Operating and Service Manual



Contents

1. **AN INTRODUCTION TO THE NEW TANNOY MONITOR SERIES LOUDSPEAKERS** 2

2. **UNPACKING AND VISUAL CHECKS** 3

3. **QUICK SET UP PROCEDURE** 4

4. **GUIDELINES FOR INSTALLATION** 5
   1. Location and Support for the Loudspeakers 5
   2. Connecting the Loudspeakers 5
   3. Power Amplifiers 6
   4. Listening Position 7
   5. Duty Rating and On-Site Servicing 7

5. **SYSTEM DESCRIPTION AND PHILOSOPHY** 8
   1. High Frequency Drive Unit 8
   2. Low Frequency Drive Unit 9
   3. Crossover Network 10
   4. Terminal Panel 11
   5. Cabinet 11
   6. The Sum of the Parts 13

6. **ON-SITE SERVICING** 14
   1. Cabinet Finish 14
   2. Grille Removal 14
   3. Drive Unit Removal 14
   4. Crossover Inspection and Removal 14
   5. Drive Unit Servicing 14
   6. Sweep Signal Testing 15

7. **TECHNICAL SPECIFICATIONS** 16
   1. System 6 NFM II 16
   2. System 8 NFM II 16
   3. System 10 DMT II 17
   4. System 12 DMT II 17
   5. System 15 DMT II 18
   6. System 215 DMT II 18

8. **LIST OF RECOMMENDED SERVICE PARTS** 20
   1. System 2 NFM 20
   2. System 6 NFM II 20
   3. System 8 NFM 20
   4. System 8 NFM II 20
   5. System 10 DMT 21
   6. System 10 DMT II 21
   7. System 12 DMT 21
   8. System 12 DMT II 22
   9. System 15 DMT 22
   10. System 15 DMT II 22
   11. System 215 DMT 22
   12. System 215 DMT II 23

9. **WARRANTY** 24

AN INTRODUCTION TO THE NEW TANNOY MONITOR SERIES LOUDSPEAKERS

Of all loudspeaker manufacturers in the world Tannoy has the greatest number of loudspeakers in use for sound production in British and European studios. An enormous number of successful recordings have been produced on Tannoy Monitoring since the first introduction of the Tannoy Dual Concentric loudspeaker in the 1950s.

A decade has now passed since the introduction of the Super Red and upgraded Super Gold series of Tannoy Monitors. During this time they have earned an enviable reputation as the definitive standard for UK, European, Australasian and North American recorded sound production monitoring.

But it is easy to bury the requirements of monitor loudspeakers in a mass of superlative technical specifications and smooth sales features. The proof of successful engineering design is expressed in the opinions of the users and ultimately their success in producing programme material that is commercially and artistically welcomed by the customer.

It is no coincidence that Tannoy has been instrumental in this process since commercial recordings first became available. Tannoy engineering philosophies have always been genuine, no nonsense, realistic and without gimmick features. We never add a feature unless it has direct benefit to the user.

The Dual Concentric design philosophy is world known for its precise stereo imagery and for the ease of finding sounds within a sound stage. The presentation of the sound image makes long production sessions much less fatiguing than with other monitoring systems because the brain does not have to work as hard correcting for acoustic anomalies in the time and frequency domains.

During the last 15 years great strides have been made in the analytical understanding of loudspeakers. In parallel, the explosion of computing power available to physicists, electronics, acoustics and mechanical engineers has resulted in loudspeaker design techniques advancing at a faster rate than ever before.

Tannoy's massive experience and its highly innovative and skilled design engineering team, has placed the company in a most enviable position. This is reflected for the 1990s in what is a frankly exceptional—revolutionary rather than evolutionary—range of studio monitors.

UNPACKING AND VISUAL CHECKS

To get the speaker out of the carton without damage open the end flaps fully and bend them right back. Turn the package upside-down on the floor and lift the carton vertically up to leave the speaker resting on its packing tray. Remove the packing and the protective polythene bag.

Inspect the speaker for signs of transit damage. In the unlikely event of this having occurred inform the carrier and the supplier. Keep all the packaging if damage has occurred as this will show evidence of excessive handling forces. It is also a good idea to keep the carton if possible for future transportation.

Be very careful when lifting the larger models as they are very heavy.

Particles of packing material can be removed from the cabinet and grille surfaces with a soft brush or proprietary clothing lint remover.

QUICK SET UP PROCEDURE

Look at the connection panel on the rear panel. The input terminals are coloured red and black. They have been factory set with the Bi-Wire selection device in the normal position.

Decide whether you want to set up using normal wiring or Bi-Wiring. If you choose Bi-Wiring you will need to arrange for two separate twin-core cables from each channel of the power amplifier to each speaker position. The benefits and philosophy behind the Bi-Wiring principle are outlined in the technical section of this manual — see Section 5.

In either case please use cable of at least 2.5 square millimetre (2.5 mm^2) cross sectional area.

For normal operation just check that the Bi-Wire selector is in the normal position with the Tannoy logo on the selector block nearest the red and black terminals. Connect the power amplifier to the terminals marked HF (high frequency) observing the standard polarity conventions, red to red and black to black. This will ensure positive acoustic polarity provided the associated electronics is suitably configured.

For Bi-Wire operation slacken off the red and black terminals sufficiently to allow the Bi-Wire selector block to be pulled upwards to show the words 'Bi-Wire' and tighten one red terminal to hold it in place. Connect one of your twin core cables to the red and black terminals marked LF (low frequency) and the other twin core to the terminals marked HF. Please make sure that polarity is observed.

At the power amplifier, connect the two twin core cables together, positive to positive, negative to negative, and wire up to the power amp output terminals. Be careful to get the polarity correct or either the HF units or one complete speaker will be out of phase. If you have kept polarity red to red, black to black throughout the wiring then the system will have positive acoustic polarity provided the associated electronics is suitably configured.

The speakers are now ready for use. Please read the technical specifications regarding power handling before use on amplifiers with a power output greater than 300 watt per channel into 8 ohm (or 150 watt for System 6)—see Section 7.

If you feel that the high frequency level requires adjustment because of environmental or commercial circumstances then the HF link on the rear connecting panel may be set. This provides a fixed increase or decrease in the output of the HF unit by 1.5 dB over the range 2.5 kHz to 25 kHz. Slide the link mechanism between the blue terminals to give the response as shown on the connecting panel.

GUIDELINES FOR INSTALLATION

To get the best out of these speakers, and therefore provide the most reliable commercial results, attention should be paid to a few fundamental facts which we have confirmed during development of these speakers.

Initially we would like to give a word of warning on high sound levels, which these speakers are capable of generating over sustained periods. Hearing damage is caused by high sound levels sustained for long periods of time. Levels over 95 dB for 8 hours per day will eventually cause permanent hearing loss. Because Tannoy Monitors have very low levels of time, amplitude and frequency distortion it is not always obvious that the sound level is high while working with them.

For continuous exposure we recommend the occasional use of a noise dosemeter capable of integrating the sound level and the period of exposure according to noise control standards. This should be used just to check that noise exposure levels are always within safety limits.

The major factors which you should consider when planning a speaker installation using Tannoy Monitors (or anyone else's monitors) can be summarised:

— physical location and mechanical mounting or support structure for the speakers

— connections from power amplifier to speakers

— type of power amplifier, power rating and configuration

— duty rating of the speakers and consequently the depth of on-site servicing requirements.

Location and Support for the Loudspeakers

The physical mounting of loudspeakers provides the single largest influence in performance. For best results the Tannoy Monitors must be mounted on a rigid structure, supported on four pads making contact with the laminated panel.

The nature of the support will subtly change the sound quality. Using a sharp point contact (very high pressure over a small area) will reduce the interaction of the low frequencies with difficult room acoustics over the 50 to 150 Hz frequency band and will give a generally brighter sound presentation.

Using soft pads, of say rubber or Sorbothane, will produce a warmer sound with more energy in the 100 to 200 Hz area and a slightly more subdued treble quality. We recommend using pads of Bostik Blu-Tack™ of about 10 mm in diameter for optimum results.

Connecting the Loudspeakers

Tannoy Monitors can be wall (soffit) mounted but make sure that the front panel is flush or slightly proud of the wall surface by 10 to 15 mm. They must not be recessed into a wall cavity because of diffraction effects which will smear the time response. With this method of mounting the comments made above regarding the support of the speaker on points or pads still apply.

There are two options available when connecting the speakers to the power amplifiers:

— use ONE normal twin cable with the Bi-Wire selector on the rear panel set to NORMAL.

— use TWO twin cables with the Bi-Wire selector on the rear panel set to BI-WIRE.

When using the normal connections with one twin-core cable, connect the cable to the terminals marked HF. This gives marginally better sound quality than when using the LF terminals.

Bi-Wire operation gives significantly better sound quality for a modest outlay in extra speaker cables. Bi-Wiring allows high frequency and low frequency electrical currents to be split between two cables and therefore complex reverse potential differences across the cables (due to resistive losses and reactive components) do not interact.

Remember that with dynamic ranges of 80 dB to 100 dB in the recording process the high frequency currents necessary for correct reproduction of a sound wavefront may be around 60 dB or more down from the low frequency currents. At these levels the potential difference across the LF cable may easily swamp the HF signal in the region at crossover unless Bi-Wiring is used.

The Bi-Wiring principal also continues the wiring philosophy within the crossover of all Tannoy speakers in that all earthing points should be star wired to the source terminal to prevent common earth paths.

The types of cable used to connect the speakers to the power amplifier will marginally affect the sound whether in normal or Bi-Wire mode. There will be more differences between cables of less than 2.5 mm^2 area in the normal mode and so we recommend cables equal to or greater than 2.5mm^2 together with Bi-Wire operation for best results.

It is worth experimenting with very pure oxygen-free or large crystal cables as these can resolve fine detail which would otherwise be missed. If these types of cable are used then the cross-sectional area specification referred to above need not apply rigidly.

Tannoy does not recommend the use of certain plaited or coaxial cables since their high capacitance can lead to instability and oscillation in some power amplifiers together with some loss of high frequency definition.

The Tannoy Monitor range will accommodate connection by 4 mm banana or spade connectors.

When connecting the speakers it is essential that consistent polarity is observed. The red terminal on the loudspeaker must be connected to the red or positive terminal on the power amplifier, and the black terminal on the loudspeaker connected to the black, negative or ground terminal of the power amplifier.

Power Amplifiers

The power amplifier should be reasonably well matched in power to the power rating of the speakers. Tannoy Monitors are very efficient and it can be tempting to economise on the size of power amplifier. However, for the correct resolution of fine detail and dynamics the power amplifier should have sufficient voltage swing which usually means a higher power output specification of say greater than 150 watt.

The power specification of the speakers has been measured on a continuous basis using well documented industry principles. The recommended use of a high power amplifier for sound quality reasons assumes that the speaker will not be subjected to the full clipped output of the amplifier over a sustained period of time. As with all monitor speakers most of the power from the

amplifier is dissipated inside the speaker as heat. Tannoy monitors are designed to withstand peak overload conditions without damage but sustained overload or waveform clipping will reduce their serviceable life considerably.

There is the option, when using the speakers in the Bi-Wire mode, to operate with two separate power amplifiers in what is known as a 'Bi-Amp' configuration. This gives additional benefits over Bi-Wiring in that the LF and HF sections are completely separated from each other.

If this mode is chosen then it is absolutely essential that the power amplifiers are all of exactly the same specification. Although the HF section of the loudspeaker does not need such high power delivery as the LF section, it needs just as much instantaneous voltage swing to deliver the dynamic range. Additionally it is essential that the phase relationships across the audio band are preserved and therefore if bi-amp driving is chosen, identical power amplifiers are required.

The power output performance of the Tannoy Monitors is directly related to the power amplifier output. The conversion of electrical power from the amplifier into sound energy is proportional to the sensitivity specification of the Monitor. Please read the full technical specification for details.

For best results in dynamic range, an amplifier of not less than 150 watt per channel should be used on System 6, 8 and 10 and 300 watt per channel for System 12, 15 and 215.

Listening Position

Locate the monitor so that the listening position at the console is approximately 10-15 degrees from the axis of the Dual Concentric drive unit. This will give the optimum spread of HF information.

The distance between the two speakers should be between 2 to 4 metres, depending on control room size. Where possible avoid mounting the speakers close to walls, floors or ceilings. The distance between the monitoring position and each speaker should be slightly greater than the distance between the speakers.

Please note: if the speakers are placed too close to each other the full stereo image may not develop, on the other hand if you place them too far apart you will notice an audible hole in the middle of the stereo image.

Ensure that the console position does not obscure the direct sound radiation from the Dual Concentric drive unit when sitting down; the engineer and producer should have a clear, uninterrupted view of the monitor loudspeakers.

Duty Rating and On-Site Servicing

If the loudspeakers are used within their rated specifications then they will provide long, reliable service. In a commercial world, however, it is often impossible to guarantee that the monitoring system will not be abused in some way. Tannoy monitors are designed to withstand short term overload without damage but excessive overloads will reduce the expected life of the mechanical components and crossover capacitors somewhat. Therefore it is sensible to keep spare parts for on-site service where monitor down-time could be critical. With the correct spares in stock Tannoy monitors can be serviced in less time than a typical coffee break.

A list of recommended spare parts is shown in Section 8 of this manual as first and second level spares.

SYSTEM DESCRIPTION AND PHILOSOPHY

A loudspeaker design naturally splits into various parts: lower frequency, higher frequency, crossover network and cabinet. The design of these parts cannot take place in isolation as they are all interdependent. However for descriptive purposes we will break the total design into these parts and summarise at the end by describing the complete system.

Traditionally, Tannoy has used a single magnet driving both low frequency and high frequency magnetic air gaps. This gives a very compact drive unit with acoustic source alignment. In the new designs of Dual Concentric units the HF unit and LF unit now have separate, dedicated magnet systems. This is because the HF waveguide design has become so sophisticated it cannot be made by processes suitable for magnetic flux carrying materials.

High Frequency Drive Unit

The HF waveguide can therefore no longer be an integral part of the LF magnet system. In splitting the magnet systems an extra degree of design freedom allows for very high precision casting and moulding processes together with accurate self centring diaphragm assemblies. Both production processing and in-field repairs can then guarantee consistent performance.

A new design of waveguide has been arrived at by making extensive use of CAD (computer aided design). We call it a waveguide because there is a direct analogy with electromagnetic radiation in that characteristic impedances must be carefully matched without introducing standing waves. The Tannoy HF waveguide matches the acoustic source impedance at the HF diaphragm into the listening environment.

The waveguide shapes the wavefront as it travels down from the diaphragm ensuring that path lengths are equal, that the wavefront is perpendicular to the fixed surfaces and that the wavefront is spherical. Only small errors of fractions of a millimetre can upset this condition and cause phase shifts in the waveguide. Accuracy of design and production are essential in achieving the correct conditions within the waveguide.

In this way, transverse modes are minimised and high frequency dispersion maximised. Wavefront shaping begins at the diaphragm surface and, because the compression ratio can be kept relatively low with this design, the distortions due to air non-linearities are minimised. A hyperbolic flare has been chosen for optimum low frequency performance at the crossover point.

The HF diaphragm is a new design. The waveguide requires total piston movement over the operating range since any breakup modes within the diaphragm will result in phase-shifted components at the start of the waveguide propagation. A rigid piston diaphragm operating to above 25 kHz is made from aluminium and magnesium alloy.

A special machine has been designed and built to form and extrude the diaphragm with a 2 mm skirt. This configuration gives the most rigid diaphragm and ensures reliable handling for production and field servicing.

Aluminium is notoriously difficult for adhesive working and we put the diaphragm through a special alkaline etching process followed immediately by the build process to ensure reliability.

The diaphragm assembly is suspended by a precision moulded, inert nitrile rubber surround. This has been designed and tooled using high-precision, numerically controlled machining techniques. Its very narrow roll eliminates

resonances below 25 kHz and provides a very stable and consistent mounting. The roll form ensures high excursions can take place if necessary yet provides a fatigue-indestructible assembly.

The diaphragm is driven by a new design of voice coil assembly. High temperature polyimide-insulated, copper-clad aluminium, rectangular ribbon conductor is chemically bonded onto a glass-fibre former fitting onto the outside of the HF diaphragm skirt. This gives a high temperature (polyimide), very low mass (aluminium wire, glass fibre), high rigidity (rectangular wire, former to outside of diaphragm skirt), high reliability (nitrile suspension, copper clad aluminium) assembly.

Leadout materials are crucial for HF units and our new design incorporates beryllium copper flat strip to eliminate fatigue breakages and prevent fusing on unsupported areas under overload conditions.

The HF diaphragm assembly is factory mounted onto the waveguide by a newly designed high-precision production process. This ensures that the spacing between diaphragm and waveguide is consistent and the whole assembly self centres under all conditions when placed on the magnet assembly. Field replacement is therefore extremely simple and no difficult soldering or centring techniques are required.

The HF magnet assembly uses an anisotropic barium ferrite magnet for maximum energy product (BH_{MAX}), a newly developed magnetic air gap coolant for lowest viscosity and highest thermal rating, a copper flux stabilising ring around the pole piece to minimise voice coil inductance and control the highest frequency energy, and a cavity damper to control the rear cavity compliance beneath the diaphragm.

Physically, the whole HF assembly self centre mounts onto the back of the low frequency assembly using three screws carrying with it the self-centring HF diaphragm. Production and field service is therefore virtually foolproof and extremely consistent.

Polarised, push-on connectors provide connection to the input signal.

Low Frequency Drive Unit

The heart of the LF unit is the motor system comprising the magnet and voice coil. Computer optimisation of the low frequency magnet gives linear flux linking to the voice coil using low carbon steel pole pieces and an anisotropic barium ferrite magnet. A specially designed pure copper stabilising ring fits over the outer pole where it reduces eddy current losses, lowers midrange distortion and increases thermal cooling by a massive 50 per cent. In this way both power compression and reliability are considerably enhanced.

The choice of magnet operating point parameters, air gap flux strength, voice coil details (number of turns, resistance, winding length, diameter etc), moving mass, dynamic compliance and drive unit radiating area presents a very complex mathematical problem where the solutions can take many different forms. The optimum solution depends on the intended use of the drive unit in particular cabinet systems and the expectations of the end user.

This is the skill or 'black-art' element of loudspeaker design. Reaching the correct answers is much easier if computers can be called on to assist with solving the equations. Tannoy has an in-house software facility producing purpose-written programs to solve these equations in both numerical and graphic terms.

The LF voice coil uses polyimide insulated, chemically bonded rectangular sec-

tion copper wire wound onto a high temperature aluminium former for robustness and reliability in thermal conductivity. A specially designed heat barrier wound onto the end of the former protects the adhesive bond to the LF cone from excessive temperatures.

Robust, fatigue-free leadout braid connects to a polarised, vibration-proof, high-current terminal barrier connector.

The shape and materials from which the cone pistons are made reflect the optimisation of drive unit to cabinet size and end use. System 6, 8, 10 and 12 LF units use a CNC precision injection moulded polypropylene cone. System 15 and 215 have a traditional pulp cone with apex treatment and air-dry felting process. For cones of this size there is no better alternative when mass, rigidity, piston movement and natural upper roll-off characteristics are considered.

All LF drivers have their cones terminated by nitrile rubber, high-compliance surrounds. The characteristic cone termination impedance is matched by the surround material independently of the required suspension compliance. The unit system compliance is provided by the rear suspension where the best degree of mechanical control can be provided.

In all cases the shape of the LF cone has been calculated to match the HF hyperbolic waveguide ensuring the wavefront remains spherical and perpendicular to the cone surface throughout the propagation.

Brand new pressure die-cast chassis have been tooled for the new range drawing extensively on new thinking for LF drive units. It is important to eliminate trapped air cavities as these can provide unwanted compliances, upset the mechanical Q design requirements and cause unwanted acoustic colourations because of Helmholtz resonances and reflections from the chassis surfaces smearing the energy/time response.

The new castings have a very open construction with vented rear suspension features to eliminate low Q cavities, improve thermal cooling and prevent major reflections. Rigidity has been optimised in the axial plane to complement the cabinet philosophy (see later) while the front surface profile has been designed to prevent diffraction at the cabinet surface.

The five sizes of chassis each have purpose-designed trim rings to blend the HF wavefront into the cabinet. This feature has been shown in our research to be the biggest single factor in providing smooth HF radiation in Dual Concentrics (assuming, of course, that the HF unit is well designed in the first instance).

Crossover Network

There are two philosophies in designing loudspeaker crossover networks: the minimal and the conjugate.The minimal approach requires that the drive units are inherently well behaved and that each section, LF and HF, require minimum equalisation to achieve a smooth flat amplitude response.The conjugate approach requires that the drive units are accepted as they are but are well characterised. The crossover network is then calculated to provide inherent equalisation to ensure a smooth amplitude response.

The two approaches differ in design emphasis. The minimalist designer concentrates on the drive unit design in controlling the final performance, while the conjugate designer concentrates on complex electronic analysis of networks to achieve the same measured result.

Tannoy has always followed the minimalist philosophy as far as possible. This is because listening trials with loudspeakers always point to those with the least

crossover design complexity as being more realistic, involving a
in their reproduction. However, this makes the drive unit desig
difficult as it is much harder to control performance through t
parameters than through the electrical crossover components. I
much greater constraints on production repeatability of proces
methods. However, overall the result in our belief is a better lo

In crossover networks it is vital to use the very highest quality
series connected elements. Resin impregnated, air cored inductors and custom DMT capacitors are employed for best sound quality. DMT research showed when a capacitor was encapsulated in a vibration absorbing material it changed both the sound texture and dynamics. Every variable of capacitor construction was investigated and custom capacitors designed optimised for sonic performance and with high-purity copper leads.

Vibrations inside the cabinet can effect the performance of inductor coils. Tests show that reducing the vibrations reaching the inductors can have a marked effect on system bass end resolution. Coils vacuum impregnated with resin are chosen to reduce the effects of vibration.

Internal wiring has an effect on sound quality and in the Tannoy Monitor series custom manufactured woven wire is used to reduce induced signals for a cleaner high frequency performance.

Air cored inductors radiate a significant magnetic field which affects nearby components. Similarly inductors can be affected by a driver's magnetic radiation. For these reasons it was decided to produce a split crossover with the inductors mounted on the cabinet cross-brace away from the driver magnets and other crossover components. The sound quality improvements more than justify additional manufacturing costs.

The crossover networks in the new series use simple low order slopes (6 dB and 12 dB per octave) mainly to control the power distribution and balance. The components are of very high quality with Hard-Wiring (no printed circuit boards) and mounted on the back of the terminal panel at the rear of the cabinet. All components are easily serviced in the field by removing the terminal panel from the outside of the cabinet. There is no need to remove drive units to gain access.

Terminal Panel

The terminal panel is a new design especially tooled for the new series. The option of conventional wiring or Bi-Wiring is available by a unique high quality gold plated sliding mechanism with large diameter robust terminals. The benefits of Bi-Wiring for monitoring are easily heard where the extra pair of cables can be accommodated.

The new terminal panel on System 12, 15 and 215 also includes a sliding link which provides adjustment of the high frequencies on a shelving basis from 2 kHz to 25 kHz with plus or minus 1.5 dB adjustment. The systems are calibrated in production to be flat to within specification when set to the flat adjustment position. All terminals and contacts are gold plated to eliminate contact potentials and oxidation. The terminal panel carries the crossover mounting and can be removed from the outside of the cabinet.

Cabinet

The cabinet provides perhaps the greatest departure from convention yet seen in the professional marketplace. There are three major philosophies in the design:

With well designed drive units the majority of the aberrations in the loudspeaker system are due to the cabinet. Most of the irregularities heard and

measured in the higher frequency areas are due to diffractions and reflections caused by the cabinet boundaries.

The amount of acoustic energy transfer that the drive units can launch into the listener's space is dependent on rigid mounting since action and reaction are equal and opposite. When the displacements of the HF diaphragm are calculated for sound levels in the region of 80 to 100 dB sound pressure level, the movements involved are extremely small, often fractions of a thousandth of an inch. However tiny these displacements are they carry information that is required for accuracy in the resulting sound stage.

It stands to reason therefore that the drive unit must be held in space very rigidly so that the HF diaphragm displacements are not themselves modified by the LF displacements which have inherently much more energy associated with them. The obvious method of doing this is to mount the drive unit rigidly into a rigidly made cabinet. But in doing this, a new set of problems appears.

Rigid systems are characterised by high stiffness. The natural resonance of the high cabinet stiffness—achieved by, say, cross bracing and bracing the driver to the rear of the cabinet—and drive unit mass, brings the natural resonance frequency into the audio band, typically around 100 to 200 Hz. This produces an objectionable colouration which can be mitigated in aural terms by some listeners by the increase in 'speed' and HF clarity provided by the rigid system. However, it is not an ideal solution.

In its new Monitors Tannoy has taken a radical approach pointed to by measured parameter research into cabinet systems coupled with listening tests. The Tannoy cabinets are stiff but with a high level of internal damping. A very complex internal bracing structure in each of the cabinets allows the drive unit to be held rigidly but also to be able to dump its resonant or reactive energy into the lossy couplings of the cabinet. The joints between the driver and the bracing structure have a special compound which is very stiff at high frequencies but will absorb energy in the critical colouration areas.

The cabinet panels are made from MDF but are laminated on each side to increase their stiffness. However, the layer of adhesive between MDF and laminate acts as a lossy energy absorbent medium.

The cabinet panels are coupled into each other through hardwood rails at the corners, the dissimilar materials providing further modification for any inherent reactive energy components in the cabinet caused by the drive unit.

The rigid crossbracing structure is floated inside the cabinet using an adhesive system which will absorb the redundant energy from the rear of the drive unit chassis and magnet system and yet provide the stiffness needed to allow very fine HF resolutions from the HF unit diaphragm.

In addition to the cabinet construction the volume and port tuning have been carefully calculated to give the best set of parameters for monitoring loudspeakers.

There is a fundamental relationship in loudspeakers between efficiency, cabinet volume and low frequency performance given that minimal amplitude variations can be tolerated (as in monitoring situations). The set of parameters that are arrived at as a solution are inevitably a compromise and the skill of Tannoy has always been shown to be getting these particular parameters correct for the application.

The Sum of the Parts

The integration of all the features described above is what makes the whole loudspeaker system even greater than the sum of the individual parts.

- The style of the cabinet is not arbitrary, it has been arrived at by considering the acoustic principles of diffraction and energy storage.
- The trim rings around the rubber surrounds are there to smooth out the otherwise discontinuous contour to the HF wavefront.
- The smooth lines around the port tubes ensure laminar air flow at low frequencies where the air in the ports has maximum velocity.
- The shapes of the LF cones continue the hyperbolic waveguide for the HF energy propagation.
- The cabinet bracing and internal construction ensures that the HF unit can deliver the detail into the sound field.
- The application of the Differential Material Technology approach to component behaviour under vibration and magnetic fields has lead to custom crossover components, custom cabling and a split crossover design being employed.

The result of all these innovations is a family of monitoring loudspeakers from Tannoy; speakers which are quite remarkable in resolving the finest detail over the whole audio spectrum.

The new Monitor Series loudspeakers prove that Tannoy still leads the world in applying the science of loudspeaker design to the practical monitoring situation. These monitors are tools to be used in producing even more artistic and satisfying developments within the live and recorded sound stage.

ON-SITE SERVICING

Cabinet Finish

The cabinet is finished in a high impact resistant, texture paint. To remove marks and scuffs use a medium soft brush. If necessary, a little warm water and detergent can be used but under no circumstances use a solvent or abrasive cleaner. The surface will change colour when wet but will return to normal when dry.

For touch-up of paint chips contact your local Tannoy Service Agent for materials and guidance.

The grille cloth may be brushed to remove dust and particles and may be washed in warm soapy water if necessary. Do not soak the grille frame or dry under artificial heat or the grille may twist out of shape.

Grille Removal

The grille is held by plastic split dowels located in the grille frame which fit into rubber lined holes in the front panel. To remove the grille pull any corner until the grille frame can be eased away evenly. Do not pull sharply from only one corner as there is a risk of the grille being twisted out of shape.

Dual Concentric Driver Removal

Lay the cabinet on its back taking care to protect the terminals and the rear surface. Remove the four hexagonal socket headed bolts and set aside. Ease the driver from the front of the cabinet taking care not to mark the front surface. Use a piece of stout cardboard to lever against if necessary. The driver will yield to constant tension as the special mass damping compound between the magnet and the internal cabinet bracing releases. Remove the driver, note the polarity of the internal connections and disconnect the internal wiring.

Take care not to damage the moving parts of the LF driver.

To refit the Dual Concentric driver, connect the cables from the crossover to the LF and HF terminals. Locate the piece of damping material which was pressed between the rear of the HF magnet and the cabinet crossbrace during manufacture. Roll it into a ball and press it onto the centre of the cabinet crossbrace.

Fit the driver into the mounting hole and maintain pressure on the front of the chassis until the driver seats into the compound. Please make sure that the internal connecting cables are not trapped between the HF unit and the cabinet crossbrace. Fasten the bolts finger tight and then progressively torque them down so that the driver seats evenly into the damping compound. Check the tightness of the mounting screws before fitting the grille.

Crossover Inspection and Removal

The crossover network is mounted on the rear of the terminal panel. To inspect it, remove the panel by releasing the hexagonal screws. Inspection can take place up to the limit of the length of the internal wiring. Take care to avoid undue stress on the cables and components. When replacing components make sure they have the same physical orientation as the original.

To remove the crossover completely the cables must be disconnected from the drive unit. Please proceed as above to remove the drive unit.

Drive Unit Servicing

The HF unit may be fitted with a new diaphragm assembly or replaced as a complete assembly for speed. In either case, with the driver face down, release the three bolts securing the HF assembly and lift the HF unit vertically upwards and away from magnetic attraction caused by the LF magnet. Replace the diaphragm—it is self centring—or the complete unit, taking care to align the parts correctly.

To refit the HF unit, hold it about 300 mm (12 inch) vertically above the LF magnet in both hands while resting on your elbows. Slide your elbows apart and lower the HF unit onto the back of the LF magnet. As the HF unit gets close to the magnet you will feel the magnetic fields repelling. Align the fixing holes and secure with the bolts, tightening down evenly. Do not tighten the bolts finally until you are sure the HF unit is seated correctly and the two magnet systems appear parallel.

The LF unit may be re-coned in the normal way. Ease the trim ring from the rubber surround and remember to refit it. The trim ring forms an integral part of the HF dispersion system. Use only the parts and adhesive supplied in the re-cone kit.

Sweep Signal Testing

Both LF and HF units may be checked for buzz and rattle individually. Set the rear connector panel to Bi-Wire (see earlier for details). Using a very high quality oscillator (preferably a Beat Frequency Oscillator) and power amplifier set the output of the amplifier to give 3 volts rms at 1 kHz. Feed this signal in turn to the LF and HF terminal pairs. The speakers should be free from buzz and rattle.

To check for high level problems 10 volts rms is permissible to the LF unit above 70 Hz and 5 volts rms to the HF unit. Higher levels must be used with caution as the thermal rating of the drive units can be exceeded under test situations. Audible buzz and rattle problems can usually be heard with the 3 volt signals.

TECHNICAL SPECIFICATIONS

System 6 NFM II

RECOMMENDED AMPLIFIER POWER	20 to 150 watt RMS
PEAK POWER HANDLING	175 watt
NOMINAL IMPEDANCE	8 ohm
SENSITIVITY (2.83 volts @ 1 m)	91 dB
DISTORTION	Less than 0.75% 52 Hz – 25 kHz
PHASE RESPONSE	System behaves substantially as a frequency-independent time delay
DISPERSION	90 degrees conical
CROSSOVER FREQUENCY	2 kHz
CROSSOVER TYPE	2nd order LF, 1st order HF Hard-Wired, low-loss. Positive acoustic polarity
FREQUENCY RESPONSE (±3 dB)	52 Hz – 25 kHz
DRIVE UNIT TYPE	6.5 inch 1667 Dual Concentric

CABINET SPECIFICATIONS

CABINET INTERNAL VOLUME	10 litres
CABINET MATERIAL	30.6 mm MDF front baffle, 15 mm high density particle board lined with TF-1 acoustic wadding
CABINET FINISH	High quality vinyl finish. Velti shadow grey soft-texture finish baffle
GRILLE	Single piece, black acoustically transparent material over a rigid frame
CABINET DIMENSIONS (HxWxD)	345 x 230 x 223 mm (13.6 x 9.1 x 8.8 inch)
CABINET WEIGHT	5.7 kg (12.6 lb)
SHIPPING DIMENSIONS (HxWxD)	Approximately 410 x 550 x 245 mm (16.2 x 21.7 x 9.6 inch)
SHIPPING WEIGHT	Approximately 16.5 kg (36.4 lb)

System 8 NFM II

RECOMMENDED AMPLIFIER POWER	20 to 150 watt RMS
PEAK POWER HANDLING	200 watt
NOMINAL IMPEDANCE	8 ohm
SENSITIVITY (2.83 volts @ 1 m)	93 dB
DISTORTION	Less than 0.4% 47 Hz – 25 kHz
PHASE RESPONSE	System behaves substantially as a frequency-independent time delay.
DISPERSION	90 degrees conical
CROSSOVER FREQUENCY	1.7 kHz
CROSSOVER TYPE	1st order LF, cascaded 1st order HF with impedance compensation. Positive acoustic polarity
FREQUENCY RESPONSE (±3 dB)	47 Hz – 25 kHz
DRIVE UNIT TYPE	8 inch 2036 Dual Concentric

CABINET SPECIFICATIONS

CABINET INTERNAL VOLUME	18.3 litre
CABINET MATERIAL	MDF (30 mm—front and back; 20.6 mm—top, bottom and sides) with energy absorbing bracing matrix and TF-1 acoustic wadding
CABINET FINISH	Velti shadow grey soft-texture finish. High pressure twin laminate in shadow grey with metallic speckled finish on top, bottom and sides
GRILLE	Single piece, black acoustically transparent material over a rigid frame
CABINET DIMENSIONS (HxWxD)	460 x 300 x 230 mm (18.1 x 11.8 x 9.1 inch)
CABINET WEIGHT	12 kg (26.4 lb)
SHIPPING DIMENSIONS (HxWxD)	Approximately 510 x 350 x 280 mm (20 x 13.8 x 11 inch)
SHIPPING WEIGHT	Approximately 16 kg (35.2 lb)

System 10 DMT II

RECOMMENDED AMPLIFIER POWER	30 to 250 watt RMS
PEAK POWER HANDLING	350 watt
NOMINAL IMPEDANCE	8 ohm
SENSITIVITY (2.83 volts @ 1 m)	94 dB
DISTORTION	Less than 0.4% 45 Hz – 25 kHz
PHASE RESPONSE	System behaves substantially as a frequency-independent time delay.
DISPERSION	90 degrees conical
CROSSOVER FREQUENCY	1.5 kHz
CROSSOVER TYPE	1st order LF, 1st order HF. Positive acoustic polarity.
FREQUENCY RESPONSE (±3 dB)	45 Hz – 25 kHz
DRIVE UNIT TYPE	10-inch 2507 Dual Concentric

CABINET SPECIFICATIONS

CABINET INTERNAL VOLUME	35 litre
CABINET MATERIAL	MDF (30 mm—front and back; 20.6 mm—top, bottom and sides) with energy absorbing bracing matrix and TF-1 acoustic wadding
CABINET FINISH	Velti shadow grey soft-texture finish. High pressure twin laminate in shadow grey with metallic speckled finish on top, bottom and sides
GRILLE	Single piece, black acoustically transparent material on a rigid frame
CABINET DIMENSIONS (HxWxD)	560 x 365 x 290 mm (22.0 x 14.3 x 11.4 inch)
CABINET WEIGHT	19 kg (41.9 lb)
SHIPPING DIMENSIONS (HxWxD)	Approximately 660 x 465 x 390 mm (25.9 x 18.3 x 15.3 inch)
SHIPPING WEIGHT	Approximately 21 kg (46.3 lb)

System 12 DMT II

RECOMMENDED AMPLIFIER POWER	50 to 300 watt RMS
PEAK POWER HANDLING	450 watt
NOMINAL IMPEDANCE	8 ohm
SENSITIVITY (2.83 volts @ 1 m)	96 dB
DISTORTION	Less than 0.5% 40 Hz – 25 kHz
PHASE RESPONSE	System behaves substantially as a frequency-independent time delay.
DISPERSION	90 degrees conical
CROSSOVER FREQUENCY	1.4 kHz
CROSSOVER TYPE	2nd order overdamped LF, 1st order HF. Positive acoustic polarity.
CROSSOVER CONTROLS	Treble energy range 2 kHz – 20 kHz (settings)—+1.5 dB, Level, -1.5 dB
FREQUENCY RESPONSE (±3 dB)	40 Hz – 25 kHz
DRIVE UNIT TYPE	12 inch 3136GG Dual Concentric

CABINET SPECIFICATIONS

CABINET INTERNAL VOLUME	70 litre
CABINET MATERIAL	MDF (30 mm—front and back; 20.6 mm—top, bottom and sides) with energy absorbing bracing matrix and TF-2 acoustic wadding
CABINET FINISH	Velti shadow grey soft-texture finish. High pressure twin laminate in shadow grey with metallic speckled finish on top, bottom and sides
GRILLE	Single piece, black acoustically transparent material on a wooden frame
CABINET DIMENSIONS (HxWxD)	645 x 420 x 390 mm (25.4 x 16.5 x 15.4 inch)
CABINET WEIGHT	32 kg (70.5 lb)
SHIPPING DIMENSIONS (HxWxD)	Approximately 745 x 495 x 485 mm (29.3 x 19.5 x 19.1 inch)
SHIPPING WEIGHT	Approximately 37 kg (81.6 lb)

System 15 DMT II

RECOMMENDED AMPLIFIER POWER	50 to 400 watt RMS
PEAK POWER HANDLING	600 watt
NOMINAL IMPEDANCE	8 ohm
SENSITIVITY (2.83 volts @ 1 m)	98 dB
DISTORTION	Less than 0.5% 38 Hz – 25 kHz
PHASE RESPONSE	System behaves substantially as a frequency-independent time delay.
DISPERSION	90 degrees conical
CROSSOVER FREQUENCY	1.1 kHz
CROSSOVER TYPE	2nd order overdamped LF, 1st order HF. Positive acoustic polarity
CROSSOVER CONTROLS	Treble energy range 2 kHz – 20 kHz (settings)—+1.5 dB, Level, -1.5 dB
FREQUENCY RESPONSE (±3 dB)	38 Hz – 25 kHz
DRIVE UNIT TYPE	15 inch 3833GG Dual Concentric

CABINET SPECIFICATIONS

CABINET INTERNAL VOLUME	100 litre
CABINET MATERIAL	MDF (36 mm—front and back; 20.6 mm—top, bottom and sides) with energy absorbing bracing matrix and TF-2 acoustic wadding
CABINET FINISH	Velti shadow grey soft-texture finish. High pressure twin laminate in shadow grey with metallic speckled finish on top, bottom and sides
GRILLE	Single piece, black acoustically transparent material on a wooden frame
CABINET DIMENSIONS (HxWxD)	840 x 550 x 440 mm (33.0 x 21.6 x 17.3 inch)
CABINET WEIGHT	45 kg (99.2 lb)
SHIPPING DIMENSIONS (HxWxD)	Approximately 940 x 650 x 540 mm (37.0 x 25.5 x 21.2 inch)
SHIPPING WEIGHT	Approximately 50 kg (110.2 lb)

System 215 DMT II

RECOMMENDED AMPLIFIER POWER	150 to 500 watt RMS
PEAK POWER HANDLING	750 watt
NOMINAL IMPEDANCE	4 to 8 ohm
SENSITIVITY (2.83 volts @ 1 m)	101 dB
DISTORTION	Less than 0.5% 35 Hz – 25 kHz
PHASE RESPONSE	System behaves substantially as a frequency-independent time delay.
DISPERSION	90 degrees conical
CROSSOVER FREQUENCY	250 Hz and 1.5 kHz
CROSSOVER TYPE	2nd order overdamped LF, 1st order HF. Positive acoustic polarity
CROSSOVER CONTROLS	Treble energy range 2 kHz – 25 kHz (settings)—+1.5 dB, Level, -1.5 dB
	Low frequency window
FREQUENCY RESPONSE (±3 dB)	35 Hz – 25 kHz
DRIVE UNIT TYPE	15 inch 3833GG Dual Concentric
	15 inch 3834GG bass unit

CABINET SPECIFICATIONS

CABINET INTERNAL VOLUME	300 litre
CABINET MATERIAL	MDF (36 mm—front and back; 20.6 mm—top, bottom and sides) with energy absorbing bracing matrix and TF-2 acoustic wadding
CABINET FINISH	Velti shadow grey soft-texture finish. High pressure twin laminate in shadow grey with metallic speckled finish on top, bottom and sides
GRILLE	Single piece, black acoustically transparent material on a wooden frame

CABINET DIMENSIONS (HxWxD)	906 x 786 x 555 mm (35.7 x 30.9 x 21.8 inch)
CABINET WEIGHT	85 kg (187 lb)
SHIPPING DIMENSIONS (HxWxD)	Approximately 1020 x 860 x 660 mm (40.2 x 33.9 x 26 inch)
SHIPPING WEIGHT	Approximately 96 kg (211.2 lb)

LIST OF RECOMMENDED SERVICE PARTS

First level spares—marked in bold type in the following lists—are the quickest and easiest to fit, second level spares require some specialist knowledge or tools.

System 2 NFM

PART NUMBER	DESCRIPTION
2252 3182	Resistor 6R8 9W WW
2606 0521	Capacitor 3.3 µF 100V 10%
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
4529 0002	Screw M4 x 25mm hex countersunk wood
4529 0003	Screw M3 x 25mm hex countersunk wood black
4940 0006	Terminal panel Bi-Wire nickel terminals
6405 0033	Grille mesh 6.5 inch
6405 0034	Grille mesh tweeter
6460 0035	Badge Tannoy logo gold 1 pin
6560 0010	Link rod—nickel-plated
6730 0192	Carton kit System 2 NFM
6811 0013	Choke 1.0 mH iron dust core
6811 0030	Choke tapped 50/35 Ferrite core
6835 0403	Luxbond 923—700 x 190 mm x 10 oz
6839 0131	Gasket, 6.5-inch drivers
7300 0221	Crossover System 2
7500 0159	Lead assembly (1087 Crossover)
7900 0189	**Driver kit—0259GL**
7900 0210	**Driver kit—1668GGG**
7900 0211	**Recone kit—1668GGG**
9900 0151	Cabinet System 2

System 6 NFM II

1411 0071	Damping compound 18 x 32 mm
2252 3176	Resistor 3R9 9W 10% WW
2606 0491	Capacitor 10 µF 63V any
2606 0522	Capacitor 4.7 µF 100V 10%
2606 0650	Capacitor 1.5 µF 160V axial polypropylene 5%
2606 0658	Capacitor 0.22 µF 100V polypropylene
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
4529 0002	Screw M4 x 25 mm steel hex countersunk wood
4940 0025	Termination panel—assembly
6177 0013	Socket black nylon
6177 0014	Socket dowel, various
6184 0042	Port tube moulded 609
6460 0028	Logo badge gold blocked
6460 0035	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors
6735 0356	End cushion System 6
6735 0357	Packing piece divider System 6
6736 0155	Carton System 6
6811 0029	Choke 1.2 mH iron dust/Wilcon
6839 0131	Gasket, 6.5-inch drivers
7300 0397	Crossover Type 1145 System 6 complete
7600 0668	Grille assembly System 6 complete
7900 0305	**Driver kit—1667 System 6 NFM II**
7900 0306	**Recone kit—1667 System 6 NFM II Dual**
7900 0307	**HF diaphragm—1667 System 6 NFM II Dual**
9900 0200	Cabinet assembly System 6 NFM II

System 8 NFM

1411 0071	Damping compound 18 x 32 mm
2252 3024	Resistor 10R 17W 10% wire-wound
2606 0650	Capacitor 1.5 µF 160V axial polypropylene
2606 0658	Capacitor 0.22 µF polypropylene 100V
2753 3011	Capacitor 30 µF 150V non-polar
2753 3208	Capacitor electrolytic reversible low-loss 50V 10% non-polar
2753 3310	Capacitor 10 µF 150V
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
4529 0004	Screw M5 x 30 mm hex countersunk wood
4940 0005	Terminal panel Bi-Wire gold terminals
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6460 0028	Logo badge gold blocked
6460 0035	Badge Tannoy logo gold 1 pin
6560 0008	Link rod—gold-plated
6730 0191	Carton kit System 8 NFM
6811 0029	1.2 mH choke iron dust / Wilcon
6835 0400	Wadding bonded polyester 10 oz
6839 0110	Gasket, 8-inch drivers
7100 0099	Choke 1.0 mH bobbin air
7300 0281	Crossover System 8
7600 0582	Grille assembly System 8 NFM
7900 0156	**HF section—2025 System 8 NFM**
7900 0208	**Driver kit—2025GGG System 8 NFM**
7900 0209	**Recone kit—2025GGG System 8 NFM**
9900 0147	Cabinet System 8 NFM

System 8 NFM II

1411 0071	Damping compound 18 x 32 mm
2252 3184	Resistor 8R2 9W WW
2252 3190	Resistor 15R 9W 10% WW
2606 0491	Capacitor 10 µF 63V any
2606 0492	Capacitor 15 µF Evox
4029 0005	Panel retainer
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
4529 0004	Screw M5 x 30 mm steel hex countersunk wood
4940 0025	Termination panel—assembly
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6177 0014	Socket dowel, various
6184 0042	Port tube moulded 609
6460 0028	Logo badge gold blocked
6460 0035	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors

6735 0301	End cushion front base System 8
6735 0302	End cushion System 8
6736 0115	Carton heavy duty System 8
6811 0033	1.2 mH inductor
6839 0110	Gasket, 8-inch drivers
6839 0302	Plug foam, port tube
7100 0113	Capacitor 0.9 µF DMT assembly
7100 0118	Capacitor 1.3 µF DMT assembly
7300 0388	Crossover Type 1143 System 8 NFM II complete
7500 0215	Lead assembly Kimber y/gn twin 350
7500 0220	Lead assembly Kimber bl/br twin 350
7600 0675	Grille assembly. System 8 NFM II complete
7900 0308	**Driver kit—2036**
7900 0309	**Recone kit—2036**
7900 0310	**HF diaphragm—2036**
9900 0198	Cabinet System 8 NFM II

System 10 DMT

1411 0071	Damping compound 18 x 32 mm
2252 3166	Resistor 1.5R 9W 10% WW
2252 3170	Resistor 2R2 9W WW
2606 0522	Capacitor 4.7 µF 100V 10%
2606 0650	Capacitor 1.5 µF 160V axial polypropylene
2606 0658	Capacitor 0.22 µF 100V polypropylene
4504 5723	Screw M5 x 20 mm hex button black zinc
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
4529 0003	Screw M3 x 25 mm hex countersunk wood black
4783 0182	Terminal crimp female 0.25-inch
4940 0007	Terminal panel complete Monitors
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6460 0028	Logo badge gold blocked
6460 0035	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors
6730 0186	Carton kit System 10
6835 0300	Wadding acoustic
6835 0401	Wadding bonded fibre 400 x 230 mm
6839 0047	Gasket—10-inch back
7100 0099	Choke 1.0 mH bobbin air
7100 0101	Choke 2 mH air core
7300 0270	Crossover Type 1111 System 10 DMT
7500 0173	Lead assembly Systems 10 and 12 DMT
7600 0570	Grille assembly System 10 DMT
7900 0156	**HF section—2025**
7900 0193	**Driver kit—2525GGG**
7900 0194	**Recone kit—2525GGG**
9900 0141	Cabinet System 10 DMT

System 10 DMT II

1411 0071	Damping compound 18 x 32 mm
2252 3180	Resistor 5.6R 9W 10% WW
2606 0523	Capacitor 6.8 µF 100V 10%
4504 5723	Screw M5 x 20 mm hex button black zinc
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
4940 0025	Termination panel—assembly
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6184 0016	Tube port—Stratford
6460 0028	Logo badge gold blocked
6460 0035	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors
6730 0186	Carton kit System 10
6839 0047	Gasket, 10-inch drivers back
6839 0077	Gasket, rear 10-inch
6839 0301	Plug foam, port tube
7100 0066	Choke 0.71 mH bobbin air
7100 0109	Capacitor 1.3 µF DMT assembly
7100 0113	Capacitor 0.9 µF DMT assembly
7100 0117	Capacitor 2.2 µF DMT assembly.
7100 0118	Capacitor 1.3 µF DMT assembly
7100 0119	Choke 1.5 mH air core vacuum impregnated
7300 0399	Crossover Type 1146 System 10 DMT II complete
7600 0669	Grille assembly System 10 DMT II complete
7900 0310	**HF diaphragm—2036**
7900 0311	**Driver kit—2507**
7900 0312	**Recone kit—2507**
9900 0201	Cabinet System 10 DMT II

System 12 DMT

1411 0071	Damping compound 18 x 32 mm
2252 3014	Resistor 3R9 17W 10% WW
2252 3016	Resistor 4R7 17W 10% WW
2252 3024	Resistor 10R 17W 10% WW
2252 3028	Resistor 15R0 17W 10% WW
2606 0656	Capacitor 10 µF 160V polypropylene
2606 0657	Capacitor 6.8 µF 160V polypropylene
2606 0674	Capacitor 2.2 µF 160V polypropylene
4504 5723	Screw M5 x 20 hex button black zinc
4510 4716	Screw M4 x 16 Pozidrive epoxy-coated
4529 0003	Screw M3 x 25 hex countersunk wood black
4783 0182	Terminal crimp female 0.25-inch
4940 0007	Terminal panel complete Monitors
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6460 0028	Logo badge gold blocked
6460 0033	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors
6730 0187	Carton kit System 12
6835 0300	Wadding acoustic
6835 0401	Wadding bonded fibre 400 x 230 mm
6839 0050	Gasket seal 12-inch frames
7100 0101	Choke 2 mH air-cored
7300 0271	Crossover Type 1112 System 12 DMT
7500 0173	Lead assembly Systems 10 and 12 DMT

7600 0571	Grille assembly System 12 DMT
7900 0195	**Driver kit—3133GG**
7900 0196	**Recone kit—3133GG**
7900 0199	**HF diaphragm—3133/3833**
9900 0142	Cabinet System 12 DMT

System 12 DMT II

1411 0071	Damping compound 18 x 32 mm
2252 3002	Resistor1R2 17W 10% WW
2252 3008	Resistor 2R2 17W 10% WW
2252 3014	Resistor 3R9 17W 10% WW
2606 0656	Capacitor 10 µf 160V polypropylene
4090 6450	Screw M6 x 50 mm hex head steel
4504 5723	Screw M2 x 20 mm hex button black zinc
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
4940 0042	Terminal panel System 15 II
5470 0074	Clamp—choke mounting
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6460 0028	Logo badge gold blocked
6460 0033	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors
6730 0187	Carton kit System 12
6736 0112	Carton heavy duty System 12
6839 0303	Plug foam 50 x 77 mm diameter
7100 0109	Capacitor 1.3 µF DMT assembly
7100 0111	Capacitor 0.9 µF DMT assembly
7100 0123	Choke 2.5 mH air cored
7300 0426	Crossover Type 1161 System 12 DMT II
7600 0696	Grille assembly System 12 DMT II
7900 0199	**HF diaphragm—3133/3833**
7900 0333	**Driver kit—3136**
7900 0334	**Recone kit—3136**
9900 0217	Cabinet System 12 DMT II

System 15 DMT

1411 0071	Damping compound 18 x 32 mm
2252 3002	Resistor 1R2 17W 10% wire-wound
2252 3016	Resistor 4R7 17W 10% wire-wound
2252 3182	Resistor wire-wound 6R8 9W
2606 0656	Capacitor 10 µF 160V polypropylene
2606 0657	Capacitor 6.8 µF 160 V polypropylene
2606 0685	Capacitor 3.9 µF 160V polypropylene
4504 8726	Screw M8 x 20 mm button socket-head
4510 4716	Screw M4 x 16 Pozidrive epoxy-coated
4783 0182	Terminal crimp female 0.25-inch
4940 0007	Terminal panel complete Monitors
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6460 0033	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors
6730 0188	Carton kit System 15
6835 0300	Wadding acoustic
6835 0401	Wadding bonded fibre 400 x 230 mm
6839 0048	Gasket seal 15-inch frames
7100 0101	Choke 2 mH air core
7300 0272	Crossover Type 1113 System 15 DMT
7500 0174	Lead assembly System 15 DMT
7600 0572	Grille assembly System 15 DMT
7900 0197	**Driver kit—3833GG**
7900 0198	**Recone kit—3833GG**
7900 0199	**HF diaphragm—3133/3833**
9900 0143	Cabinet System 15 DMT

System 15 DMT II

1411 0071	Damping compound 18 x 32 mm
2252 3002	Resistor 1R2 17W 10% WW
2252 3016	Resistor 4R7 17W 10% WW
2252 3024	Resistor 10R 17W 10% WW
2252 3182	Resistor 6R8 9W WW
4504 8726	Screw M8 x 20 mm button socket head
4510 4716	Screw M4 x16 mm Pozidrive epoxy-coated
4512 5740	Screw M5 x 40 mm Pozidrive countersunk epoxy-coated
4940 0042	Termination panel System 15 DMT II
5470 0056	Clamp—choke mounting
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6184 0033	Port tube black 110 OD x 250mm
6460 0028	Logo badge gold blocked
6460 0033	Badge Tannoy logo gold 1 pin
6481 0173	Instruction book Monitors
6730 0188	Carton kit System 15
6839 0102	Gasket
7100 0108	Choke 2mH air-cored vacuum impregnated
7100 0109	Capacitor 1.3µF DMT assembly
7100 0110	Capacitor 30µF DMT assembly
7300 0382	Crossover Type 1140 System 15 DMT II complete
7600 0572	Grille assembly System 15 DMT II complete
7900 0197	**Driver kit—3833GG**
7900 0198	**Recone kit—3833GG**
7900 0199	**HF diaphragm—3133/3833**
9900 0143	Cabinet System 15 DMT II

System 215 DMT left-hand

1411 0071	Damping compound 18 x 32 mm
4199 0003	Screw M5 x 25mm Supadrive countersunk epoxy-coated
4504 8726	Screw M8 x 20 mm button socket head
4510 4716	Screw M4 x 16 mm Pozidrive epoxy-coated
6177 0004	Dowel moulded black
6177 0013	Socket black nylon
6730 0190	Carton kit System 215 DMT
6835 0300	Wadding acoustic
7300 0283	Crossover 1117 System 215 DMT
7600 0580	Grille assembly
7600 0581	Termination panel assembly

7900 0197 **Driver kit—3833GG**
7900 0198 **Recone kit—3833GG**
7900 0199 **HF diaphragm—3133/3833**
7900 0206 **Driver kit—3834GG**
7900 0207 **Recone kit—3834GG**
9800 0830 Front cover System 215 DMT
9900 0149 Cabinet System 215 (left hand)

System 215 DMT right-hand

1411 0071 Damping compound 18 x 32 mm
4199 0003 Screw M5 x 25 mm Supadrive countersunk epoxy-coated
4504 8726 Screw M8 x 20 mm button socket head
4940 0007 Terminal panel complete Monitors
6177 0004 Dowel moulded black
6177 0013 Socket black nylon
6730 0190 Carton kit System 215 DMT
6835 0300 Wadding acoustic
7300 0283 Crossover Type 1117 System 215 DMT
7600 0580 Grille assembly
7600 0581 Termination panel assembly
7900 0197 **Driver kit—3833GG**
7900 0198 **Recone kit—3833GG**
7900 0199 **HF diaphragm—3133/3833**
7900 0206 **Driver kit—3834GG**
7900 0207 **Recone kit—3834GG**
9800 0830 Front cover System 215 DMT
9900 0150 Cabinet System 215 DMT (right hand)

System 215 DMT II left-hand

1411 0071 Damping compound 18 x 32 mm
2252 3004 Resistor 1R5 17W 10% WW
2252 3010 Resistor 2R7 17W 10% WW
2252 9373 Resistor 5R0 50W metal clad
2606 0634 Met polycap 200 µF 250V 10%
3259 0014 Terminal connector blue
3259 0015 Terminal connector cool grey
3259 0016 Terminal connector red
4199 0003 Screw M2 x 25 mm Supadrive countersunk epoxy-coated
4504 8726 Screw M8 x 20 mm button socket head
4510 4716 Screw M4 x 16 Pozidrive epoxy-coated
4820 0011 Catch magnet—white plastic
6177 0004 Dowel moulded black
6177 0013 Socket black nylon
6560 0012 Rod link gold plated Monitors
6716 0010 Choke board—System 215
6730 0190 Carton kit System 215 DMT
6835 0300 Wadding acoustic
7100 0087 Choke 4.0 mH air-cored s/s
7100 0101 Choke 2.0 mH air-cored
7100 0109 Capacitor 1.3 µF DMT assembly
7100 0111 Cap 0.9 µF DMT assembly
7100 0120 Capacitor 6 µF DMT assembly
7100 0121 Capacitor 10 µF DMT assembly
7300 0407 Crossover Type 1148
7600 0580 Grille assembly System 215
7600 0691 Terminal panel assembly System 215 DMT II
7900 0197 **Driver kit—3833GG**
7900 0198 **Recone kit—3833GG**
7900 0199 **HF diaphragm—3133/3833**
7900 0206 **Driver kit —3834GG**
7900 0207 **Recone kit —3834GG**
9800 0830 Front cover System 215 DMT
9900 0149 Cabinet System 215 DMT (left-hand)

System 215 DMT II right-hand

1411 0071 Damping compound 18 x 32 mm
2252 3004 Resistor 1R5 17W 10% WW
2252 3010 Resistor 2R7 17W 10% WW
2252 9373 Resistor 5R0 50W metal clad
2606 0634 Met polycap 200µF 250V 10%
3259 0014 Terminal connector blue
3259 0015 Terminal connector cool grey
3259 0016 Terminal connector red
4199 0003 Screw M2 x 25 mm Supadrive countersunk epoxy-coated
4504 8726 Screw M8 x 20 mm button socket head
4510 4716 Screw M4 x 16 mm Pozidrive epoxy-coated
4820 0011 Catch magnet—white plastic
6177 0004 Dowel moulded black
6177 0013 Socket black nylon
6560 0012 Rod link gold plated Monitors
6716 0010 Choke board—System 215
6730 0190 Carton kit System 215 DMT
6835 0300 Wadding acoustic
7100 0087 Choke 4.0mH air-cored s/s
7100 0101 Choke 2mH air-cored
7100 0109 Capacitor 1.3 µF DMT assembly
7100 0111 Cap 0.9 µF DMT assembly
7100 0120 Capacitor 6 µF DMT assembly
7100 0121 Capacitor 10 µF DMT assembly
7300 0407 Crossover Type 1148
7600 0580 Grille assembly System 215
7600 0691 Terminal panel assembly DMT 215 II
7900 0197 **Driver kit—3833GG**
7900 0198 **Recone kit—3833GG**
7900 0199 **HF diaphragm—3133/3833**
7900 0206 **Driver kit —3834GG**
7900 0207 **Recone kit —3834GG**
9800 0830 Front cover System 215 DMT
9900 0150 Cabinet System 215 DMT (right hand)

WARRANTY

No maintenance of the Monitors is necessary.

All components are guaranteed for a period of five years from the date of manufacture, subject to the absence of, or evidence of, misuse, overload or accidental damage.

For further information please contact your dealer or the distributor in your country. If you cannot locate your distributor please contact:

Customer Services
Tannoy Ltd
Rosehall Industrial Estate
Coatbridge, Strathclyde
ML5 4TF, Scotland.

Telephone (0236) 420199
Fax (0236) 428230.

DO NOT SHIP ANY PRODUCT TO TANNOY WITHOUT PREVIOUS AUTHORISATION.

This warranty in no way affects your statutory rights.

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.

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TANNOY®

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