



Autograph Mini

Estd. **TANNOY** *1926*

TANNOY®

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Tannoy - A Short History

In the early days of broadcasting radio sets needed both low and high voltage DC power and this had to be supplied by batteries. The lead acid batteries commonly used in the radio equipment of the time therefore needed regular recharging.

In London, in 1926, Guy R. Fountain perfected a new type of electrical rectifier with the aim of designing a charger more suitable for use in the home. His rectifier consisted of two dissimilar metals held in a special electrolyte solution; one was Tantalum and the other an alloy of Lead. So successful was this invention that Guy Fountain founded a British company by the name of Tannoy, a contraction of the words 'Tantalum' and 'Alloy', and this brand name soon became internationally renowned and highly regarded in all aspects of sound reproduction.



Early experiments with moving coil loudspeakers with DC energised magnets proved to be the company's first foray into the field of loudspeaker technology. A discrete two-way loudspeaker system followed in 1933 and shortly after a range of microphones and loudspeakers capable of high power handling. These developments led the company to become world famous in the field of public address and sound distribution, with countless prestigious installations completed in subsequent decades. So much so that the Oxford English Dictionary adopted the word Tannoy as the generic term for a PA system.

Tannoy has always been at the forefront of the communications revolution, developing its own equipment and production technology. The company has built up a fund of knowledge and experience, which has proved invaluable in the development of loudspeakers for an exceptionally wide range of applications. The famous Tannoy Dual Concentric™ loudspeaker driver principle was created and developed under Guy Fountain's direction in the late 1940's. It is still highly regarded by music enthusiasts, recording facilities and broadcast studios, worldwide due to its unique point source dispersion properties. Due to the complex design, where the high frequency unit is mounted behind, and concentrically with, the low frequency unit, the low and high frequencies are fully integrated at source. It is this feature that gives the Dual Concentric™ driver such unique sound reproduction qualities.

Guy Fountain retired in 1974 but the Tannoy Company maintains his philosophy and, as such, remains dedicated to the accurate and realistic reproduction of music for those enthusiasts and audio professionals around the world.

The Tannoy Research and Development team has continued to refine the innovative Dual Concentric™ principle. Using the latest design and material technologies, with sophisticated circuit techniques in crossover design, Tannoy has produced a loudspeaker system with superb reproductive capabilities and exceptionally wide dynamic range.

The Autograph Mini

In combining the best of traditional crafts with the latest production and design skills, Tannoy presents the Autograph Mini loudspeaker. The Autograph Mini embodies the Tannoy philosophy and is a testament to the original Guy R Fountain Autograph, launched in 1954. Cabinets incorporating selected hardwoods are hand finished and polished to a standard that is unsurpassed. The Autograph Mini is a truly special loudspeaker. The high performance driver is the smallest Tannoy Dual Concentric™ ever, and includes a multi-fibre paper pulp cone for natural midrange and well defined bass. The high frequency section incorporates Tannoy WideBand™ technology, giving a more true to life performance. The driver is installed in a damped birch-ply cabinet with hardwood veneers and solid wooden mouldings. Silver-plated van den Hul wiring is used in the low frequency section and 99.99% high purity silver for the high frequencies. The carefully optimized crossover includes low loss inductors and specially damped audio grade capacitors.

Unpacking Instructions

Examine all packing material and inspect the carton for signs of external damage. If there is evidence of excessive mishandling in transit, resulting in damage to the loudspeaker, inform the carrier and supplier immediately. Always keep the packing in such circumstances for subsequent examination.

Tannoy strongly suggests that you store the complete packaging set for possible future use.

Initial Positioning

Locate the loudspeakers so that the favourite listening position is approximately 15 degrees from the axes of the cabinets. The axes of both cabinets should intersect at a point slightly in front of the listening position. Remember that the proximity of the loudspeakers to walls and corners will affect the sound. Some experimentation will probably be needed to fine-tune the stereo image depth and low frequency sound quality. Close-to-wall positions - and room corners more so - have the effect of increasing very low frequency sound energy. Reflective adjacent walls may upset the stereo image by causing unwanted reflections.

The loudspeakers are designed to be used at least 1m from any sidewall or reflective surface and at least 0.5m away from a rear wall. Only in this position will their exceptional stereo image depth capabilities be realised.

Best results will be obtained by using dedicated loudspeaker stands, and your dealer will be able to advise.

Amplifier Matching

Consult the enclosed product specification sheet as this clearly shows the acceptable power range for amplifier matching to your speakers. The high peak power handling of Tannoy loudspeakers permits responsible use with more powerful amplifiers - please read the Warranty.

As with all loudspeaker systems, the power handling is a function of voice coil thermal capacity. Care should be taken to avoid overdriving any amplifier, as this will cause output overload resulting in 'clipping' or distortion within the output signal. This, if done for any extended period, will cause damage to the speakers.

Generally an amplifier of higher power that is running hard, but free of distortion, will do less damage to the loudspeaker than a lower power amplifier continually clipping. Remember also that a high powered amplifier running at less than 90% of output power generally sounds a great deal better than a lower powered example struggling to achieve 100%. An amplifier with insufficient drive capability will not allow the full performance of the loudspeakers to be realised.

Cable Choice

Always use the best quality of cable available within your budget. High quality audio signals passing from the amplifier to the loudspeaker are unusual in their demands on the cable. Wide dynamic range and frequency bandwidth information has to coexist with the ability to transmit peak currents of at least 10 amps, without incurring any loss or signal impairment. This explains why the sound quality of the information reproduced by the loudspeakers is so dependant on the physical properties of the cables connecting them to the amplifier.

Technically, we recommend two-core cable with cross section area not less than 1.5 square millimeters (1.5mm²) for cable runs of up to 3 metres. For longer lengths you will require to use cable with a minimum cross sectional area of 2.5 square millimetres (2.5mm²). In addition always keep the cable runs the same length for each speaker.

Cable construction can affect the sound quality. Be prepared to experiment to find a cable that suits your ear and audio system. We do not recommend the use of braided (Litz) or coaxial cables as these have a high capacitance that may affect the stability of certain amplifiers.

Connecting your Loudspeakers

- To protect your speakers and amplifier from damage it is important to ensure that the amplifier is switched OFF prior to connecting or disconnecting any cabling.
- Correct polarity of the cable connections between the amplifier and speakers is essential.
- The positive (plus) terminal on the amplifier left channel (marked + or coloured red) must be connected to the positive (red) terminal on the left speaker. The left speaker is the one on the left as you look at the stereo pair from your listening position.
- The negative (minus) terminal on the amplifier left channel (marked - or coloured black) must be connected to the negative (black) terminal on the left speaker.
- Repeat this connection process for the right speaker. Remember that the positive (+ or red) on the amplifier must be connected to the positive (+ or red) on the speaker and the negative (- or black) to negative.
- Select a signal source, such as a CD player; switch on the amplifier and slowly turn up the volume control to check that both loudspeakers are operational.

Grille Removal

Special acoustically transparent cloth is used in the grilles. However, for ultimate fidelity the enthusiast will find it is best to use these loudspeakers with their grilles removed during listening.

The front grille is held in place by concealed magnets, and may be removed by gently prising away from the cabinet.

Screening

Loudspeaker drive units contain large magnets. These are capable of generating a substantial magnetic field extending a considerable distance beyond the sidewalls of the speaker enclosure. This field can cause picture distortion if the speakers are placed too close to the TV. However, to avoid these colour fringing effects, the Autograph Mini is fully shielded.

Running in

Like all loudspeakers, the drive unit in your Tannoy Autograph Mini requires a while to reach optimum performance, as the stresses in the materials relax - especially in the suspension system. For this reason, it is beneficial to run the system at fairly high levels at normal room temperature, for approximately 20 hours to achieve best results.

Tannoy Dual Concentric™ Drive Unit

One of the unique advantages of the Tannoy Dual Concentric™ principle is that the low and high frequency sound radiation is generated on the same axis. The high frequency unit is mounted behind, and concentrically with, the low frequency unit. High frequency sound radiates from the centre of the low frequency unit through a carefully designed high frequency exponential horn. Low and high frequencies are therefore fully integrated at source. It is this feature that gives the Dual Concentric™ driver such unique sound reproduction qualities.

There are other significant benefits. The high frequency unit does not obstruct the low frequency unit in any way (a unique feature when compared with other so called coaxial systems). Polar dispersion of sound is symmetrical in both horizontal and vertical planes. By careful crossover network design the virtual acoustic sources of the high and low frequency units can be made to occupy the same point on the axis. Therefore the total sound appears to emanate from a single point source located slightly behind the drive unit. This means that the loudspeakers, when fed from a high quality stereo source, can recreate a full and accurate stereo image.

The Low Frequency Section

The low frequency section of the Dual Concentric™ driver has exceptional power handling and dynamic range. The low frequency cone piston is produced from selected multi-fibre paper pulp. This is specially treated to absorb internal resonance modes.

The rubber surround is designed to correctly terminate the moving cone and provide optimum compliance and linearity at large excursions. The cone piston is driven by a high power motor system consisting of a two layer copper clad aluminium coil suspended in a precision magnetic air gap. The coil is wound with a special high temperature adhesive system and individually cured to ensure reliable operation at high peak power inputs. The shape of the low frequency cone is arranged to provide optimum dispersion of audio frequencies at both the high and low ends of the spectrum. The cone flare continues the high frequency horn profile to ensure a smooth transition at the crossover point.

The WideBand™ High Frequency Section

The high frequency driver consists of a wide dynamic range compression unit giving superb transient performance with a smooth uncoloured response. The compression unit feeds acoustic power through a phase compensating device or waveguide to the throat of the acoustic horn. This horn provides an acoustic impedance transformation to match the compression unit radiation into the listening environment.

A titanium diaphragm, formed by a specially developed process, produces a piston with a very high stiffness to mass ratio. Optimum molecular grain structure gives long-term durability. A very low mass precision two layer copper coil provides the driving force for the diaphragm, energized by a neodymium magnet system. A rear damped acoustic cavity controls the compression driver response and ensures further correct acoustic impedance matching to the horn throat.

The compression horn driver incorporates Tannoy WideBand™ technology. The undisputed benefits of extended high frequency performance have been recognised by audio enthusiasts and recording professionals worldwide. This extends the frequency response to 54kHz, delivering breath-taking dynamics, detail and sound staging.

The 19mm 25 micron titanium dome in this SuperTweeter™, a key component of the wide bandwidth system, not only allows supremely accurate fine detail resolution of high frequencies but also effectively enhances the listening experience throughout the entire frequency range.

WideBand™ technology reduces phase error and significantly improves transient performance below 20kHz. This leads to increased tonal accuracy throughout the whole frequency range, even bass information is faster and tighter, effectively enhancing the total listening experience. Music, speech and soundtrack effects have an increased immediacy, airiness and impact, providing a performance that sounds more natural and true to life.

The Crossover Network

During the design of the crossover network the acoustic, mechanical and electrical interactions of the high and low frequency sections have been fully analysed. The crossover is therefore an integral part of the design of the system. The crossover network provides complex equalisation in both amplitude and phase for each section and fully integrates the response at the crossover point.

All components are high precision, low-loss and thermally stable. Quality, specially vibration damped DMT™ polypropylene capacitors are used for the high frequency feed. Air-cored and large laminated iron core inductors avoid saturation effects. The components are laid out to minimise inter component coupling and are placed well away from the driver magnetic field. Top quality silver-plated van den Hul wiring is used in the low frequency section, and solid core 99.99% purity PTFE insulated silver wire for the high frequencies.

The complementary design of crossover and drive units means that the loudspeaker system as a whole behaves as a minimum phase system over the audio band and therefore the acoustic sources of the high and low frequency sections are aligned in time and space to ensure accurate reproduction of stereo images.

A Note on Auditory Perception

Our hearing mechanism locates natural sound sources with great accuracy by using the naturally occurring phase differences (or arrival times) at middle frequencies, and intensity differences at higher frequencies, between each of our ears. Naturally occurring sounds pass through the air to the ears at constant speed (345 metres/second or 1132 feet/second). All frequencies travel at the same speed and therefore a frequency independent time delay is associated with the distances involved. (The familiar time delay between a flash of lightning and the associated clap of thunder is an example). Human hearing relies on the constant nature of the time delay with the intensity to locate natural sounds accurately. A pair of Autograph Mini loudspeakers can uniquely reconstruct stereo images and provide excellent localisation of recorded sounds. The Tannoy Dual Concentric™ driver principle ensures that the source of sound at high frequencies is one the same axis as the source of sound at low frequencies.

The careful design of crossover network complements the drive unit to provide a coincident sound source at frequencies where the human ear derives phase information for localisation. The loudspeaker system exhibits a time delay response that is in essence independent of reproduced frequencies. In addition, the amplitude (or intensity) response is linear, smooth and consistent. This provides the correct intensity information to recreate the original sound stage.

Care of the Cabinet

The cabinet is constructed from carefully selected solid hardwood and veneers that have been hand finished to exacting standards. The wood should only be cleaned with a dry cloth or with a light application of quality non-silicone furniture polish, taking care not to get polish on the grille cloth.

In common with all solid wood furniture, exposure to extremes of heat, cold and varying humidity will cause the wood to ease slightly. Therefore it is recommended that the loudspeaker is protected from environmental extremes to guard against any such occurrence. Any wood will change colour when subjected to the UV content of ambient light. Light veneer will darken appreciably to a rich natural patina, while dark wood may lighten.

Faultfinding

Tannoy loudspeakers are designed and manufactured to be reliable. When a fault occurs in a hi-fi system the effect is always heard through the loudspeakers although they may not be the source of the fault. It is important to trace the cause of the problem as accurately as possible. A fault heard on one source (only CD or tape for instance) is most unlikely to be a loudspeaker problem. Loudspeakers do not in themselves generate hum, hiss or rumble although high quality, widebandwidth loudspeakers may emphasise such problems.

Tannoy Quality

An important part of Tannoy's design philosophy is to produce loudspeakers with a level of performance beyond the most exacting specifications of contemporary source equipment.

Loudspeaker design is no longer a 'black art'. It is now possible to use computers to model designs and predict results. Comprehensive test equipment is used to pinpoint problems with cabinets or drive units, anechoic chambers help in producing accurate measurements. Both computer aided design (CAD) and sophisticated test equipment are used extensively at Tannoy, but we always remember that listening tests must be the final judge.

Tannoy follows a policy of stringent quality control procedures using sophisticated measurement facilities. Strict quality control is more easily achieved because all the loudspeakers are built in-house at the Tannoy factory in Scotland. All drive units are designed and manufactured by Tannoy. All incoming parts are thoroughly tested to ensure that they are as specified. Not only is all data computerized, but rigorous testing procedures during construction ensures every loudspeaker meets or exceeds our exacting standards.

Warranty and Service

Your Tannoy Prestige loudspeakers will operate for many years without trouble provided that simple precautions are followed.

Tannoy loudspeakers are warranted against manufacturing defects in material or craftsmanship over a period of 5 years from the date of purchase. This warranty is in addition to your statutory rights as a customer. Tannoy cannot however be held responsible for failures caused by abuse, unauthorised modifications, improper operation or damage caused by faults elsewhere in your system.

Tannoy Ltd or its authorised Distributor or Service Agent will make the determination of the cause of failure based on physical inspection of the failed parts. If you suspect a problem with your loudspeakers then in the first instance discuss it with your Tannoy Dealer. The Dealer has the expertise and experience to help you troubleshoot the system and assess the situation. If you continue to have problems contact your Tannoy Distributor or Tannoy Customer Services at our Coatbridge address.

Due to our policy of continuous improvement, all specifications are subject to change without notice.

Caution

The high peak power handling of Tannoy loudspeakers will allow responsible use with larger amplifiers on wide dynamic range material. Take care with any amplifier, irrespective of power output, to avoid abnormal conditions such as switch on surges or output overload (clipping) that may result in peaks of power measuring greatly over the rated output.

Technical Specifications

CABINET DIMENSIONS (H X W X D)	345mm x 210mm x 130mm (13 9/16" x 8 1/4" x 5 1/8")
CABINET VOLUME	3.5L (0.0124cu.ft)
RECOMMENDED AMPLIFIER POWER	20- 100W
POWER RATING	50W RMS 200W peak
MAXIMUM SPL	105dB at 1 metre for 50W RMS 111dB at 1 metre for 200W peak
TOTAL HARMONIC DISTORTION	Less than 2% at 50W RMS (100Hz to 20kHz)
SENSITIVITY (2.83V @ 1M)	88dB
NOMINAL IMPEDANCE	8 ohm
MINIMUM IMPEDANCE	5.5 ohm
DISPERSION	90 degrees conical
PHASE RESPONSE	System behaves substantially as a frequency independent time delay
FREQUENCY RESPONSE (-6DB)	68Hz- 54kHz
CROSSOVER FREQUENCY	2.3kHz mid to high
CROSSOVER TYPE	2nd order compensated low pass, 1st order compensated high pass
DUAL CONCENTRIC DRIVER	LF 100mm (4") mixed fibre pulp cone HF 19mm (3/4") titanium dome with neodymium magnet system
CABINET CONSTRUCTION	High density 18mm birch ply. Internally crossbraced and heavily damped
ENCLOSURE TYPE	Ported
CABINET CONSTRUCTION	High density birch ply, 10 and 13mm thick
WEIGHT	4.0kgs (8.8lbs)