

TANNOY.

Integrated
Loudspeaker
Systems



Technical
Manual for
Arden
Berkeley

Owners Manual for Arden Mark II and Berkeley Mark II

The loudspeakers you have just purchased have been designed and built with the care you would expect from a company which has been involved in acoustical manufacturing for over 50 years. Both the Arden and the Berkeley incorporate a 15" version of the famous Tannoy Dual Concentric system which probably is the

most widely used monitor in the studios of the world.

Please spend some time reading this manual so that you may realise the full capabilities of your Tannoy loudspeakers and thereby obtain maximum enjoyment from all kinds of musical programme material.

Components

Integrated Drive System

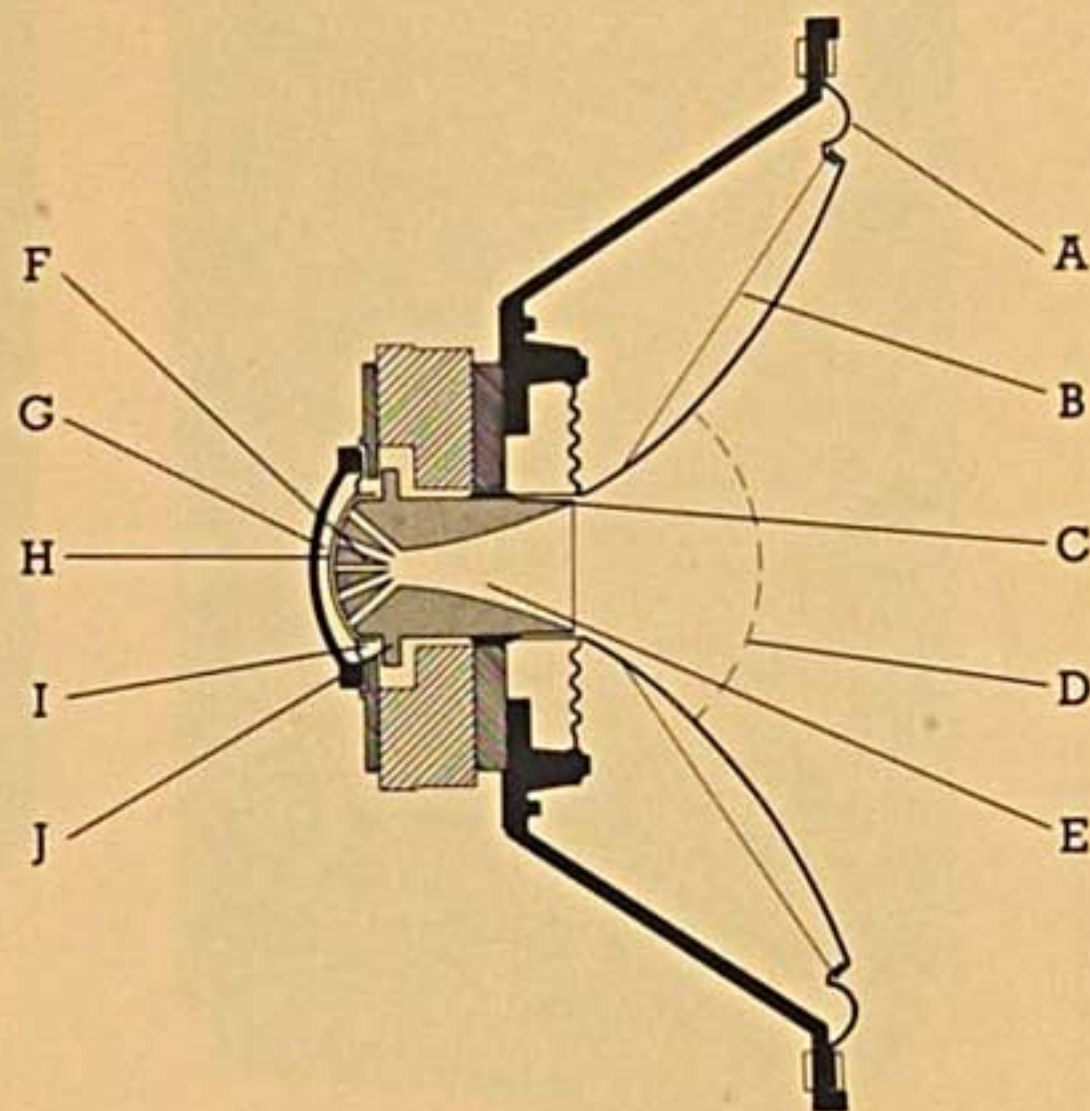
The Tannoy Integrated Drive System consists of a direct radiator bass unit and a high frequency horn-loaded compression driver both located concentrically within the same frame and magnet assembly, this is why it is known as the dual concentric system.

Bass Unit

This is a low resonance speaker with a 2" high temperature voice coil. The unique Girdacoustic reinforced cone ensures true piston action and smooth performance extending well into the midrange region.

Treble Unit

High frequencies are reproduced by a horn-loaded compression driver utilizing a duralumin diaphragm and a 2" diameter aluminium voice coil.



Crossover Network

The crossover network receives the electrical energy from the amplifier and divides it between the high frequency compression driver and the low frequency bass driver and makes a vital contribution to the overall performance of the system.

Tannoy crossover networks are of the highest quality: capacitors are non-polarized, solid dielectric types for low losses and close tolerances; resistors and inductors are very generously rated; and all components are assembled on a fibreglass printed circuit board for maximum reliability.

Enclosures

Tannoy enclosures are solidly constructed from high density particle board and are lined with acoustic foam to absorb reflections and eliminate standing waves and bitumen to damp mechanical resonance. The exposed natural woodgrain surfaces of each enclosure are of American Walnut veneers. The cabinets are carefully hand-rubbed with oil and wax, which enhances the richness of the wood and affords excellent protection. Both the Arden and the Berkeley are braced internally to reduce spurious resonances which can occur in large panel areas, and ported to provide low frequency loading, thereby reducing distortion and extending bass response.

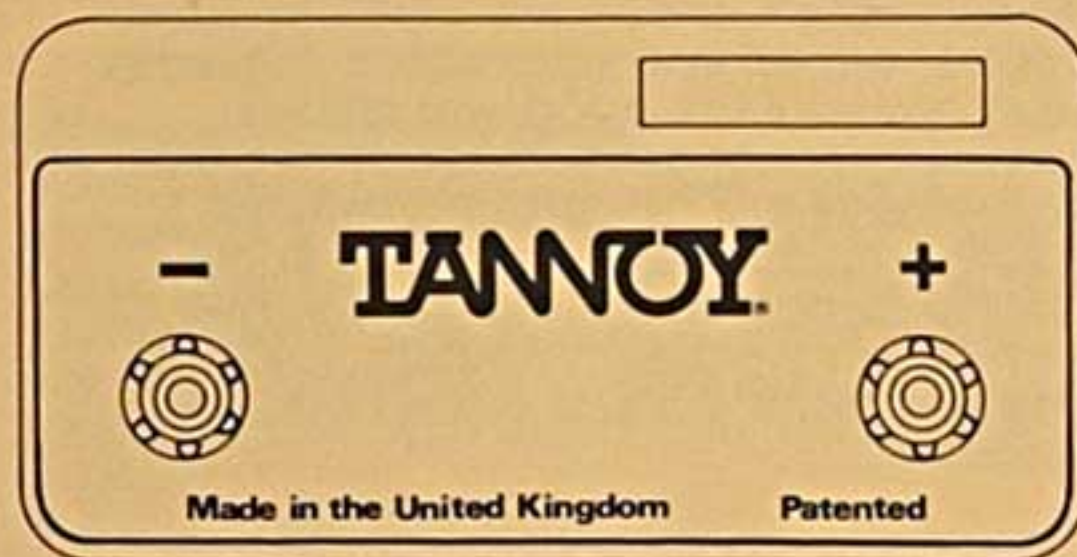
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- A** Rolled surround for stability in low bass response.
 - B** Unique ribbing virtually eliminates cone break-up ensuring smooth response and extraordinary high power capacity (DU 316 & DU 386)
 - C** High temperature voice coil.
 - D** Dustproof, acoustically transparent sealing dome.
 - E** Concentric HF horn (completed by curved LF cone.)
 - F** Phase-compensating multiple throat for extended and smooth HF response.
 - G** Acoustic balance cavity for reduced distortion.
 - H** Precision contoured high frequency diaphragm.
 - I** Aluminium voice coil conductor for high power capacity and superb HF response.
 - J** Exclusive magnetic shunt for increased LF flux.

The Tannoy Arden and Berkeley loudspeakers can safely be driven by an amplifier with a power rating equal to the power handling capacity of the system—i.e. 85 watts RMS. A more powerful amplifier can be used with the system if precautions are taken to avoid conditions such as switch-on surges and amplifier clipping which may result in momentary peaks of power greatly in excess of the specified ratings.

Amplifier Power

Connections to Amplifier

Loudspeakers should be connected to the amplifier with the heaviest gauge of stranded connecting wire that can be accommodated. Standard lighting flex is suitable only for lengths of up to 20 ft.



Connection to the loudspeaker is by two screw terminals at the rear of the enclosure—one Red (+) and the other Black (-). The red terminal should be connected to the amplifier (+) output and the black terminal to the amplifier (-) output (sometimes designated as 'common').

Arrange the connections so that the right hand channel amplifier output terminals are driving the right hand loudspeaker as viewed from the listening position.

Phasing

If the connections have been correctly made as detailed above, the loudspeakers will be automatically in phase. However, if the phasing is suspected to be incorrect, (e.g. poor stereo image, lack of bass response), perhaps due to interconnections along the route of the Loudspeaker/amplifier cables, then apply the following test.

Place the loudspeakers side by side and play a monophonic signal from the amplifier, choosing a programme with a good bass content. (Pressing the 'mono' button on the amplifier will produce a monophonic signal). 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 remedied by reversing the connecting leads to ONE of the loudspeakers (at either the amplifier or the 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.

The loudspeakers should be positioned from two to four metres (6 to 12 feet) apart depending on the room size, so that the primary listening position and the two loudspeakers form a triangle with approximately equal sides. To provide optimum stereo imaging over a wide area

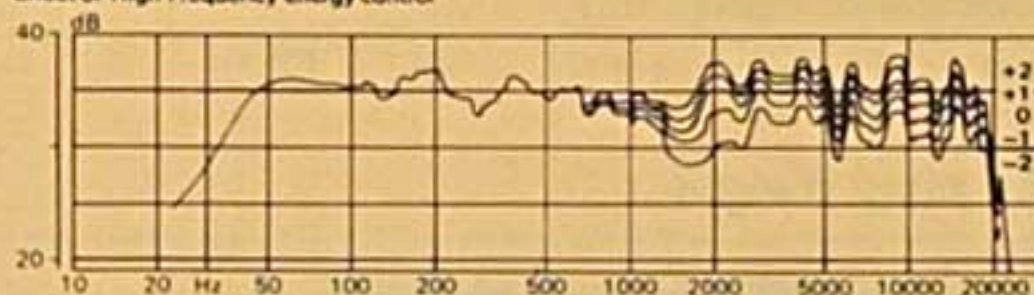
they should be angled slightly inwards towards the listener so that their axes intersect at a point slightly in front of the listening position. This will ensure that the majority of stereo information reaches the listener directly from the loudspeakers and is not reflected from the walls.

System Location

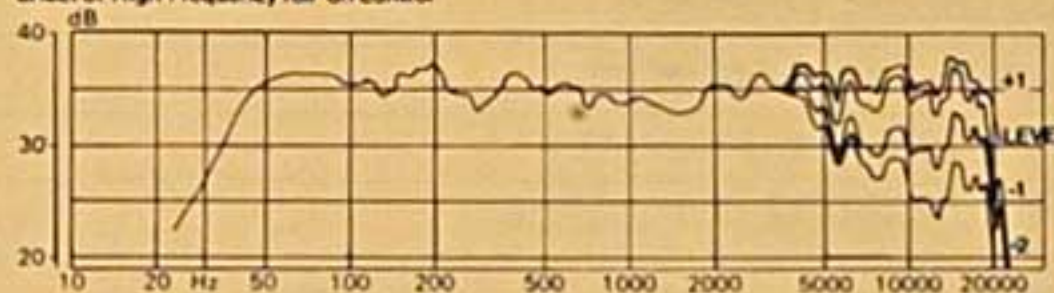
Each system is provided with two controls located on the front baffle. These are labelled 'Roll-off' and 'Energy'. They can be used to compensate for the acoustic characteristics of the listening room and should be adjusted with the amplifier controls in the flat or uncompensated position. Each loudspeaker system should be adjusted individually. This is most easily done by rotating the amplifier Balance control to select the desired loudspeaker.

The Energy control has five positions and enables the output of the high frequency driver to be increased or decreased over its entire range from 1kHz to 20kHz. The Roll-off control affects only the extreme high frequencies, i.e. those above 5kHz. The flattest response will be obtained with both controls set at the 'Level' position, which should be used for initial listening

Effect of High Frequency energy control



Effect of High Frequency roll-off control



tests. If the overall high frequency sound quality seems too prominent, the -1 or -2 positions for the Energy control should be tried. If the sound is subdued +1 or +2 will be preferred. Once the Energy setting has been established the Roll-off control can be adjusted to reduce extreme high frequency content if necessary.

System Adjustment

Occasional dusting with a soft cloth will maintain the finish of the enclosure; stains may be removed by means of a damp

cloth. Ordinary furniture polishes should not be used.

Care of Wood Finishes

Specifications

Arden

Drive System	3828
Power Handling Capacity (continuous programme)	85W
Nominal Impedance	8 ohms
Frequency Response ± 4 dB	30Hz-20kHz
Sensitivity: input Watts to produce 96dB at 1 metre	3
Crossover Frequency	1kHz
System Dimensions (H \times W \times D)	99 \times 66 \times 37 cm 39 \times 26 \times 14 $\frac{1}{2}$ "
Shipping Weight	56 kgs
Low Frequency Direct Radiator	
Maximum Diameter	420mm (16 $\frac{1}{2}$ "
Voice Coil Diameter	50mm (2")
B1 Factor in gauss/cm	20 \times 10 ⁶
Fundamental Resonance	20Hz
High Frequency Compression Driver	
Duralumin Diaphragm Diameter	50mm (2")
Voice Coil Diameter	50mm (2")
Horn Cut-off Frequency	500 Hz

Berkeley

3828

85W

8 ohms

35Hz -20kHz

3

1kHz

84 × 54 × 31 cm

33 × 21 × 12"

41 kgs

420mm (16½")

50mm (2")

20 × 10⁶

20Hz

50mm (2")

50mm (2")

500 Hz

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, or their appointed distributor, on the basis of physical inspection.

Warranty

TANNOY

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Tannoy reserve the right to make changes in
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