

TANNOY®

i7 / i7 T
USER MANUAL

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1. Introduction

Introducing the Tannoy i7 infinite baffle installation loudspeaker, designed for use in applications requiring high quality music and speech where wide, yet controlled, coverage is needed.

The i7 comprises four 4-inch (mm) low frequency (LF) drivers and one high frequency (HF) unit. The LF and HF sources are placed in an array, resulting in a wide horizontal dispersion and narrow vertical dispersion. These are combined with a smooth uniform frequency response and excellent acoustic impedance characteristics.

With its slim-line cabinet the i7's shallow profile allows discreet vertical or horizontal mounting close to a wall or ceiling and is available in dark grey or white to effectively blend into most backgrounds. Utilisation of the dispersion characteristics ($110^{\circ} \times 70^{\circ}$) of the loudspeaker allows the i7 to be used in highly reverberant environments, by directing the sound into the desired space whilst minimising reflections from adjacent walls or ceilings. An optional mounting bracket ensures simple and effective installation.

Also available with a built in THP 60 low insertion loss transformer the i7 T provides a more dynamic performance with greater bandwidth than other 70/100V line systems.

For applications requiring extended low frequency enhancement, a range of Tannoy sub-bass systems are available and can be used in conjunction with the i7.

2. Unpacking

Every Tannoy i7 product is carefully inspected before packing. After unpacking your loudspeakers, please inspect for any exterior physical damage, and save the carton and any relevant packaging materials in case the loudspeaker again requires packing and shipping. In the event that damage has been sustained in transit notify your dealer immediately.

3. Connectors/Cabling

The i7 has two screw terminals for connection to the amplifier, these are gold-plated in order to improve electrical conductivity and to prevent oxidation. These terminals are capable of accepting cables with a conductor diameter of up to 6mm.

Red is Positive
Black is Negative

Cable choice consists mainly of selecting the correct cross sectional area in relation to the cable length and the load impedance. A small cross sectional area would increase the cables' series resistance, inducing power loss and response variations (damping factor).

Connectors should be wired with a minimum of 2.5mm^2 (12 gauge) cable. This will be perfectly satisfactory under normal conditions. In the case of very long cable runs the wire size should exceed this, refer to the following table for guidance:-

CABLE RUN (m)	C.S.A. OF EACH CONDUCTOR (mm)	CABLE RESISTANCE W	% POWER LOSS INTO 8W LOAD	% POWER LOSS INTO 4WLOAD
10	2.5	0.14	1.7	3.5
	4.0	0.09	1.1	2.2
	6.0	0.06	0.73	1.5
25	2.5	0.35	4.3	8.6
	4.0	0.22	2.7	5.4
	6.0	0.14	1.8	3.6
50	2.5	0.69	8.6	17.0
	4.0	0.43	5.4	11.0
	6.0	0.29	3.6	7.2
100	2.5	1.38	17.0	35.0
	4.0	0.86	11.0	22.0
	6.0	0.58	7.2	14.0

4. Polarity Checking

It is most important to check the polarity of the wiring. A simple method of doing this without a pulse based polarity checker for LF units is as follows: Connect two wires to the +^{ve} and -^{ve} terminals of a PP3 battery. Apply the wire that is connected to the +^{ve} terminal of the battery to the speaker cable leg which you believe to be connected to the red speaker terminal and likewise the -^{ve} leg of the battery to the black speaker terminal.

If you have wired it correctly the LF drive units will move forward, indicating the wiring is correct. All that remains now is to connect the +^{ve} speaker lead to the +^{ve} terminal on the amplifier and the -^{ve} lead to the -^{ve} terminal on the amplifier. If however the LF drivers moves backwards, the input connections need to be inverted.

If problems are encountered, inspect the cable wiring in the first instance. It should also be noted that different amplifier manufacturers utilise different pin configurations and polarity conventions, if you are using amplifiers from more than one manufacturer, check the polarity at the amplifiers as well as the loudspeakers.

5. Amplification & Power Handling

As with all professional loudspeaker systems, the power handling is a function of voice coil thermal capacity. Care should be taken to avoid running the amplifier into clip (clipping is the end result of overdriving any amplifier). Damage to the loudspeaker will be sustained if the amplifier is driven into clip for any extended period of time. Headroom of at least 3dB should be allowed. When evaluating an amplifier, it is important to take into account its behaviour under low impedance load conditions. A loudspeaker system is highly reactive and with transient signals it can require more current than the nominal impedance would indicate.

Generally a higher power amplifier running free of distortion will do less damage to the loudspeaker than a lower power amplifier continually clipping. It is also worth remembering that a high powered amplifier running at less than 90% of output power generally sounds a lot better than a lower power amplifier running at 100%. An amplifier with insufficient drive capability will not allow the full performance of the loudspeaker to be realised.

It is important when using different manufacturers amplifiers in a single installation that they have very closely matched gains, the variation should be less than +/- 0.5dB. This precaution is important to the overall system balance when only a single compressor/limiter or active crossover is being used with multiple cabinets; it is therefore recommended that the same amplifiers be used throughout.

6. Power Selection (i7T)

Determine the maximum power in watts needed at each speaker location. The i7 transformer can be tapped at 15W, 30W & 60W (left to right positions respectively) via the rotary switch located on the rear of the loudspeaker cabinet. When the relevant tapings have been selected add the individual wattages required at all speakers and select an amplifier with a rating equal to or exceeding the total wattage required. All of the transformer primaries should be connected in parallel to the output of this amplifier. If for example, you select the 15-watt transformer tap, it means that at full rated amplifier output the speaker will receive the full 15 watts. If the amplifier gain is reduced each speaker will receive a proportional amount of power, maintaining the overall system balance.

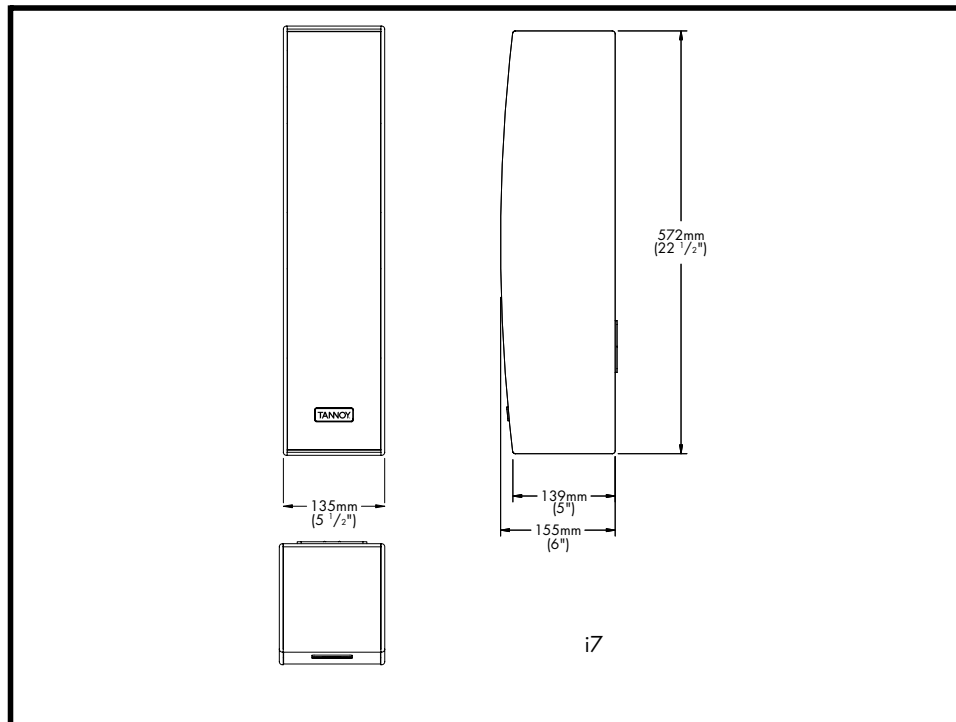
When calculating amplifier wattage requirements for a system, it is recommended that a generous wattage safety margin (3dB of headroom) be left so that the system does not have to operate continuously at its full rated output

7. Equalisation

The i7 loudspeaker is designed to need no equalisation or correction to overcome system limitations. As a result, it will only need equalisation to compensate for difficult acoustic environments.

Over equalisation can reduce system headroom, and introduce phase distortion resulting in greater problems than cures. If equalisation is required then it should be applied gently and smoothly.

8. Dimensions



9. Hardware

The i7 can be wall or ceiling mounted using the **MB7** (optional) bracket (fig 1.) which is designed to rotate about its axis. The MB7 is supplied with M6 bolts for fixing to the loudspeaker. After fixing the bracket to the wall or ceiling, position the cabinet at the required angle as shown (fig. 2) and tighten the M6 bolts to fix the loudspeaker into position.

The loudspeaker can be mounted either horizontally or vertically using the MB7 bracket (fig. 2).

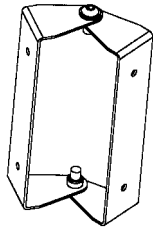


Figure 1

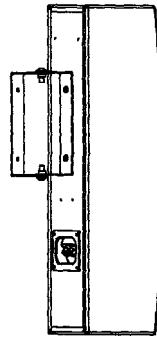
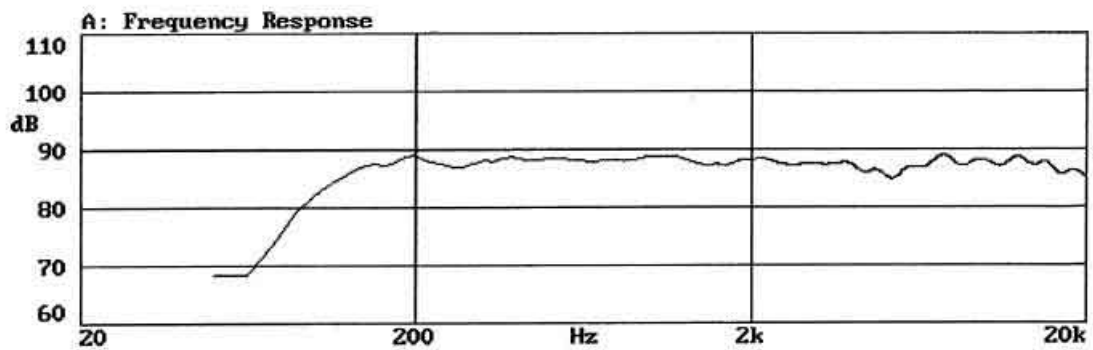


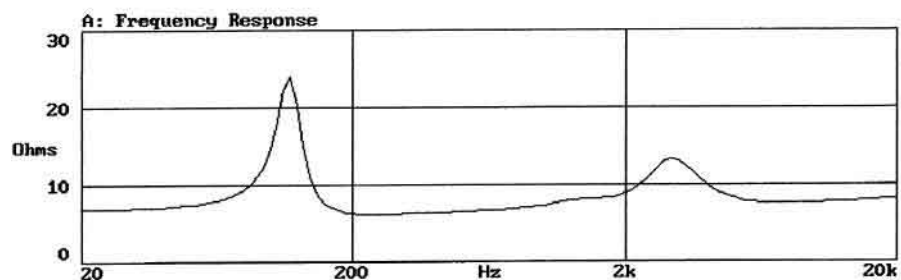
Figure 2

NOTE: The installation of this product must be carried out in conformity with local building codes and standards. If necessary consult your local safety standards officer before installing any product. Alternatively, check any laws or bylaws. Tannoy will not be held responsible for any damages caused by the improper installation of any bracket or loudspeaker.

10. Performance Data

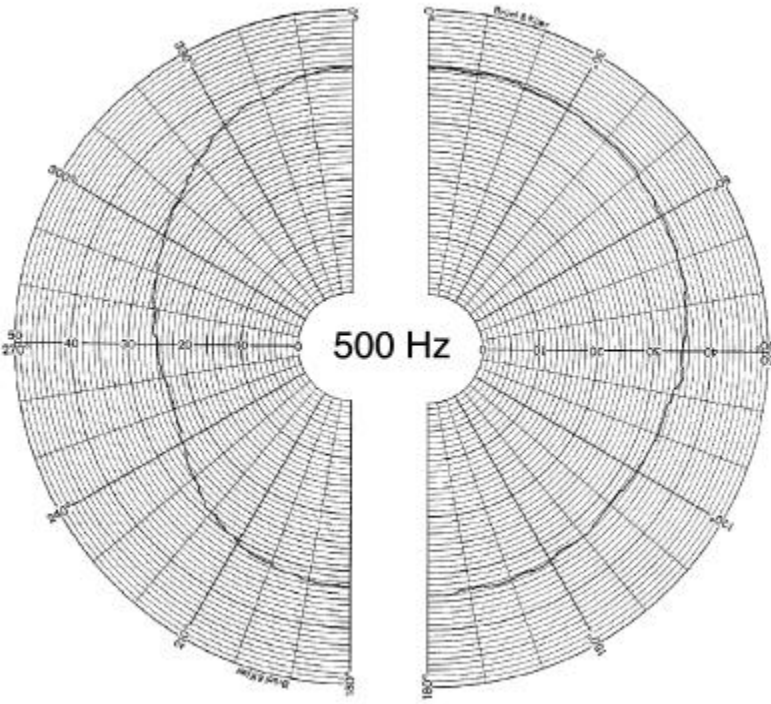


Frequency Response



Impedance

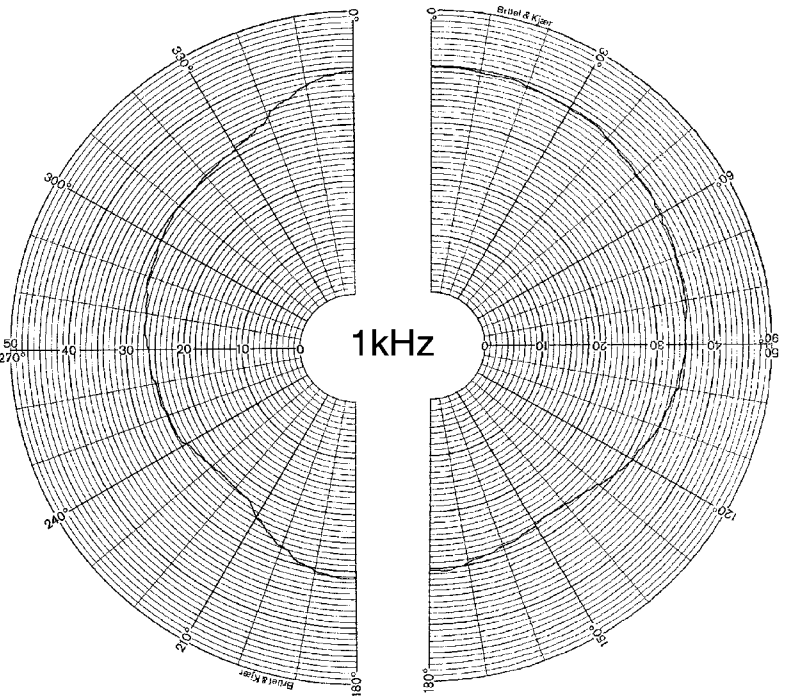
VERTICAL



HORIZONTAL

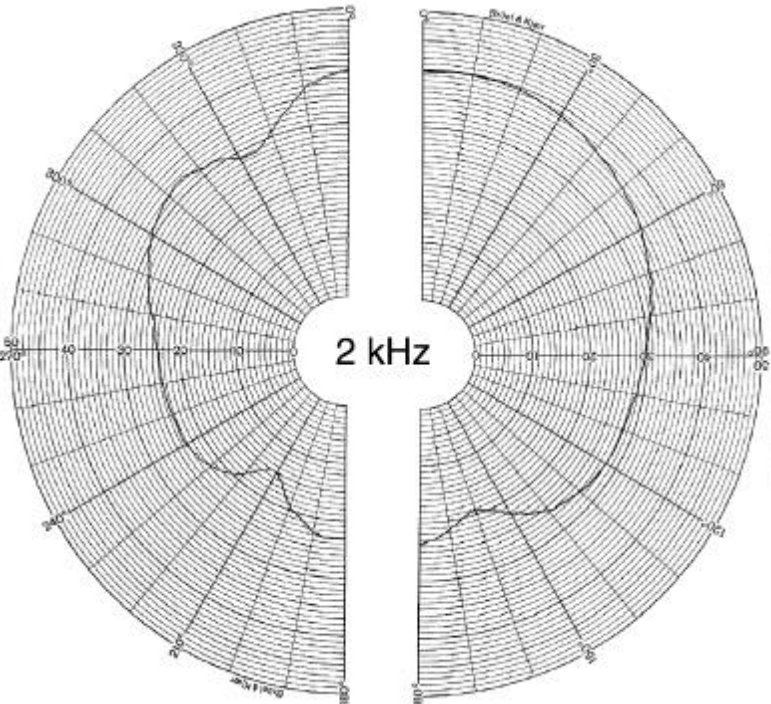
OCTAVE BAND POLAR CHARACTERISTICS

VERTICAL



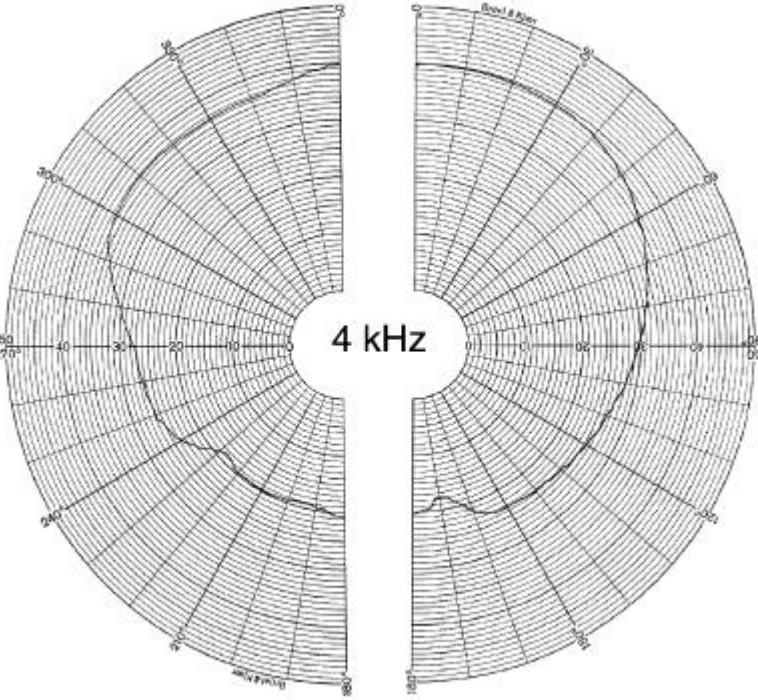
HORIZONTAL

VERTICAL



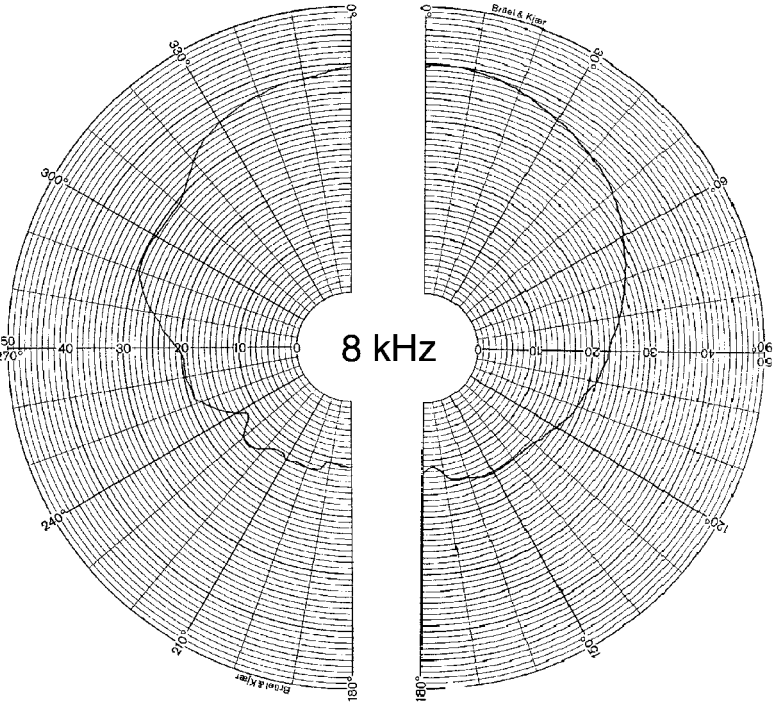
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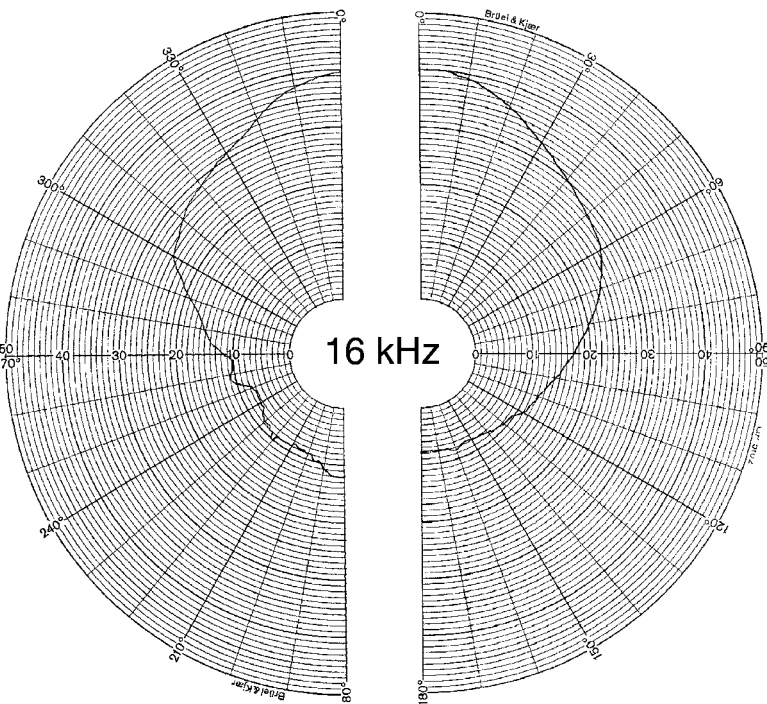
HORIZONTAL

VERTICAL



HORIZONTAL

VERTICAL



HORIZONTAL

11. Technical Specifications

Frequency Response +/- 3dB (1)	100Hz - 20kHz		
Recommended Amplifier Power	Up to 180 Watt / 8Ω		
Power Handling (2)	Average 90 Watt	Programme 180 Watt	Peak 360 Watt
Sensitivity 2.83 Volts @ 1 meter (3)	89dB (anechoic) 92dB (half space)		
Maximum SPL	Average 108dB	Peak 114dB	Average (half space) 111dB Peak (half space) 117dB
Maximum SPL with THP60 Transformer	Average 106dB	Peak 112dB	Average (half space) 109dB Peak (half space) 115dB
Impedance	Nominal 8 Ω Minimum 6.2 Ω		
Dispersion	70° x 110° (V x H)		
Voltage tap ratings for 100V-line transformer version	Position	Watts	Ω
	Left	15	677
	Middle	30	333
	Right	60	166
Transformer (i7 T)	Insertion loss	0.9dB	
	Primary Taps	60, 30, 15 Watt	
	Voltage Taps	100, 70, 25 Volts	
Driver Complement	4 x 100mm (4") bass unit 1 x 25mm (1") titanium tweeter		
Crossover Point	1.8, 2.5 kHz		
Enclosure	7 litre MDF infinite baffle		
Finish	Textured Charcoal or White - paintable		
Protective Grille	Perforated Stainless Steel		
Connectors	2 x 4mm binding posts		
Fittings	2 x M8 threaded inserts 4 x M6 inserts		
Dimensions	572 x 139 x 155mm (22 1/2 x 5 1/2 x 6")		
Weight (each)	8.5kg (18lbs 11oz)		
Packing Dimensions	670 x 228 x 210 mm (26 3/8 x 9 x 8 1/4")		
Shipping Weight	9.1kg (20lbs 2oz)		

NOTES:

- (1) Average over stated bandwidth. Measured at 1 meter on axis.
- (2) Long term power handling capacity as defined in EIA standard RS - 426A.
- (3) Unweighted pink noise input, measured at 1 meter in an anechoic chamber

A full range of measurements, performance data, and Ease™ Data can be downloaded from www.tannoy.com

Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications, which Tannoy reserves the right to alter without prior notice. Please verify the latest specifications when dealing with critical applications.

12. Troubleshooting Guide

Symptom	Possible Cause	Action
No Output From Speakers	Broken Speaker Cables(s) Amplifier	<p>Check the electrical continuity of the loudspeaker cables, and replace if necessary.</p> <p>Check the gain controls on the amplifier are turned up.</p> <p>Be sure the amplifier is receiving an input signal (check the "signal" indicators on the amp).</p> <p>Connect the loudspeaker cable which has no output to another amplifier channel you know is working, make sure signal is fed to the new amplifier channel. If output is obtained from the loudspeakers(s) then the problem is with the amplifier channel or input signal leads. If this is not the case then the fault may lie in the cabling or the loudspeaker.</p>
Intermittent Output	Poor Connection	<p>Check the loudspeaker cabling has a good electrical connection with amplifier outputs and loudspeaker inputs. A bad connection can increase resistance which will substantially reduce the output, or make "cracking" noises which are unrelated to signal content</p> <p>If using multi-strand loudspeaker cable, be sure no strands of cable are causing short circuits between the positive and negative terminals of the amplifier outputs and/or loudspeaker inputs.</p>
Poor Low Frequency Output	"Out of phase" connection	<p>When two speakers are connected "out of phase", the low frequencies will virtually be cancelled out. Check the connections at the amplifier/speaker paying attention to polarity. (See section 4).</p>
Irregular sounds such as buzzing and humming emanating from the loudspeaker	Poor system grounding Faulty electronic device in the signal chain	<p>Check and correct system grounding.</p> <p>The speaker cannot generate these sounds on its own. It is most likely there is a fault with a piece of electronic equipment in the signal path.</p>

13. i7 & i7 T Service Parts & Accessories

Part Number	Description
3121 0039	LF Driver Unit
3121 0062	HF Driver Unit
7300 0705	Crossover Kit - 1295 (for i7)
7300 0711	Crossover Kit - 1296 (for i7 T)
8001 1120	MB7 Bracket - Black
8001 1130	MB7 Bracket - White

14. Warranty

No maintenance of the i7 loudspeaker is necessary.

All Tannoy professional loudspeaker products are covered by a 5-year warranty from the date of manufacture subject to the absence of misuse, overload or accidental damage. Claims will not be considered if the serial number has been altered or removed. Work under warranty should only be carried out by a Tannoy Professional dealer or service agent. This warranty in no way affects your statutory rights. For further information please contact your dealer or distributor in your country. If you cannot locate your distributor please contact Customer Services, Tannoy Ltd at the address given below.

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DO NOT SHIP ANY PRODUCT TO TANNOY WITHOUT PREVIOUS AUTHORISATION

Our policy commits us to incorporating improvements to our products through continuous research and development. Please confirm current specifications for critical applications with your supplier.

EASE™ Data for Tannoy Professional products available on request and from Tannoy's web site: <http://www.tannoy.com>

15. Declaration of Conformity

The following apparatus is/are manufactured in the United Kingdom by Tannoy Ltd of Rosehall Industrial estate, Coatbridge, Scotland, ML5 4TF and conform(s) to the protection requirements of the European Electromagnetic Compatibility Standards and Directives relevant to Domestic Electrical Equipment. The apparatus is designed and constructed such that electromagnetic disturbances generated do not exceed levels allowing radio and telecommunications equipment and other apparatus to operate as intended, and, the apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable operation as specified and intended.

Details of the Apparatus: Model Number: i7
Associated Technical File: EMCi7
Applicable Standards: EN 50081-1 Emission
EN 50082-1 Immunity

Signed:



Position: Electro-acoustics Development Engineer
Tannoy Professional

Date: 24 Aug. 99
For Tannoy Ltd

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in Great Britain by :**

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