balanced., 700 mV RCA
Output stage power transformer	750 VA
Driver stage power transformer	750 VA
Input	RCA or XLR
Multi function meter	analog 1.5 %
Input tubes	2 x 12AX7, 4 x 6H6n (known as 6n6p)
Output tubes	4 x 6C33C-B
Soft start / Mute	1 minute
Maximum power consumption	730 W
Supply voltage	100, 120, 220 or 240
AC mains Input	15 / 6A IEC detachable power cord
Dimensions (W x D x H)	17.25 x 23 x 11inches
Weight per unit	71 pounds