PRESTIGE

OWNER'S MANUAL

Glenair

Estd. TANNOY 1926

TANNOY®

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Glenair

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 Glenair

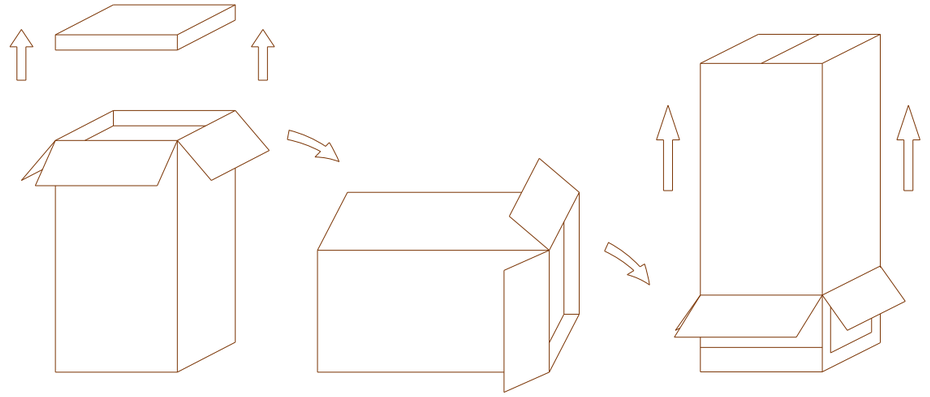
In combining the best of traditional crafts with the latest production and design skills, Tannoy presents the Glenair loudspeaker. The Glenair embodies the Tannoy philosophy and brings a fresh modern approach to our Prestige range of loudspeakers. Cabinets incorporating selected hardwoods are hand finished to a standard that is unsurpassed. The Glenair is a truly special loudspeaker. The high performance driver is the latest version of our famous 15" Tannoy Dual Concentric™, and includes a multi-fibre paper pulp cone and fabric surround for natural midrange and well defined bass. The high frequency section incorporates Tannoy Tulip Waveguide™ technology, giving a true to life performance. The driver is installed in a damped birch-ply cabinet with cherry veneers and solid wooden mouldings. Silver-plated Van den Hul wiring is used throughout to minimize losses and improve clarity. The carefully optimized crossover includes low loss inductors and special audio grade capacitors.

Unpacking Instructions

After opening the carton and folding the end leaves out of the way, remove the packing cushion to reveal the plinth and bottom of the loudspeaker. Locate the bag containing the four mounting cones and cups. Turn the loudspeaker over so that the cabinet now stands on the floor inside the carton. Lift the carton upwards to reveal the loudspeaker.

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

Screw the four carpet piercing cones to each cabinet to ensure stability and best sound quality. These are designed to avoid damage to the carpet, but for bare wooden floors, they should rest on the metal cups provided.

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.

Amplifier Matching

Consult the product specification page 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.

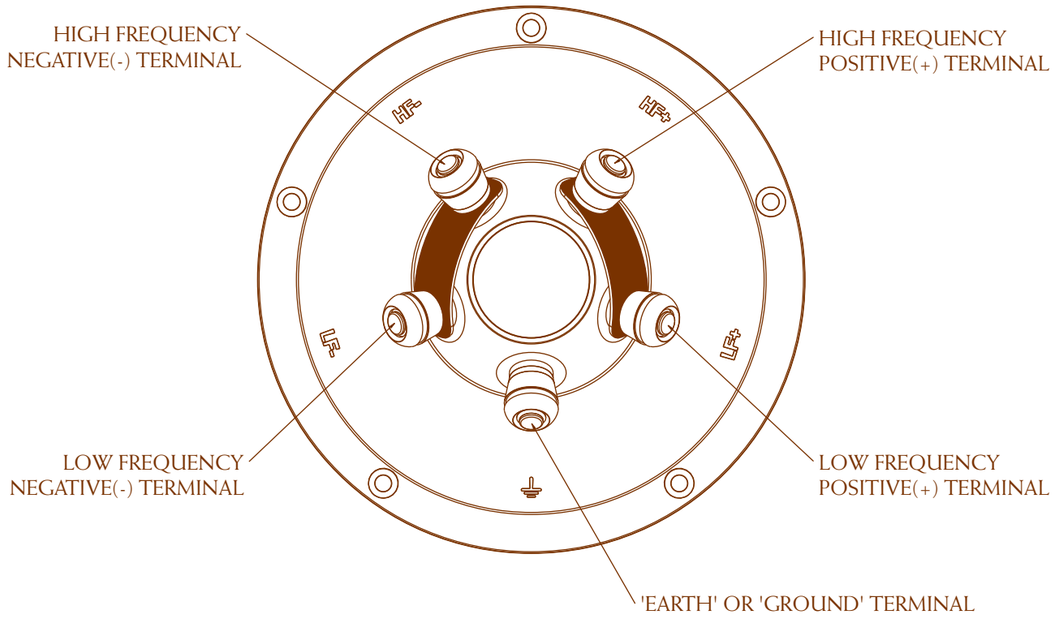
Technically, we recommend two-core cable with cross section area not less than 1.5 square millimeters (1.5mm^2) for cable runs of up to 3 metres. For longer lengths you will require to use cable with a minimum cross sectional area of 2.5 square millimetres (2.5mm^2). In addition always keep the cable 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.

Terminal Panel

In order to take advantage of the driver earthing feature within Glenair and to optimise performance further, use a shielded or screened loudspeaker cable. The screening termination should be connected to the earth or 'ground' (green) terminal on the loudspeaker and to the ground or earth connection on the amplifier.

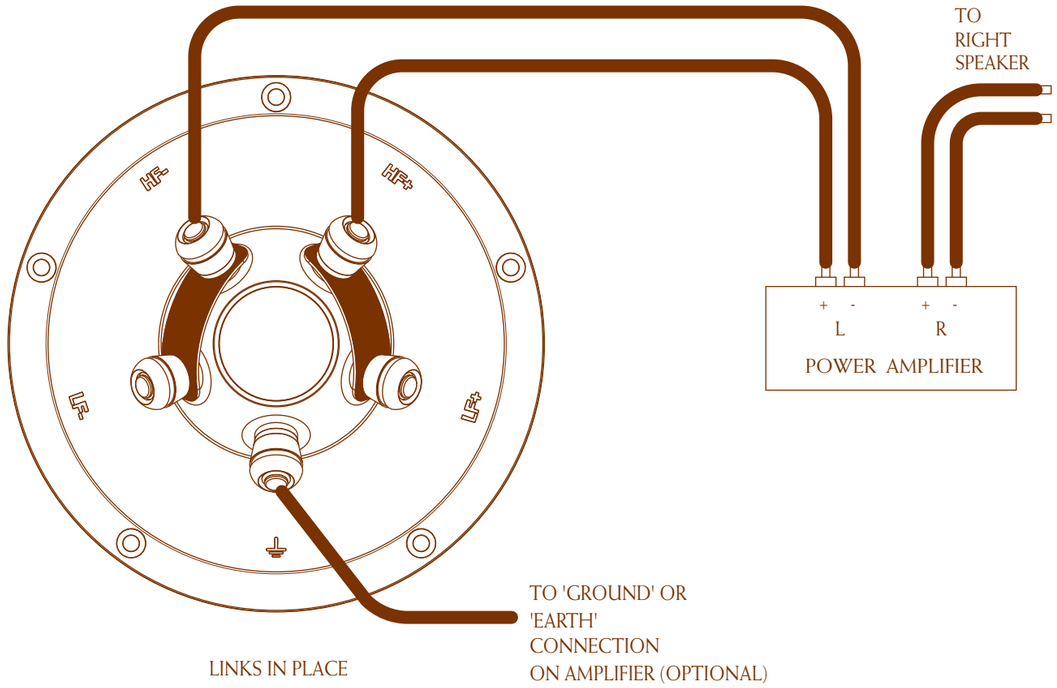
Alternatively if you are not using a screened loudspeaker cable but wish to utilise the earthing facility, run a single cable between the earth or 'ground' (green) terminal on the loudspeaker to the earth (ground) connection on the amplifier.



Connecting your Loudspeakers

To avoid potential damage to your loudspeaker, ensure that the amplifier is switched OFF prior to connecting or disconnecting any cables. Before switching on double check that all connections are secure and that polarity is correct.

CONNECTION IN SINGLE WIRE MODE

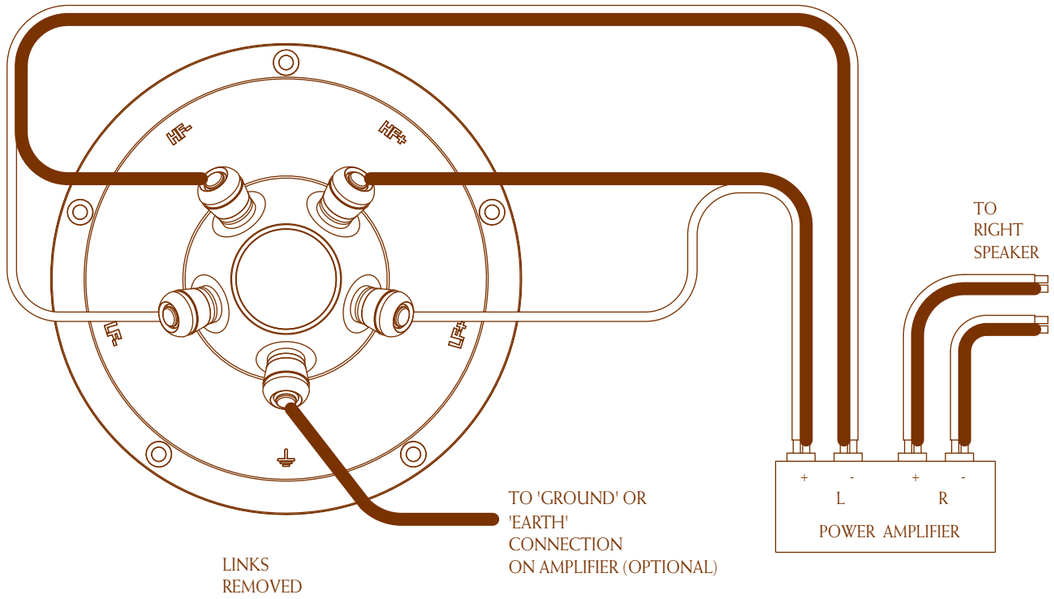


- Without removing the link plates on the terminal panel, start with the red (positive) lead. Fit this into the red (positive) high frequency (HF) terminal on the loudspeaker. To do this, loosen the terminal nut sufficiently to allow insertion of the cable and then re-tighten the terminal nut finger-tight.
- The cable at the other end of the lead should be connected to the red (positive) terminal on the amplifier.
- Repeat this operation for the black (negative) HF terminal, and connect to the black (negative) terminal on the amplifier.
- Repeat the whole operation for the other loudspeaker.

Choosing the HF terminals for single wire mode has been found to give the best sound quality.

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 reproducing bass and treble information.

CONNECTION IN BI-WIRE MODE



Please note in bi-wire mode that the link plates should first be removed.

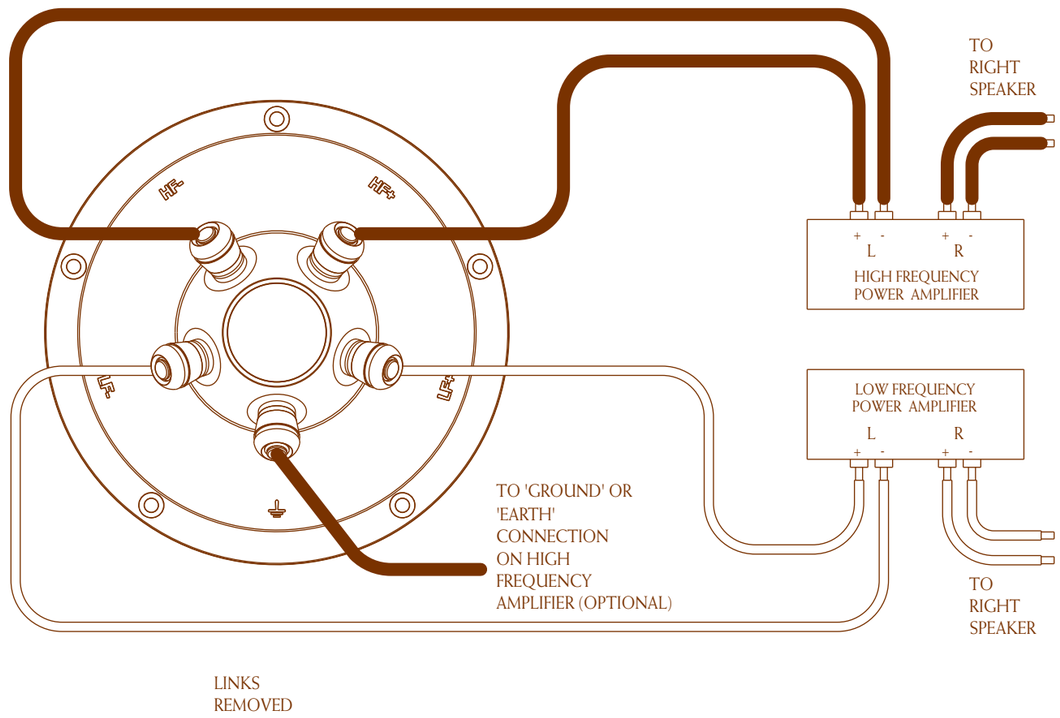
- Be sure that the amplifier is switched OFF and then prepare the two sets of cabling for each 'side' of the system separately. Measure and cut four lengths of cable, two per speaker. Label two of the cable lengths Left LF and Left HF (low frequency and high frequency) then repeat this process for the right pair.
- If your amplifier is not equipped with separate output terminals for bass and treble information then, at the amplifier end of the cables, twist the Left LF+ (positive) and the Left HF+ (positive) together. Connect these to the amplifier Left channel positive terminal marked + (plus) or coloured red.

  Twist the Left LF- (negative) and the HF- (negative) cables together and connect them to the amplifier Left channel negative terminal marked - (minus) or coloured black. At the loudspeaker end connect the cables labeled Left LF+ and Left LF- to the left hand loudspeaker LF terminals, ensuring that you note the polarity markings on the cable sheathing.

  Then proceed to connect the Left HF+ and Left HF- to the HF terminals on the same loudspeaker.
- Repeat this process to connect the right hand loudspeaker to the amplifier right channel output, once again ensuring that polarity is correct throughout.

  Switch the amplifier on with the volume control set at its lowest setting. Select a favourite source and slowly turn up the volume to a low level. Check that bass and treble information is being reproduced from both speakers- if not, switch off the amplifier and recheck the connections.

CONNECTION IN BI-AMP MODE



Bi-Amping extends the principle of bi-wiring one stage further. In this connection option separate power amplifiers are used for bass and treble signals in each loudspeaker. Four mono (or two stereo) amplifiers of the same type are required for a stereo pair of loudspeakers.

Ensure that the cable links between the loudspeaker terminals are removed or amplifier damage may result and that correct polarity is maintained throughout.

If two stereo amplifiers are used, it is recommended that one amplifier supply bass information to left and right loudspeakers and the other, the treble information.

Avoid potential damage to your amplifier - ensure that all connections are secure and the polarity is correct in all wiring.

CONNECTION OF EARTH OR 'GROUND' LEAD

To optimise performance further, use a shielded or screened loudspeaker cable. The screening termination should be connected to the earth or ground (green) terminal on the loudspeaker and to the ground or earth connection on the amplifier.

Alternatively if you are not using a screened loudspeaker cable but wish to utilise the earthing facility, run a single cable between the earth terminal on the loudspeaker and the amplifier.

Grille Removal

Special acoustically transparent cloth is used in the grille assembly. However for the very best performance, you may wish to remove the grilles.

To do this, unscrew the brass knob from the rear of the cabinet, and screw it into the threaded insert at the bottom of the grille assembly. Pull gently outwards and lower the grille, so that it clears the lip at the top of the cabinet.

Proximity to Televisions & Monitors

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 a CRT television or monitor.

For this reason, Glenair should be placed no closer than 1.5m to a television or monitor.

Running In

Like all loudspeakers, the drive unit in your Tannoy Glenair 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 treated fabric 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 single layer copper ribbon 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 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, the Tannoy Tulip Waveguide tm, 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 aluminium alloy 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 low mass precision single layer copper clad aluminium coil provides the driving force for the diaphragm, energized by a powerful ferrite magnet system. A copper pole piece cap ensures Eddy Current losses are minimized, thus reducing non linear distortion. A damped acoustic cavity controls the compression driver response and ensures further correct acoustic impedance matching to the horn throat.

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. Very high quality audio grade 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 for the low frequency section, while Acrolink 6N ultra high purity copper wire is used for the high frequency wiring.

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 Glenair 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. A light veneer such a Cherry will darken appreciably to a rich natural patina.

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, wideband width 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)	1100 x 460 x 448 mm (43 1/3 x 18 1/8 x 17 5/8")
ENCLOSURE VOLUME	115 litre (4.0 cu.ft.)
ENCLOSURE TYPE	Twin reflex
RECOMMENDED AMPLIFIER POWER	50 to 225 watt per channel
POWER RATING	135 watt RMS 550 watt peak
MAXIMUM SPL	116.5 dB at 1 metre for 135 watt RMS
	122.5 dB at 1 metre for 550 watt peak
TOTAL HARMONIC DISTORTION	Less than 1.25% at 135 watt RMS (50Hz to 20kHz)
SENSITIVITY (2.83V @ 1M)	95 dB for 2.83 volt at 1 metre, half space
NOMINAL IMPEDANCE	8 ohm
MINIMUM IMPEDANCE	5.5 ohm
DISPERSION	90 degree conical
PHASE RESPONSE	System behaves substantially as a frequency independent time delay
FREQUENCY RESPONSE (-6dB)	32 Hz – 25 kHz
CROSSOVER FREQUENCY	1.1 kHz
CROSSOVER TYPE	2nd order LF, 1st order HF. Bi-Wired, Hard-Wired passive, low loss.
DRIVER TYPE	LF 380 mm (15") Dual Concentric, treated paper Cone, twin roll fabric surround
	HF 33mm (1 1/4") aluminium alloy dome
CABINET CONSTRUCTION	High density birch ply. Internally cross braced and heavily damped
ENCLOSURE WEIGHT	45 kg (99 lbs)