

REVIEW



The Power of Westminster

Tannoy's massive Westminster Royal GR loudspeakers arrive at Hi-Fi World for review. Noel Keywood experiences their power!

If there's one word that sums up Tannoy Westminster Royal GRs, it is power. I've heard predecessors on rare occasions in the past and have in many – if not all – times been overawed by the way their sound dominated a room, seeming to drive it from the very foundations upward. But getting these giant horn loudspeakers in for a proper review, complete with measurement, was never going to be

easy – or quick. We begged for a pair years ago. Recently these rare birds finally arrived, in latest GR form.

The Westminster is one of the largest domestic hi-fi loudspeakers available. It's rare because its complex plywood cabinet is hand built at Tannoy's Coatbridge – a suburb of Glasgow – factory in Scotland. And when fitted with a single 15in Tannoy Dual-Concentric drive unit, each cabinet weighs 140kgs. The

price is equally large – £28,000 per pair. Needless to say, there aren't many around and Tannoy don't need a review because the Westy isn't a mass market product, so you'll not read much about them – even though this speaker sits at the top of their Prestige model range.

Although pictured by Tannoy in grand UK residences with castle-like dimensions and lavish furnishings, in real life Westminsters sell in greater

REVIEW

quantity the farther East you go, Tannoy tell me. And the farthest East is Japan in this case. There, great value is placed on traditional hi-fi products like this; the Westminsters are not modern repros so much as part of a long lineage that goes way back to the beginnings of audio; Tannoy was founded in the 1920s. The Westminsters are an authentic embodiment of an old idea, that of horn loading – and in spite of their size and price, sell around the world.

But Westminsters don't sound fabulous because they are old! They sound fabulous because they are a silly-large horn loudspeaker – and a horn drives a room in unique fashion. It's why they move you with vast dynamics of seemingly unparalleled ease.

The giant 15in drive unit is coupled into the room's air load through an acoustic transformer that must, by its very nature, have a very big mouth. Horns have to be big if they are to work well, big in this case meaning a cabinet that three burly men could hardly lift or manoeuvre during delivery.

Their weight is so great they must be moved on trucks – with care! This also explains our use of Tannoy press shots in this review; we couldn't get the Westminsters into our photographic studio!

Whilst on the subject of size I'll quickly mention that a horn is very sensitive and efficient, so contrary to what you might expect, Westminsters need little power: Big power amplifiers are not essential; 40 Watts will do fine and you can go down to 20 Watts. The only caveat here is that we found we often played them very loud as part of the vastness of the experience and also because they are relaxed like no other loudspeaker. But more on this later, since we measured our power usage to find out exactly what was going on here, rather than speculating about it.

A dominating visual characteristic of the Westminster is that of huge width. The cabinets are nearly one metre wide, more precisely 980mm, or 38.5in. Standing 1395mm high they have a looming presence – even in our 18ft wide listening room. We ended up listening from 20ft away, in a 25ft long room, mainly for best bass. However, because the drive unit is concentric, placing a tweeter at the centre of a woofer, the Westminsters were consistent in their sound whether we sat close or afar: Distance made no difference to



The grilles are best removed to brighten up the midband a little; in place the sound is more 'trad'. A GR key is supplied to unlock them. Behind lie treble energy and roll-off adjustment screws. In this shot is one of our Quad II-eighty power amplifiers used in this review.

the listening experience; they were as focussed and solid across their vast sound stage 20ft away as they were up close. All Tannoys are projective, a strength of the big Dual-Concentric drive unit, but the Westminsters

especially so because of the front horn. So a Westminster experience is an anywhere-in-the-room one: these speakers fill the space.

Because of sheer cabinet size a room smaller than 20ft x 16ft would be impractical, although there are plenty of stories about far smaller rooms being used in the Far East! What I'll mention here though is that horns shut off hard at low bass frequencies so don't go down as far as you might imagine. How far down they do go is size dependent so the Westies go so far and no further, to balance size against bass extension.

They are best near-wall positioned – with listeners at the far end of the room. This lifts low bass because – perhaps surprisingly – the Westminsters are not bass heavy. But they are very tight, due to the enormous acoustic damping the room's air load places upon the cones through the intermediary horn.

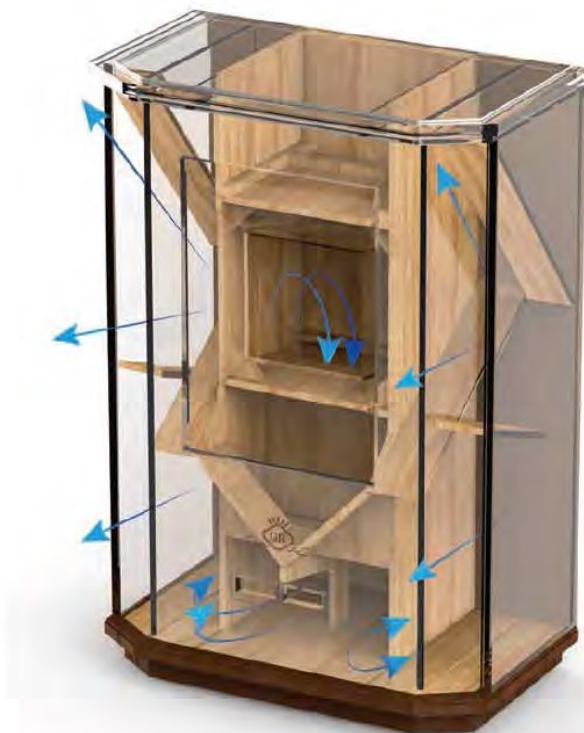
That's another reason a Westminster sounds different; it is more tightly coupled into the listening room than an ordinary loudspeaker. This reduces cone travel and distortion and increases damping, making for an easy yet 'fast' sound that doesn't wallow around.

This property of the Westminster affects amplifier choice. We soon dispensed with various transistor amplifiers as unsuitable, in the end settling for the obvious sonic



Tannoy's 15in Dual-Concentric drive unit, used in the Westminster Royal GR. A 2in magnesium/aluminium alloy dome tweeter sits at the base of a treble horn that fires out through the centre of the bass cone. This keeps bass and treble synchronised and subjectively in focus.

REVIEW



The complex internal cabinetry that forms a bass horn behind the huge 15in bass cone of Tannoy's 15in Dual-Concentric drive unit. The horn mouth is split into left and right, forward-firing side ports, hidden behind fabric grilles.

choice of Quad II-eighty monoblock valve power amplifiers. They each use KT88 power tetrodes in parallel push-pull pairs to produce 80 Watts apiece. With these amps the Westminster's opened up and bass became usefully more fulsome. It was a no-brainer, differences were so marked, yet the speakers are commonly driven by transistor amps in real life simply because they are most common – but not to their benefit. So if you win the Lottery and get to audition a Westminster, ensure it is driven by a valve amp. Valves work best at low power levels I'll note, whilst transistors work least-best at low power – and Westies need just a few Watts.

There have been Westminster's before, five versions since 1982, but Tannoy's compound horn goes back to the 1950s Autograph. The new Gold Reference versions we received are updated with cryogenically treated (deep frozen) crossovers, hard-wired in. There are level and

cut-off adjusters for the treble horn, behind the large, removable grill, so treble can be made 'shiny' or 'easy', these adjustments being subtle in effect.

The rear panel has good, solid bi-wire WBT NextGen terminals and wire bridging links for mono-wiring. And there is Tannoy's earthing terminal that grounds the metalwork of the big 15in Monitor Gold drive units. The handbook suggests screened loudspeaker cables be used to reduce radio interference, the screen being taken to this terminal, but we used standard green multi-core connecting wire alongside Black Rhodium Athena DCT++ cables.

Tannoy label the Westminster a 'compound horn'. That means it is loaded by a horn front and back, each with a different

task, and so of different design.

There is a flared horn in front of the big 15in cone. This is a mid-range horn and helps give the speaker its lower-midrange dynamic push; just look at the size of it! The squared profile in front of a circular drive unit doesn't match well either physically or visually; a circular plastic pressing would sort-of be better, in reductionist technical terms. But it wouldn't be in keeping with the wood technology of the time that could not achieve this, so you get a square front horn instead – and it does a great job. We don't listen to loudspeakers with mid-range horns like this, and doing so is a bit of a wake up call: the average domestic loudspeaker sounds deficient by comparison.

Then there is the rear horn. This is a labyrinth behind the big bass cone that expands in cross-section steadily until it reaches the open air, in this cabinet through an array of fabric covered vents at far left and right of the cabinet's front baffle.

The cabinet is made from birch plywood, covered by a walnut veneer – real wood of course. You get a tin of wax polish in the accessories kit! The massive Tannoy 15in Dual-Concentric drive unit has a mid/treble horn with large 2in magnesium/aluminium alloy dome driver mounted at the centre of a big bass cone made from natural and synthetic fibres.

SOUND QUALITY

Tannoy recommend 20 hours running in time, but our samples came from a trendy East London bar/restaurant where they had been used nightly,



The front panel adjustment panel, hidden behind the grille. At left is Treble Energy and at right Treble Roll-off. Lift and cut are available.

REVIEW

from new, for at least six months, so were well run in. Happily they were in good condition; no bar-type accidents had befallen them. I de-toxed them using a Monitor Audio de-tox CD and also felt they worked best after warming up for 20 minutes or so playing music.

For sources we used an Oppo BDP-105D Blu-ray player with its notable ESS9018 Sabre32 DAC and remote volume control, running the Quad II-eighty power amps direct, to play CD and high-res digital from an Astell&Kern AK120 acting as an external digital transport.

For vinyl a Timestep Evo turntable with SME309 arm and Ortofon A95 MC cartridge were used, coupled to an Icon Audio PS3 valve phono stage, again with volume control and feeding the power amps direct.

I have already said a lot to describe in outline how the Westminsters sound because everything about this unique product is about just that – sound quality.

Firstly, the speakers are all about achieving vast scale; playing Holst's 'The Planets' put everyone in the room within the orchestra – an immersive experience. Kettle drums in 'Mars' took on massive proportions and thundered out across the room toward us, from 20ft away. Just as importantly, however, the Westminsters sounded totally relaxed whilst doing this, in a way even big floorstanders do not (I realise in retrospect).

This is the core strength of the Westminsters: vast scale coupled with supreme relaxation. I use the term 'scale' here to describe not only the size of the sound stage but the powerful dynamic contrasts of instruments upon it. Not only did kettle drums sound massive, horns blared out with a power that was arresting. It was beyond impressive. Violins were fulsome and smooth.

I'll not say the Westminsters are without weaknesses but that can be said of all loudspeakers. Images on the sound stage are a bit diffuse compared to modern sharp-imagers, notably speakers with ribbon tweeters such as the Castle Avon 5s that we reviewed recently.

Then there's some boxiness from the huge cabinet that adds a bit of bulk and warmth to the sound overall. This gives the Westminster a traditional full-bodied character, which is what you hear initially. I mention this especially because



The rear panel gives some idea of the loudspeaker's basic profile - wide! Bi-wiring terminals are fitted.

we once borrowed Westminsters for demos at a Manchester Show, working alongside B&W 800 Series studio monitors – and the general consensus from the audience when polled was that the modern sound of the B&Ws was best. It was understandable.

What I heard previously, though, listening to Westminsters in a dedicated room at Heatherdale Audio, run by Audionote Kegan valve power amplifiers, was awesome beyond description! This was contradictory – I needed to spend time with the Westminsters to find out what they really were capable of.

Our Westminster Royal GRs sounded atmospheric and detailed, but they're more relaxing than challenging as a listening experience; I don't think anyone in the office worried too much about whether the last pin drop was clearly audible, rather than just enjoying an immersive musical experience that is beyond compare. At the same time this loudspeaker was able to sort out differing musical strands with eerie ability, making it very informative.

Then there's sheer bass power. With The Scissor Sisters 'I Don't Feel Like Dancing' spinning at 45rpm on the LP 'Ta Dah', the insistent background kick drum beat had massive power and drove the track along forcefully.

Spinning another favourite 45, this time a 12in 45rpm single of

Carol Kenyon singing 'Dance With Me', had the room trembling to the insistent synthesised kick-drum beat; it was like being kicked by a baby elephant.

Playing classic rock, The Eagles 'Busy Being Fabulous' from the CD 'Journey Out of Eden', showed a massively powerful and deliciously articulate bass line, where the bass drove the track with laconic ease and fluency. Glen Frey's vocals were, however, quite obviously on the warm side with the grilles on; removing them brought him forward. With a simple, atmospheric vocal track like The Creole Choir of Cuba's 'Preludio' (24/48) the Westminsters captured the haunting vocals beautifully; they dig very deep, teasing a fabulous sense of atmosphere out of this live vocal track.

I was surprised at just how exciting the Tannoys made Nigel Kennedy sound playing Vivaldi's 'Spring' – not that he isn't exciting! Nigel stood about 6ft tall at the end of the room, far from me, and his superb playing was as clean yet as vigorous as I've ever heard it; the Tannoys were temporally pure, picking out every nuance, as well as the scale of the English Chamber Orchestra in full pursuit behind him. Lovely: about the best I have ever heard this particular performance, not just because of its believable scale but also my ability to hear right into the soundstage. These are just

REVIEW

exciting sounding loudspeakers.

Arcadi Volodos playing Liszt's 'Valee d'Oberman' from 'Premiere Annee: Suisse' (SACD) on a Steinway was going to be made for the Tannoys – and it was. The scale of his piano was not skimped upon one little bit: it stood at the end of our room full-sized, being pounded by Volodos, in his breathtakingly masterful manner; the Westminsterers threw this into the room at me – awesome (again!). When Volodos attacked the keyboard the power of his playing, as well as his perfect timing and control, were evident. Yet from this, quieter moments fell back to a serene gentleness.

The ability to convey tremendous dynamic contrasts makes the Westminster very communicative in that it brings the skills of a top musician over, as well as the essence of the music being played. The only problem here is that everyday loudspeakers sound dynamically flat and boring by way of contrast.

We had a debate (before measurement) about whether the Westminsterers produced sub-sonics or not when playing tracks like Lady Gaga's 'Bad Romance' with measurable subsonics on the CD.

In the end we decided they

did, but differently. It was there – but with discernible musical content and pattern, rather than a large, amorphous blob of acoustic power. And measurement confirmed this, but it is all a bit different to usual.

Whilst low bass is not overly strong, it is there and under tight control. If you run the speakers at low volume you won't notice the subsonics – but as a check I ran 'Bad Romance' very loud (106dB SPL peaks) when no-one was in the building on a Saturday and – boy – did I get powerful subsonic drive, but it takes the form of a musical thread rather than a slab of low sound, so it isn't easy to recognise from previous experience of reflex loudspeakers, which most are these days.

CONCLUSION

Tannoy's Westminster Royal GRs are so different from all else, it is difficult to compare them.

OK, they do have a 'traditional' sound, warm and are full-bodied in essence.

HOW MUCH POWER DO WESTMINSTERS NEED?

Tannoy quote an amplifier power range of 20W-350W as suitable for the Westminster Royal GRs. But their quoted sensitivity of 99dB/watt is seemingly at odds with this. Just 20 Watts would give 112dB one metre away and shattering levels of 100dB many metres away. I was curious about this.

So I measured what was happening with Lady Gaga's 'Bad Romance', used because of its powerful deep bass that sends up Sound Pressure Level (SPL) readings. With an almost-shattering 100dB being reached 6 metres away from the speakers, a voltmeter set to Max-Hold, connected across the speaker terminals, registered just 4V rms. That's 2 Watts for heaven's sake!

I didn't believe it because the sums said otherwise. What our Brüel&Kjaer SPL meter showed to explain this was very little loss in volume down the 25ft length of the room, just 4dB. And this accords with the peculiar ability we heard of the Westminsterers to drive the whole room as if it had no influence. The speakers sounded almost as loud far away as close; they fill a room in every sense.

How much power do Westminsterers need? Well, 2 Watts – or you'll go deaf. Even I do not believe it – but that's the measured truth. **NK**

But that's ignoring what they do so well – and so uniquely – giving them dynamic scale like no other. I sat in front of 'our' Westminster Royal GRs for long hours – we all did – and everyone was in awe.

In spite of the flaws, the Westminster Royal GR is a breathtaking loudspeaker to hear, especially when the wick is turned up. Then they thunder like no other. If you want sheer scale and a sense of unlimited power, little comes close.

I did often wonder whether this was the loudspeaker for me ... if only my lounge was 2ft longer. And – er – my bank balance a little bigger!

MEASURED PERFORMANCE

With the Tannoy Westminster Royal GR front panel treble adjustment screws set to 0 (i.e. flat) and grilles off, frequency response is as shown in our analysis.

The red trace shows horn mouth output, showing the horn radiates sound forward up to a high 300Hz and this reinforces output from the drive unit (green trace).

This explains the sense of warmth and bass strength in the sound, as well as a little cabinet colour that comes from the horn mouths, listening whilst testing showed.

In line with theory, even a big horn like this doesn't go down far, the Westminster rolling down below 60Hz. However, the roll-down is smooth and even, taking bass down to 40Hz (-6dB). An 18ft room would provide useful modal (i.e. bass) support at 31Hz, suggesting medium-sized rooms suit best.

Forward output from the drive unit is a bit uneven, with a peculiar peak at 1.3kHz also seen in horn output. There was also a distinct step down from this frequency to 4kHz due to the grille cloth, softening the sound with grilles

on. Upper treble rises however, which is why the speaker is not dull sounding, before the big 2in tweeter reaches its 12kHz upper limit and output falls away. A super-tweeter is available from Tannoy to extend treble past 20kHz.

The treble energy adjuster altered high treble, affecting the upper mid-band little, and the treble lift/roll-off had a similar effect.

Big horns are known for being very sensitive and the Westminster Royal GRs were certainly this, producing a massive 97dB Sound Pressure Level from one nominal Watt (2.8V) of input. This is 7dB more than big floor-standers, which in themselves are sensitive at 90dB. Furthermore, they achieve this without drawing current: impedance measured a high 9.5 Ohms overall, and d.c.r. 6 Ohms.

The Westminster is a very light amplifier load, in spite of being sensitive. So even small, low power amplifiers can easily drive these massive loudspeakers.

The Westminsterers reflect the size and complexity of their cabinet, and their massive 15in bass unit; output has some ups and down (resonances) that could

likely be lessened or cured.

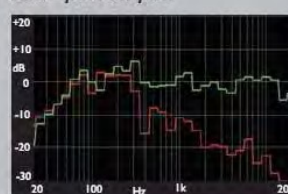
But they are still reasonably accurate in balance, if weighted toward a fulsome sound. The grilles are best removed.

In measurement these speakers are revealed as a trad. horn with some imperfections but also major strengths, including massive sensitivity. **NK**

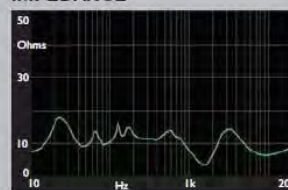
FREQUENCY RESPONSE

Green - driver output

Red - port output



IMPEDANCE



TANNOY WESTMINSTER ROYAL GR

£27,950



OUTSTANDING - amongst the best

VERDICT

Massive dynamics and vast scale: a visceral experience in loudspeakers. Awesome – and unique.

FOR

- massive soundstage
- enormous dynamic impact
- relaxed

AGAINST

- warm balance
- some box colour
- size

Vertrieb:
Audio Tuning Vertriebs GmbH
www.audiotuning.com