



OTO PHONO

INTEGRATED AMPLIFIER

OWNER'S INFORMATION

! IMPORTANT SAFETY INFORMATION

⚠ HEAT: BY THE NATURE OF VACUUM TUBES, THIS PRODUCT GENERATES HIGH LEVELS OF HEAT. ADEQUATE VENTILATION MUST BE PROVIDED. DO NOT RESTRICT THE AIRFLOW THROUGH ANY OF THE VENTILATION SLOTS OR PLACE THE AMPLIFIER ON ANY SURFACE THAT MAY RESTRICT AIRFLOW.

CAUTION: THE VACUUM TUBES AND OTHER NEARBY PARTS OPERATE AT EXTREMELY HIGH TEMPERATURES - KEEP SUCH PARTS OUT OF THE REACH OF CHILDREN.

⚠ HUMIDITY: DO NOT STORE OR OPERATE THIS UNIT IN AREAS OF HIGH HUMIDITY, OR IN CLOSE PROXIMITY TO WATER/DAMPNESS. DO NOT EXPOSE THE UNIT TO LIQUID.

⚠ EARTHING: THE PRODUCT MUST BE EARTHED - ENSURE THAT THE MAINS SUPPLY CABLE IS EARTHED.

⚠ SHOCK: INTERNAL OPERATING VOLTAGES ARE LETHAL! DO NOT REMOVE THE TOP COVER. DO NOT ATTEMPT TO REPLACE THE FUSE WITHOUT DISCONNECTING THE UNIT FROM THE MAINS SUPPLY.

⚠ SAFETY COMPONENTS: INTERNAL FUSES AND OTHER SAFETY COMPONENTS ARE LOCATED INSIDE THIS UNIT IN ACCORDANCE WITH BS 60065 REQUIREMENTS.

IN THE EVENT OF SUCH COMPONENT FAILURE, THEY MUST BE REPLACED WITH THE SAME PART TYPES ONLY. SUCH REPLACEMENT MUST BE CARRIED OUT BY A QUALIFIED SERVICE TECHNICIAN.

CE DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product is in conformity with the following standards or standardised documents:

BS EN 60065 in accordance with the regulations 73/23/EEC, 89/336/EEC (from 1st January 1997).

CE 94

Paul A Masson
Director

Audio Note (UK) Limited
Unit C, Peacock Industrial Estate
Lyon Close
125-127 Davigdor Road
Hove
East Sussex
BN3 1SG

Tel: ++44 (01273) 220511
Fax: ++44 (01273) 731498

Congratulations on your purchase of the Audio Note Oto Phono Push Pull integrated amplifier. The Oto Phono Push Pull is a pure Class A, vacuum tube amplifier offering an outstanding level of performance and value.

Please read over this manual carefully in order to obtain the best possible performance and longevity from your amplifier.

The Oto's design is derived from Audio Notes key technological features originally embraced by the world famous Audio Note On Gaku and Keron amplifiers. These features include:

- [1] Pure Class A operation.
- [2] Zero negative feedback.
- [3] Single ended output stage.
- [4] Valve rectification.
- [5] Directly heated, triode output stage.
- [6] Materials and component quality.

The Level (and so, sonic performance) may be directly related to the number of these key features incorporated into the amplifier. The Oto Phono Push Pull meets Level One requirements.

UNPACKING & INSTALLATION

Please take care when unpacking the amplifier as its weight is considerably more than the size might suggest. We recommend that you store the packaging materials in case the unit requires shipping at a later date. Also, check that no transit damage has occurred before installing the amplifier.

Next, select a suitable location for the unit, ensuring that adequate ventilation clearance is provided. This is an important consideration as the amplifier generates substantial heat during normal operation. The amplifier is best supported by a flat and firm surface capable of sustaining the amplifier's weight.

Worthwhile sonic improvements may be obtained by locating the amplifier on a purposely designed audio component support system.

Connections

SPEAKERS: Each channel is equipped with three, colour coded binding posts for connection to your speakers. Connect the Oto's black speaker output binding post labelled as '0' to the black (also marked "-") on the speakers. Connect the red (also marked "+") terminal of the speakers to outer most red binding post, labelled as (8 Ω) on the Oto. Repeat this procedure for both left and right channels.

The central red binding posts, labelled as "4 Ω " may be used with 4 ohm speaker systems. If you are uncertain whether your speaker system is of a 4 or 8 ohm type, try the following test once all other connections are made and the amplifier is operational: Compare the sound quality using a familiar recording with the speakers connected to the 8 ohm connections and then the 4 ohm connections respectively. The selection that produces the best frequency balance and maximum dynamics should be used.

CONNECTION OF SOURCE COMPONENTS

PHONO INPUT: The phono input is suitable for connection to a turntable equipped with a moving magnet (MM) cartridge. Audio Note is able to provide a range of step-up transformers for use with moving coil (MC) cartridges.*

Some turntables provide a separate ground wire for connection to the ground terminal located next to the input sockets.

LINE INPUTS: Three line inputs labelled CD and TUNER and AUX are available for connection to the corresponding music sources. Any "line level" music source may be connected to either of these inputs.

TAPE CONNECTIONS: A set of inputs and outputs are available for connection to a cassette deck. These connections are also suitable for use with a stereo video tape recorded or any other "line level" equipment. Connect the music source's "line out" (sometimes labelled "tape out") to "Tape in" sockets on the amplifier and the amplifier's "Record out" to the music source's "Line in" (sometimes labelled "Record in") connectors.

MAINS CONNECTION: Use the supplied mains cable to connect the amplifier to the local mains.

Special Note: Make sure that all connections are tight and clean. For best performance, use good quality audio interlinks. Although several companies manufacture good quality interlinks, those manufactured by Audio Note are especially good!

- * Audio Note produces a range of step up transformers especially designed for use with low output (Moving Coil) type cartridges. These transformers are able to provide the best possible match to the Oto Phono.

USING THE OTO PHONO

Once all connections are completed and checked, rotate the rotary type main "on/off" switch located on the front panel's right-hand side clockwise to the "on" position. The red front panel indicator should now be glowing. The amplifier is of a vacuum tube design and requires approximately 45 seconds' initialising time before it is ready for operation. During this time, ensure that the volume control is at a low setting.

Set the input selector to the appropriate source (PHONO, CD TUNER, or AUX) and the Tape monitor selector to "Source".

To listen to a tape source, set the "Source/Tape" selector to "Tape".

Bedding in time: The new amplifier requires about 200 hours of initial use (called "bedding in time") before the circuitry becomes stable and optimum performance is realised. As the amplifier "beds in", the sound will become more lucid, detailed and expansive.

Once the amplifier is "bedded in", a warm-up time of approximately 30 to 45 minutes is required each time the unit is turned on before *optimum* sonic performance is reached.

AFTER CARE

Cleaning the Oto is best performed with a soft brush - some photographic stores are able to provide suitable brushes. Alternatively, a soft cotton cloth, lightly *moistened* with a mild, natural soap/luke warm water solution may be used for removing dirt build-up. Strong or alcohol based solvents may damage the finish of this amplifier. Do not wet the unit! No internal servicing is necessary and we recommend that the top cover is not removed as there are *dangerous* internal voltages!

Transportation: If the amplifier needs to be moved, allow time for the vacuum tubes to cool down first. The vacuum tubes are particularly fragile when they are hot and may be easily damaged. Also repack the unit in its original packaging materials if long distance transit is required.

Tube replacement: The vacuum tubes used in the Oto should provide about two years of continuous operation. With three hours of use per day, they should provide up to an 8,000 hour lifespan. Please consult your Audio Note dealer should the performance of the amplifier deteriorate so that arrangements for tube replacement can be made.

WARRANTY AND SERVICING

Audio Note warrants this product free from defects in materials and workmanship for one year from original date of purchase from an appointed Audio Note dealer. The vacuum tubes are warranted for three months.

In the event that your Audio Note product requires servicing, please contact your Audio Note dealer. If the component needs to be shipped, please use the original packaging materials and include a copy of the sales purchase with a note, explaining, in as much detail as possible, the problems that you are experiencing with the unit.

If you require technical support, new vacuum tubes or have any questions, please direct them to your local Audio Note dealer or alternatively to:

Customer Support
Audio Note (UK) Limited
Unit C, Peacock Industrial Estate
Lyon Close
125 - 127 Davigdor Road
HOVE
East Sussex
BN3 1SG
United Kingdom

Tel: ++44 (0)1273 220511
Fax: ++44 (0)1273 731498

TECHNICAL OVERVIEW

The Oto Phono Push Pull is a Pure Class A amplifier. Its development is the result of Audio Note's ongoing research to find ways to make better audio products and includes the use of a technique called "Comparison by Contrast" *

The phono stage incorporates a cascaded ECC83 and ECC88 dual triode, anode follower configuration with a completely passive (zero feedback) RIAA Equalisation network.

The remaining circuitry consists of a high gain power amplifier stage. This allows for a passive line stage volume and input selection control circuit topology.

The power amplifier section consists of a ECC83 dual triode used as an anode follower for the first stage. The output from this stage is applied to a second anode follower and then to the parallel connected EL84 tubes.

The output from the first stage also drives an attenuator which feeds a further anode follower, identical to that of the first stage. This produces an inverted output required for push pull amplifiers. The inverted output in turn drives an ECC83 anode follower which in turn drives the second pair of EL84 vacuum tubes.

The EL84 tubes are matched to the loudspeakers with a custom Audio Note transformer.

Dual power supplies and transformers are employed, one for high level signals and the other for low level signals, whilst a DC filament supply is used for low level vacuum tubes.

* An essay titled "The Road to Audio Hell" describes the Comparison by Contrast technique and is available from Audio Note on request.

SPECIFICATIONS

Weight	16 kilograms
Dimensions	140(h) x 440 (w) x 410 (d) (mm)
Fuse ratings	1.6A anti-surge (110/120V supply) 1 A anti- surge (220/240V supply)
Input impedance	100K, line in 47K, phono
Input sensitivity	350mV, Line in 3mV, Phono in
Maximum output	12 Watts RMS per channel into 4 or 8 ohm loads
Tube compliment	EL84 (Eight) ECC83/12AX7 (Five) ECC88/6DJ8/6922 (One)

Note: Due to Audio Note's ongoing research and development programme, specifications are subject to change without notice.

THIS PRODUCT COMPLIES WITH CE STANDARDS.