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Duette Plus One...

Mixing Wilson's two-way stand-mount with the passive WATCH Dog sub-woofer

by Roy Gregory

Having reviewed the Wilson Duette as recently as Issue 47, and revisited it in Issue 48, with no major (or even minor) revisions made, ordinarily there'd be no reason to cover it again so soon. But this project dovetails so neatly with our ongoing discussion of sub-woofers and adding bass extension that it's simply too good to miss. Besides, I don't need that much of an excuse to get reacquainted with what is fast becoming a firm favourite of mine.

Possessing astonishing scale, musical coherence and balance, surprising dynamics and a beguiling tonal beauty, the Duette is a fantastically musical performer. To get that degree of musical authority and integrity from a package that is at once as tractable (as in easy to place, easy to drive and easy to accommodate) and versatile as this is, frankly amazing. This is the little(ish) speaker that breaks all the rules. It's too big to be small, too expensive to be a bargain, too small to have real bandwidth and not expensive enough to be taken seriously. And it breaks those rules by performing a balancing act more impressive than the great Wallenda doing a one-handed stand, atop a chair, half way across the Niagara Falls. So sure footed is this little gem that what matters is there and what isn't you don't notice. The only area in which you can dent its poise is with serious low frequencies, where it simply can't match the weight, texture,

dynamics and transparency of bigger speakers – which is what leads us to the WATCH Dog.

We've looked at single subs and we've looked at pairs of subs. Time then to take the next step in examining the great Achilles heel of add-on bass – integration. After the issues of placement and parameter adjustment,



the greatest obstacle to the successful use of any sub-woofer is the sonic character of the device itself and how it's physically integrated into the main system. If we accept for a moment that the vast majority of sub-woofers consist of a cabinet containing one or more drivers and the electronics necessary to drive them as well as filter the signal they receive, a number of issues

immediately emerge. First and most obvious is the quality of the electronics themselves. If they are not at least as good as your pre-amp, placing them anywhere between your pre-amp and the main speakers will cause unacceptable degradation of the vital midrange. I'm afraid that, given the cost and difficulty of creating a high-quality pre-amp, few of the filter circuits

used in subs qualify. Which is why most subs are rolled up under the full-range output of the main speakers, run from parallel pre-amp outputs, or from the speaker outputs of your amplifier, again connected in parallel.

The second obvious issue is placing delicate electronics inside the vibrating chassis of a sub-woofer – especially given what we know about the vulnerability of circuitry and individual components to mechanical interference. Finally there are questions concerning not just the quality but also the sonic character or nature of the amplification itself. The need to supply serious power to generate real low frequencies (even with active equalisation) has led designers to ever more powerful amplifiers, often employing Class D operation. Now, while that isn't true of every sub, I can pretty much guarantee that whatever amp is used will be optimised for low-frequency performance – hence the popularity of Class D designs. Of course, the ►

▶ other side of that coin is that they wouldn't work very well run full-range, or necessarily blend well with your main amps that are designed to do just that. Which is in turn why so many sub manufacturers want to run their products from the speaker outputs of your amplifier – overlaying (as they describe it) the sound of the main amp onto the sub's electronics.

Now, I can see how the sonic imprint of one amp, laid across the character of another might be less obviously damaging than running two dissimilar amps side by side to furnish a single audible range. At least you gain a degree of consistency. I can also appreciate the financial benefits of shoving everything into a single box – especially as buyers seem to assume that bass from sub-woofers should be cheaper than bass arrived at by more conventional means. However, there's no question that in my experience that this approach costs you transparency and bass texture – and I don't even want to consider what the output stage of your amplifier thinks about all this. There has to be a better way – and there is.

Although the filter electronics for a sub really do need to be active, there's no requirement for them to be inside the sub-woofer cabinet itself. In fact, if we actually functionally separate the various elements that constitute a sub, we end up with three boxes – an active crossover, an amplifier and a speaker cabinet. Given that doing so is much more expensive (that's three sets of cabinet/chassis parts instead of one) less physically elegant and demands additional ancillaries such as cables, which are also far from cheap

– why would anybody bother? Because doing so enables you to overcome all those issues outlined above. The active crossover can be driven directly from your pre-amp outputs, the best place for it. The amplifier is no longer subject to the indignities heaped on it inside the woofer cabinet and what's more, if you design your speaker with care,

there's no reason why you can't use an identical amp to drive it to the ones you are using on the rest of the range.



So physically elegant it isn't, but conceptually speaking it's got a lot going for it – just as long as

quality considerations outweigh cost.

Wilson's passive WATCH Dog is exactly such a device, a derivation of an older, active version of the same cabinet, now offered sans electronics and thus with slightly reduced dimensions. Instead, there's a sophisticated active controller built into a standalone rack-mount chassis and the owner gets to choose (and pay for) his own amplifier to drive the beast. And a beast it is, a single 12.5" twin-spider driver employing a doped paper cone, massive voice-coil, a single-roll

surround of heroic proportions and a suspension so stiff it barely moves. The driver is built into a massive, bluff cabinet constructed entirely of Wilson's proprietary X material, a foot and a half wide and two foot tall and deep. The bottom edge of the cabinet opens into a full width slot port, and all 211 lbs of it sits on four substantial conical feet and spikes. The price is not insubstantial either, at close to \$6.5K, but at least you are aware of what you've paid for – every time you pick it up!

If the WATCH Dog cabinet is all about carefully applied brute force, the controller is all about sophistication. Specifically designed to be equally at home in a home theatre or two-channel system – or indeed both simultaneously – it will happily accept and switch between line and LFE inputs. It will also operate single-ended or balanced, while giving you adjustable low and high-pass filters (just in case you want to roll-off the bottom of your main speakers too). As well as adjustable slopes (6 or 12dB/octave high-pass, 12 or 18dB/octave low-pass) and a crossover frequency range of 30 to 150 Hz, you get a level control and a continuously variable phase control. Finally, there's also an optional EQ section that can be switched in to tackle specific room anomalies, allowing the user to select the frequency, Q (width) and degree of bass boost or cut. As the manual makes clear, its application is specific and using it to simply increase bass output will cause more problems than it provides "benefits". Fortunately, it wasn't required in my room. The Controller weighs in at \$2.3K and will drive either one or two WATCH Dogs, depending on your craving for bass and the depth of your pockets.

With all those options available, set-up could be a bit daunting – but then I had Pedro from importer ▶

► Absolute Sounds, and so would you. Or another, Wilson trained installer, which is the beauty of buying a Wilson product. They may be expensive but you know you are going to get the performance you've paid for because they make damn sure you do. In practice, it took longer to position the Duettes, running full-range and in free space naturally, than it did to adjust the sub-woofer. Wilson also supply a really well thought-out

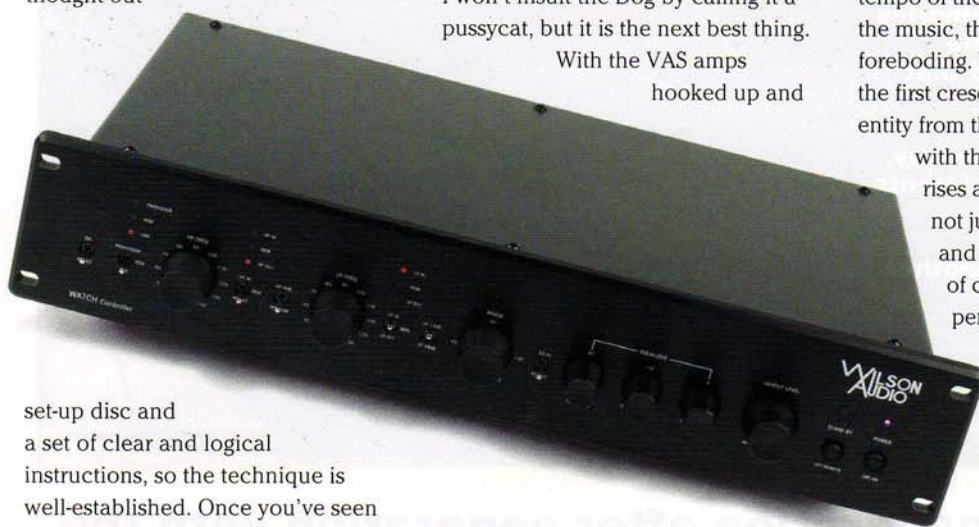
a flat 8 Ohm impedance, the WATCH Dog is a far from frightening load. Nor is there any passive crossover to get between the amp and the cone it has to control, while the ported cabinet might trade off linearity but gains power and dynamic range where its both useful and controllable by a smallish amp. Or, in other words, if you are going to offer a passive sub, don't give it electrical characteristics that demand a kW to get it moving. I won't insult the Dog by calling it a pussycat, but it is the next best thing.

With the VAS amps hooked up and

fragility of the solo instrument. There's even a gentle rumble of fading bass, just to further bring home the sense of isolation, which passes all but unnoticed on the Duettes solo. With no low-frequency notes to speak of the tension and atmosphere evoked leave you in no doubt that this is an entirely different musical experience. Instrumental positioning is much more apparent, the sweeping nature of the orchestration, as is the slow, measured tempo of the building power beneath the music, the sense of menace and foreboding. With the Duettes alone, the first crescendo grows as a single entity from the centre of the stage:

with the Dog doing its thing, it rises and swells from the floor, not just full of extra weight and surging power, but full of complex textures too. But perhaps most important of all, with just the standmounts it reaches a strain and intensity that whilst musically impressive leaves nothing for the excesses to come.

The WATCH Dog keeps everything well within the system's compass, banishing strain and replacing it with natural drama whilst leaving one in no doubt that musically (and in hi-fi terms) there's plenty more on the way. It's all about building anticipation and it's a quality critical to the music, both in its own right and as an adjunct to the action on the screen. Those echoes of 'Mars' are no coincidence, their influence so much clearer with the sub-woofer in circuit. And it's not just to do with the drums either. Listen to track four with its theme so clearly stolen from *Lt Kije*. With the WATCH Dog underpinning the sound, instrumental textures and tonality across the entire range become clearer and more natural, colours and flavours more obvious, the musical contrasts and drama more vivid. ►



set-up disc and a set of clear and logical instructions, so the technique is well-established. Once you've seen it done you'll be confident enough to play a little and refine things if needs be. We started out by driving all three speakers from three separate but identical channels of an Audio Research D150M multi-channel amp. Despite being one of the better sounding digital devices around, it was clear that the speakers could deliver an awful lot more. The problem is, finding a suitable three-channel amp, or just three channels of identical amplification full stop. Fortunately I still have in-house the three VAS Citation Sound 2 monoblocs reviewed in the last issue. Three channels certainly, but suitable? Only one way to find out...

Now, a 50 Watt valve amp might not seem like such a great choice for driving a sub-woofer, but actually, there's a few things running its way in this instance. At 89dB sensitivity and

the levels trimmed to accommodate their different balance to the ARC, listening could begin in earnest. Where better to start than the completely OTT demands of the *Gladiator* OST? I know, bass and dynamic range are only two of the things that subs do, but if they don't do those they don't do the other, arguably more interesting stuff either.

Listening with the Duettes alone, they produce a remarkably impressive sense of power and scale given their compact dimensions. But adding the WATCH Dog exacts a dramatic improvement. Take track 13, 'Barbarian Horde', as an example. With the sub in play, the lilting opening melody hangs in a huge acoustic space. The background is blacker, the air more transparent and free of grain. The effect is to heighten the contrast, enhance the delicate

► More there is and more you get.

It's not just that the music goes bigger and louder with the sub-woofer – it's the nature of the increase, the way it happens that makes it seem bigger even than it is, whilst ensuring that you hear the benefits even on solo instrument and voice, at *ppp* as well as *fff*. So, whilst the towering crescendos of *Gladiator's* battle scenes take on a properly imposing, almost monumental scale and complexity, the system holding the many instruments separate, identifiable by position, note and texture, that individual finesse and the spatial and musical coherence on which it depends gives the same presence and drama to the isolated three-note guitar phrase that opens Dolly Varden's latest album, *The Panic Bell* (cd035 at www.undertownmusic.com).

Those three notes, distinct, vibrant and immediately alive, encapsulate in a single musical moment the benefits and musical imperatives of coherent bandwidth. The sub doesn't just bring texture, tone and shape to each note, it spaces them, picks up the damping that kills the tail of the third, stretches out the space silence between it and the leading edge of the reprise. It brings intent and attack to the chords that build on the end of that first repetition, keeps each subsequent repetition present and intact as the track builds around it. Sub's might be big, visually (and all too often musically) brutal, but the bandwidth they delivers operates most importantly and obviously ay the opposite end of the scale. The top-to-bottom linearity they promise underpins the harmonic development of notes, their point and place in time and space. It clarifies the scale, the structure, the relationships within music, within bands, within individual notes and chords. It's all about expression and emotion, the grit and finesse, the humanity in the performance, communicating the music as a whole and the message it

contains. Which is why a good sub-woofer is more obvious on small-scale work, where the clarity, texture and subtlety it delivers has the space and the system the power to reveal its true nature. Move down in frequency and up in level and the demands placed on the amplification, drivers and cabinets increase exponentially. Of course, with modern switching power supplies, a small, affordable and previously unfeasibly powerful amp is possible – which is why so many inexpensive subs claim amplification measured in hundreds of Watts, if not a thousand or so... The question is, at what point do you throw out the baby with the bath water?

So much of what makes the Duette Plus One system (as I've come to call it) so musically compelling and captivating happens exactly where the best hi-fi has always happened – in the mid-band. But you don't get it without the low-frequency extension delivered by the WATCH Dog, despite the fact that I'm running the Duettes full-range. Whether you play the rhythmic convolutions of Monk and Coltrane, the exquisite phrasing of Ella, the aching poignance of Billie or the fragile duets that characterize Dolly Varden, the result is always the same. The sub-woofer delivers a more natural, more believable and more listenable result. And that's with all of 50 Watts doing the driving. 50 valve Watts at that.

The potential musical coherence to be gained by using identical amplification and cabling for the lowest frequencies should be apparent after only a moment's pause for thought. Its actual importance however is hard to overstate. If we move on a continuum from "bass doesn't matter" to "bass matters but the quality of the amp and cables doesn't" and keep on going we eventually get to the "let's overlay the main amp's sound on the bass" school of thought. In performance

terms we'd be somewhere short of halfway towards what the WATCH Dog delivers. Of course, we'd also be quite a way short of the WATCH Dog's cost, but there are two issues in question here: the quality and value of the Wilson products (used alongside the Duettes or not) and the integrity of the conceptual reasoning behind them.

I've discussed at length the cost/value equation that applies to Wilson speakers in both the MAXX and the Duette reviews. I'm not going to tread the same tired ground here. Suffice to say, if you've bought into the Duette you've bought into the Wilson way. The WATCH Dog offers a fantastic upgrade for that speaker, delivering increased bandwidth, transparency, texture, tonal colour and scale to what is already a wonderfully musical speaker. But the real gain is best expressed in musical rather than hi-fi terms. The presence and sheer musical authority that arrives in the wake of the WATCH Dog elevates the Duette (and I'd suspect the Sophia too) to a whole new level. In doing so it spreads the cost and even the domestic impact of ownership without overloading the front-end spend or amplifier budget. This is an upgrade without any perceivable downside – save the cost. A WATCH Dog, active controller and a second amp will cost around £10K plus cables, doubling the price of the Duette solution. Do you get twice the signal? Clearly not. Twice the music? twice the pleasure? Absolutely, no question. It's an upgrade that once heard you won't want to surrender. Duette owners – you've been warned.

But that only answers the first of those two questions. In some ways, as emphatic as the musical point the WATCH Dog makes might be, its conceptual impact could and should be even greater. Active sub-woofers offer all manner of (mainly marketing led) benefits. In practice, the ►

▶ passive cabinet with amplification to match the rest of the musical range delivers a less physically elegant solution, but far higher performance potential. It all comes down to the micro-macro debate. Why do you want a sub-woofer in the first place? If the answer is to reproduce some soundman's notion of what a train wreck or car exploding sounds like, all within the comfort and physical constraints of your front room, by all means go the active route.

Now consider just how difficult it is to achieve real musical coherence from a system, the lengths we go to in order to get it – all so that we can 'get' the music. Just how easy is it to disturb that equilibrium? Add a separate cabinet (or two) with different construction and materials, driver(s) from a different source, an amp or two, each with its own distinctive character and possibly a switching power supply to pollute the mains and some DSP to really screw things up. Throw in a cheap length of three-core cable to carry the signal. What chance have you really got? Okay, so I've painted the blackest possible picture of the active approach, and as we've seen, it's capable of delivering remarkably good results for the price, especially if it's carefully set up by a man who can. At the other end of the spectrum lies the WATCH Dog, \$10K of cost no object, performance dedicated engineering. The point is that



somewhere in between lies a happy median of price versus performance, more readily attained by mere mortals with all too mortal bank balances. For performance orientated, two-channel systems, bandwidth is an essential and passive sub-woofers

promise the best and most cost effective way to get it. All we need now is for a few enlightened manufacturers to throw off the burden of the AV Gods and the LFE doctrine (I think that stands for Low Frequency Excess) and actually deliver

the goods we need to buy. After all, most of the work has been done; all they need to do is brush up on their filter circuitry, house it in a separate chassis and leave the electronics out of an existing cabinet. I know it's not quite that simple, but why fight for a place in an overcrowded market when blue water beckons?

As to the Duettes and WATCH Dog, they'll be staying for as long as I can keep a hold of them; if only because of the crippling weight of the sub! This is a \$20K system that delivers \$20K worth of performance: no ifs, no buts. It does it with grace and musical beauty, reflects the quality of the driving system without placing unreasonable demands on it. It's modular and upgradeable and the performance it promises is readily achievable. Would that more high-end product was as practical and dependable! As such it's a system I could and would happily live with, which might not seem much of a recommendation given the price, until you cast your eyes over the list

of other speakers that have preceded these through my listening room door. I've described the original Duette as "probably the second-best speaker Wilson make". The WATCH Dog extends its musical and expressive range, making it a whole lot better...

Which only leaves the possibility of adding a second sub to consider. I knew I could come up with a reason to keep them here! ➤+

TECHNICAL SPECIFICATIONS

Duette:	See Issue 47
WATCH Dog	
Type:	Passive sub-woofer
Driver:	12.5" dual spider doped paper cone
Nominal Impedance:	8 Ohms
Sensitivity:	89dB
Dimensions (WxHxD):	427 x 683 x 638mm
Weight:	95.7kg
Finishes:	Various
WATCH Controller	
Type:	Active high-pass/low-pass filter
Connections:	Balanced and single-ended
Inputs:	Line-level or processor
Input Impedance:	56 kOhms s-e, 4 kOhms balanced
Phase:	0-180 degrees
Equaliser:	30-150Hz, ±10dB, Q 0.2-2.0
Dimensions (WxHxD):	482 x 144 x 292mm
Number Of UK Dealers:	6
Guarantee:	1yr
Prices –	
Duette:	£8900
Duette Stands:	£1800
WATCH Dog:	£5000
WATCH Controller:	£3000
UK Distributor:	
Absolute Sounds Ltd.	
Tel. (44)(0)20 8971 3909	
Net. www.absolutesounds.com	
Manufacturer:	
Wilson Audio	
Net. www.wilsonaudio.com	