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TANNOY®

The European Professionals

Technical Manual for T145, T165, T185, T225

Tannoy Dual Concentric Loudspeaker Systems

Tannoy loudspeakers of this type have been in use as recording, broadcasting and T.V. studio monitors for a longer time and in greater numbers than any other system manufactured anywhere in the world.

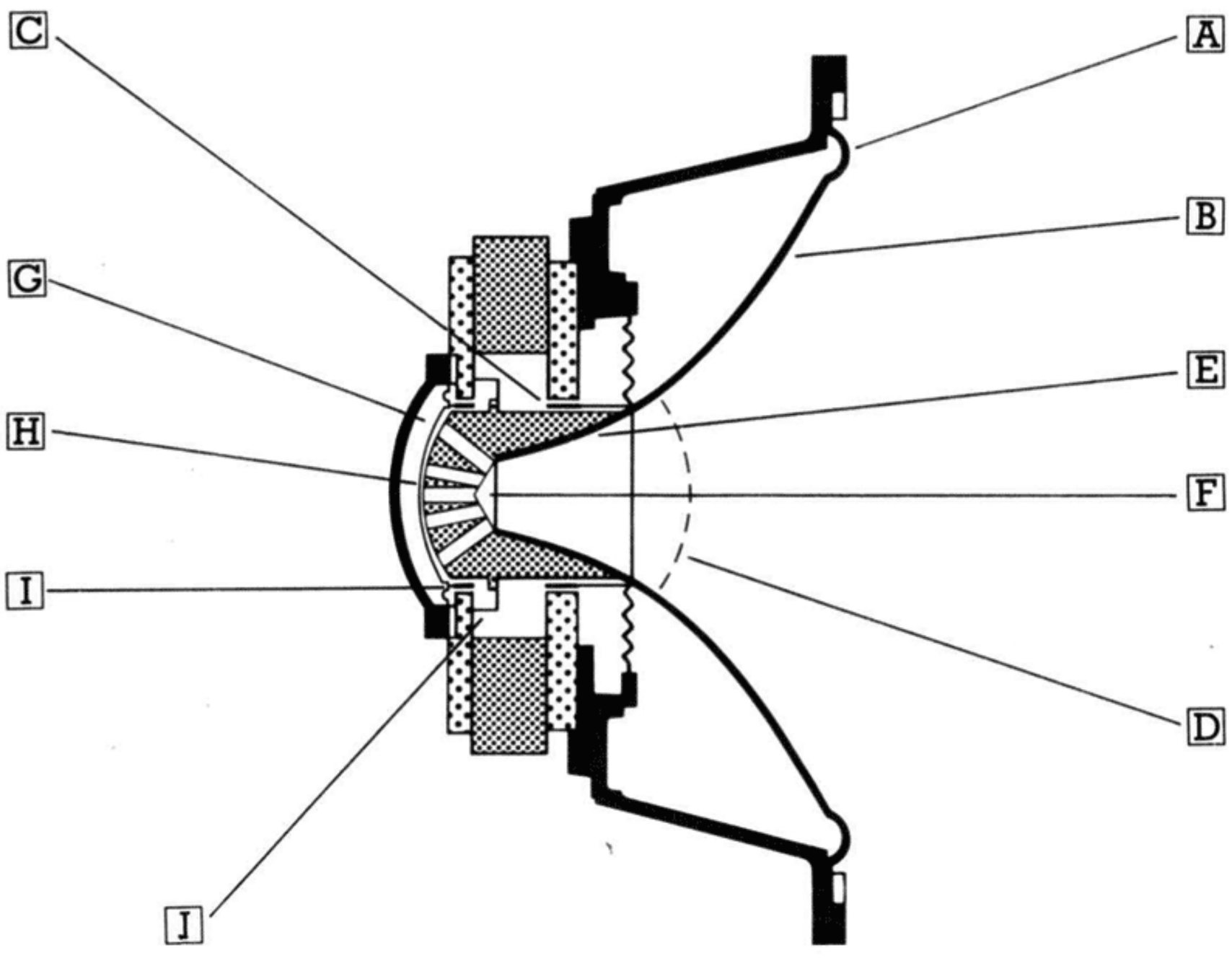
The drive units in the systems described in this manual incorporate the very latest materials and are made by the most modern manufacturing techniques. They are developed and manufactured in Tannoy factories in the U.K., to the most stringent quality control standards with guaranteed service and spares supplies. Tannoy have been continuously engaged in the manufacture of specialised high-quality loudspeakers for over half a century, and this experience is combined with up-to-the-minute technology to produce a system which is unique in performance, reliability and professional acceptance.

Components Dual Concentric Drive System

This consists of a direct radiator bass/midrange driver and high-frequency compression driver, both located concentrically within the same frame and magnet assembly.

The bass/midrange driver has a 50mm (2") high temperature voice coil, driving a polyolefin cone which operates up to the crossover point at 3.5kHz. This cone material gives a very smooth frequency response with negligible colouration together with a well-maintained and consistent directional characteristic. High frequencies are reproduced by a horn-loaded compression driver, utilizing a Duralumin diaphragm and 50mm (2") diameter aluminium voice coil.

Cross-Section of New Drive Unit.



Crossover Network

The crossover network receives an electrical signal containing the full frequency spectrum from the amplifier and divides it between the low frequency and high frequency sections of the loudspeaker. Tannoy networks are of the highest quality – capacitors are non-polarized, solid dielectric for low losses and close tolerances; resistors and inductors are very generously rated and all components are assembled on a robust, low-loss printed circuit board for maximum reliability.

Enclosures

All enclosures are solidly constructed from high-density particle board and are lined with high-mass bitumen pads to suppress structural resonances and with acoustic foam to absorb reflections and eliminate standing waves. The exposed natural woodgrain surface of American Walnut is finished with the finest clear lacquer, which conceals none of the delicate grain structure, but at the same time affords excellent protection.

Bass Loading

T145 and T165 – Reflex Bass Loading.

Both these enclosures are ported with ducted ports to provide bass loading, thereby reducing distortion and improving bass response.

T185 and T225 – Passive Radiator Bass Loading.

These two enclosures incorporate a specially-designed passive radiator which improves bass response and prevents excessive sub-sonic cone excursion. The passive diaphragm offers high attenuation to sounds from the interior of the enclosure and avoids the colouration evident when conventional cones are used as passive radiators.

A Unique lossy plastic surround for suppression of edge reflections and stable low-frequency response.

B Polyolefin-moulded cone, giving very smooth response with well-maintained directional characteristic.

C High-temperature voice coil.

D Dustproof, acoustically and visually transparent sealing dome.

E Concentric high-frequency horn.

F Phase compensating multiple throat for extended and smooth high-frequency response.

G Acoustic balance cavity for reduced distortion.

H Precision contoured high-frequency diaphragm.

I Aluminium voice coil conductor for superb high-frequency response.

J Exclusive magnetic shunt for increased low-frequency flux.

Amplifier Power

All these systems can be used with amplifiers up to a 70W RMS per channel rating. A more powerful amplifier can be used if precautions are taken to avoid conditions such as switch-on surges and amplifier clipping, which may result in momentary power peaks greatly in excess of the specified rating.

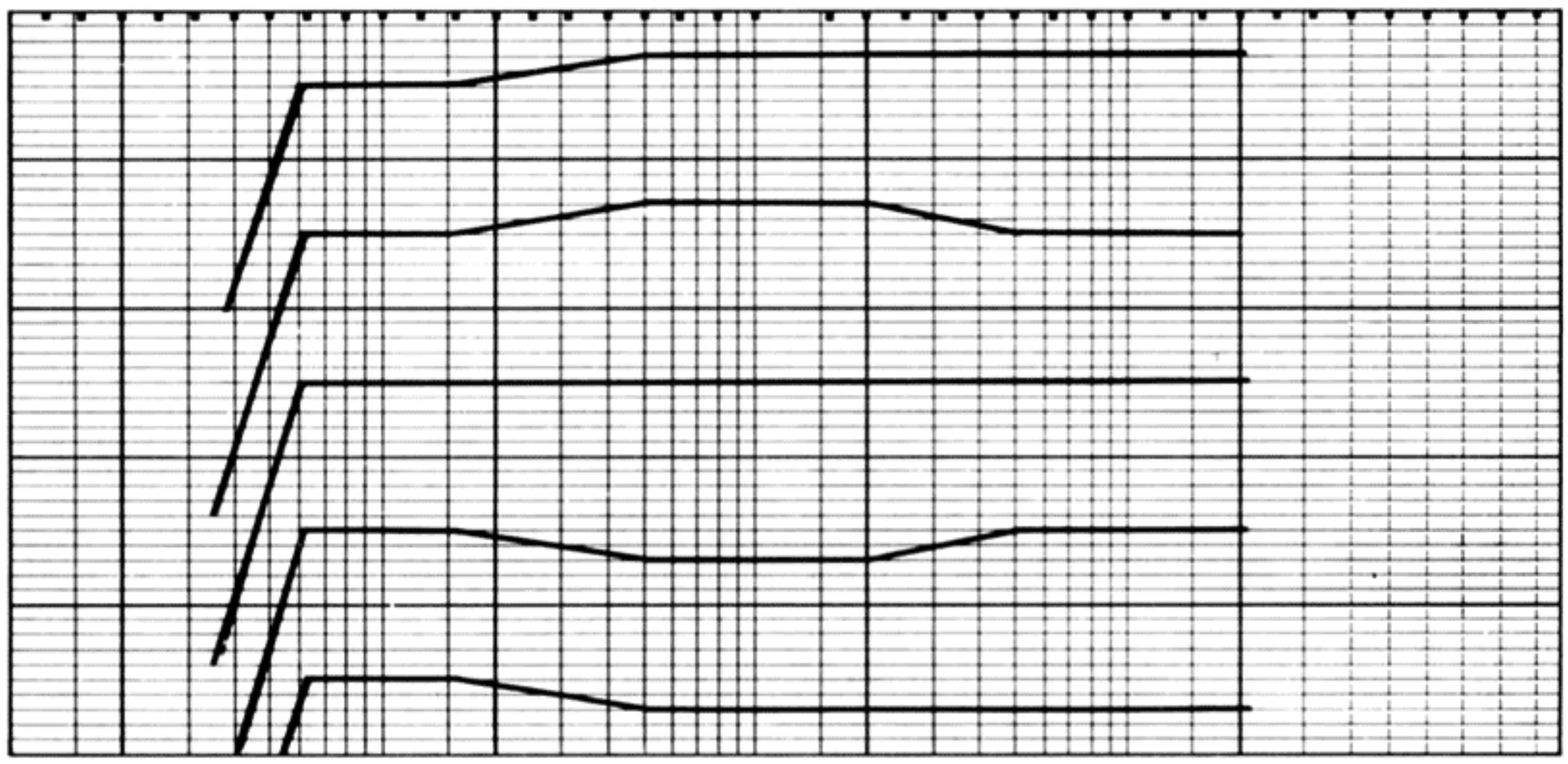
Small amplifiers should not be continuously driven to clipping because, although the undistorted power rating may be low, **the time/energy ratio of the signal is badly distorted and damage to the speaker may result.**

Treble Controls

T145, T165, T185

A single control switch provides the frequency response variations shown in figure A.

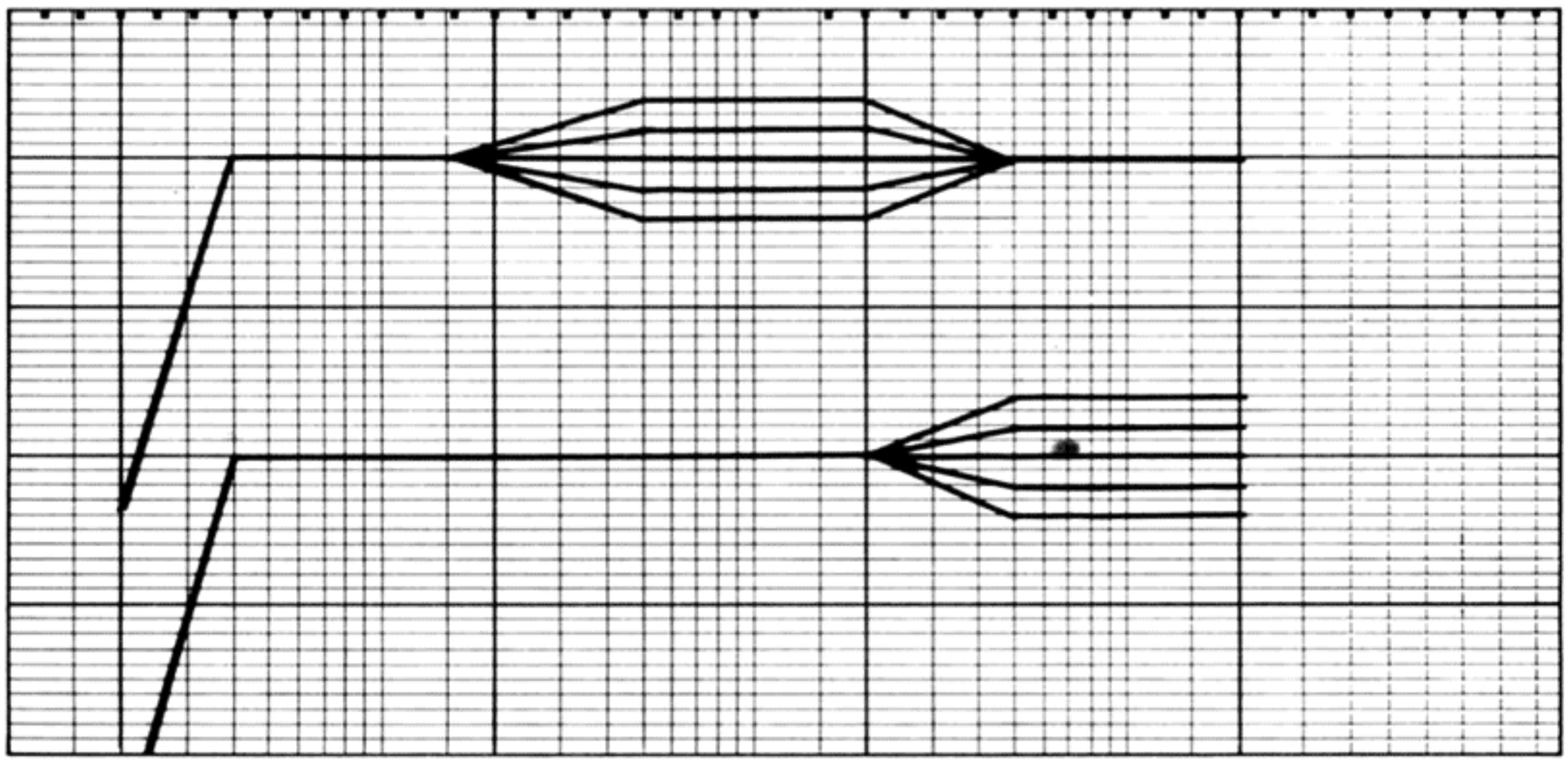
Contour Diagram



T225

Two switches on this model provide the variations shown in figure B.

Contour Diagram

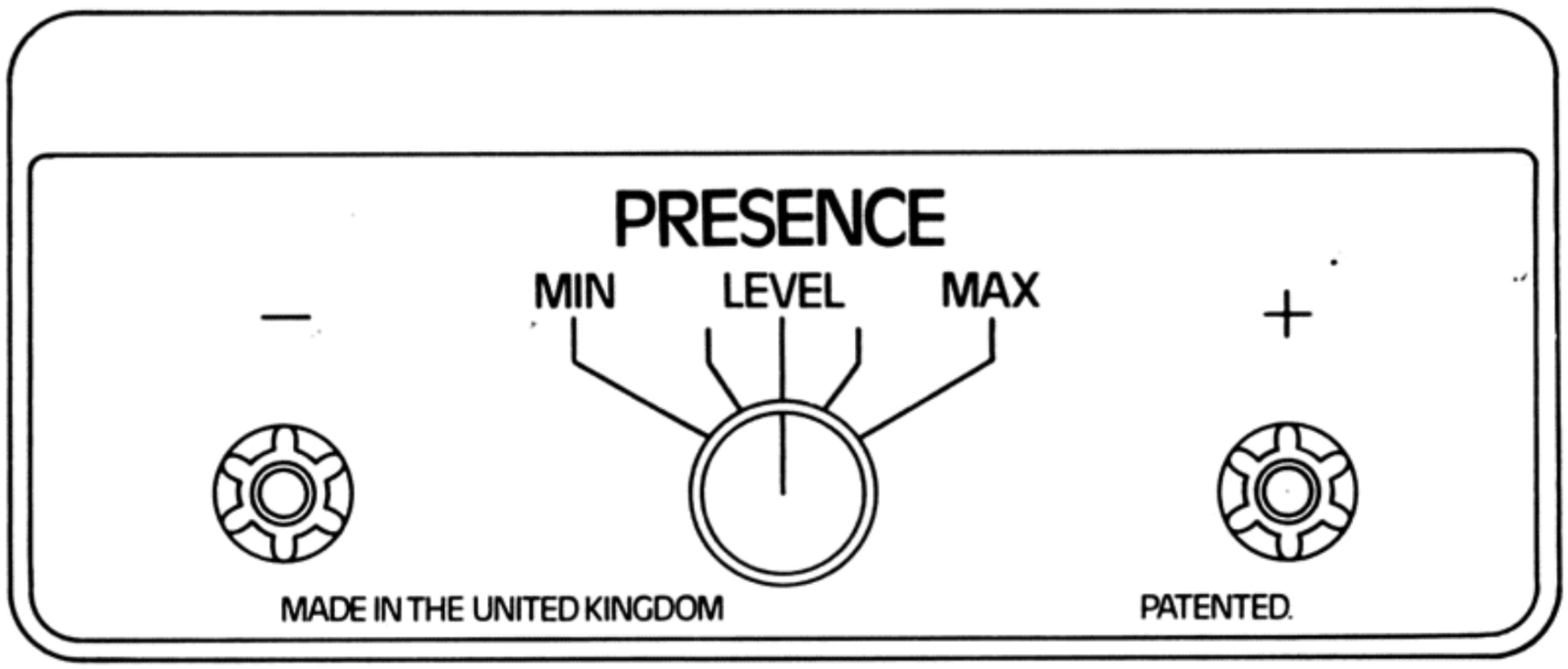


Although the adjustment of these controls is mainly a question of subjective preference, room acoustics play an important part in the final reproduction. Generally speaking, sparsely furnished rooms require less treble and "presence" energy, heavily furnished "dead" rooms, benefit from lift in these parts of the frequency spectrum.

Connections to Amplifier

A loudspeaker should be connected to the amplifier with suitable low-resistance twin-cable. Ordinary appliance cord may be used for distances of up to 20 feet – for greater distances heavier gauge wire is recommended. Multistranded cables can be used (such as 29/0.2, 52/0.2).

Back Panel for T145, T165, T185.



T145, T165, T185

Connection to the system is by two screw terminals at the rear of the enclosure.

T225

Connection to this system is by two screw terminals on the underside of the enclosure.

The terminals are Red (+) and Black (–). The red terminal should be connected to the amplifier (+) output and the black terminal to the amplifier (–) output (sometimes designated as 'common').

Phasing

When using two loudspeakers for stereo it is essential that consistent polarity is observed for both channels. This can be checked aurally by placing them side-by-side and listening to a monophonic signal with good bass content played through both left and right channels. If the phasing is correct the bass will be full and rich, whereas if it is incorrect there will be very little bass due to cancellation effects. Incorrect phasing can be rectified by reversing the connecting leads on ONE of the systems (at either the amplifier or loudspeaker terminals – but not both).

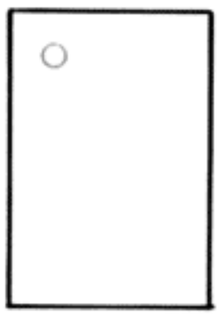
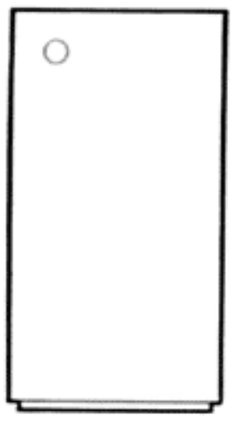
Important

Care must be taken to ensure that the amplifier is switched off when connecting or disconnecting the loudspeakers. Failure to do so may seriously damage them and invalidate the Warranty.

System Location

The loudspeakers should be placed 2–4m (7-14 feet) apart so that the listening position and the two loudspeakers form a triangle with approximately equal sides. To provide optimum stereo imaging over a fairly wide area, they should be angled slightly inwards so that their axes intersect at a point slightly in front of the listening position.

Technical Specifications

	Frequency Response ±3dB	HF Dispersion	Power Handling (RMS Amp Rating)
 **T145**	55Hz-20kHz	–6dB @ 12kHz included angle 80°	60 Watts
 **T165**	55Hz-20kHz	–6dB @ 12kHz included angle 80°	60 Watts
 **T185**	45Hz-20kHz	–6dB @ 12kHz included angle 80°	60 Watts
 **T225**	45Hz-20kHz	–6dB @ 12kHz included angle 80°	60 Watts

Warranty

Every Tannoy loudspeaker system is guaranteed against any manufacturing defect in parts or workmanship for a period of five years. This warranty does not cover any defects or failures caused by abuse or improper operation; such determination to be made at the sole discretion of Tannoy on the basis of physical inspection.

Sensitivity	Nominal Impedance	Minimum Impedance	Crossover Frequency	Enclosure Dimensions (mm)
PL @ 1m for 1W input 90dB	8ohms	6ohms	3.5kHz	Height 670 Width 370 Depth 288
PL @ 1m for 1W input 90dB	8ohms	6ohms	3.5kHz	Height 485 Width 340 Depth 248
PL @ 1m for 1W input 90dB	8ohms	6ohms	3.5kHz	Height 524 Width 350 Depth 268
PL @ 1m for 1W input 90dB	8ohms	6ohms	3.5kHz	Height 715 Width 370 Depth 290

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