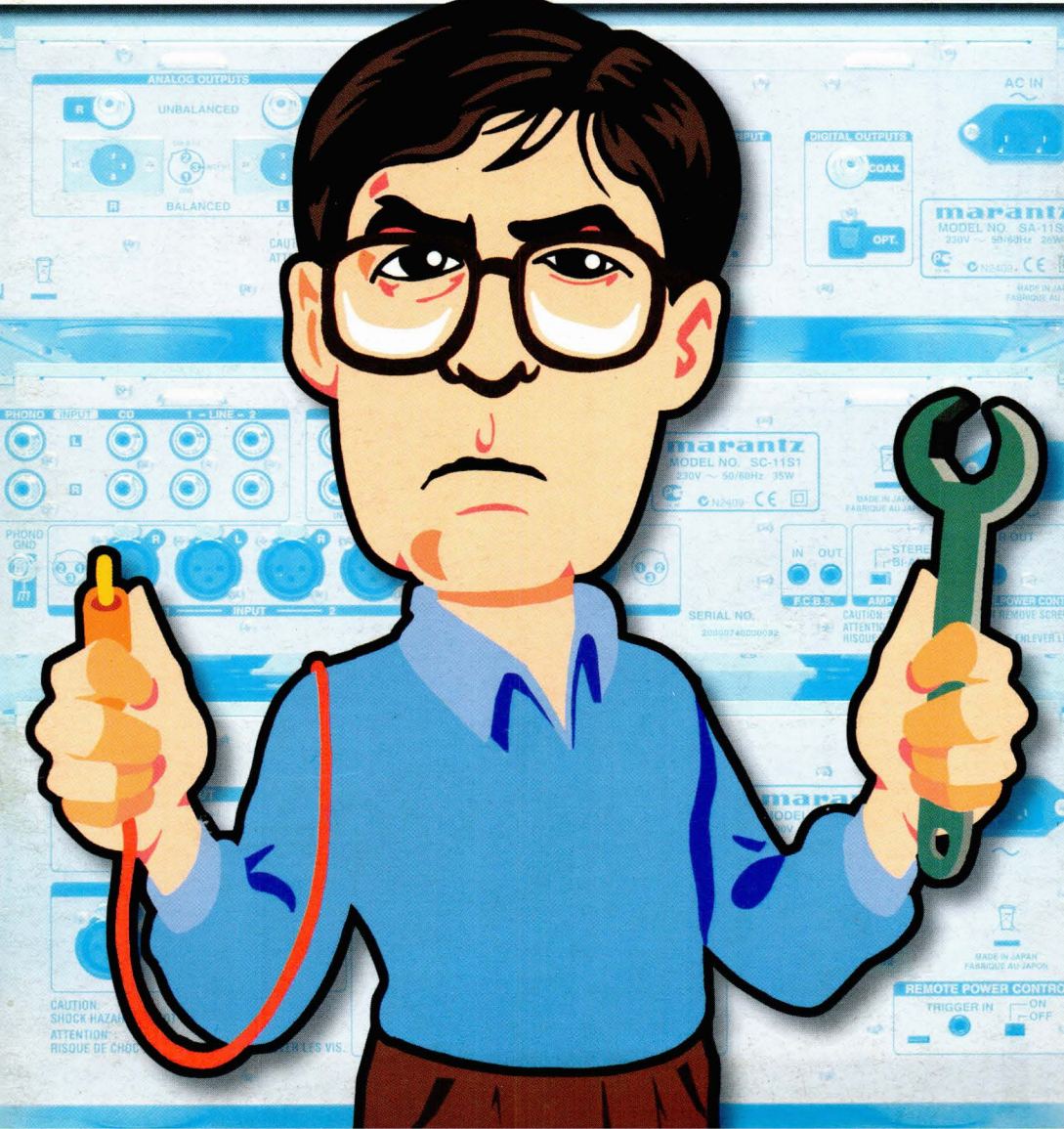


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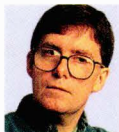
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Hi-Fi Choice's second glimpse into the tweakosphere covers some of my most recent columns. It also goes right back to the start, back in *HFC 234* (November 2002) when the *Jimmy's Tweaks* column first began. A lot has changed in the comparatively short time between then and now. Since 2002, we've had wars, famines, disasters... and Leon Jackson at number one. We've also had a new prime minister in No 10 and a new editor at HFC. Coincidence? Only if you are part of the conspiracy!

It's interesting to note how the nature of hi-fi has also changed since the end of 2002. Back then, the iPod was still in its infancy, and nobody would have imagined its impact on the audio world (just 376,000 iPods were sold in 2002; compare that to the 51.6million sold in 2007). MiniDisc was still full of possibility, but no one was sure what to do with SACD or DVD-Audio. The talk at the time was the end of stereo and the rise of multichannel, and the great stereo revival was still a few years away.

The rise of stereo again offers new hope for tomorrow's tweaking. The last generation of music lovers turned their Dansette players into LP12s and started playing with cables, tables and everything else not long after. Who knows what will happen when the iPod generation start playing hi-fi games?

Assembling these past masters highlights some potential problems for downloaded music in the future. It sounds like Dark Ages stuff today, but most of these early Tweaks were sent on floppy disc instead of email. The original page files stored on CD-R were in a format that is unrecognisable by the programs used five years later and many of the discs were already degraded to the point where much of the data held on them would be unreadable anyway. Later Tweaks were retrievable, but it's perhaps a testament to the old ways that the most survivable versions of old Hi-Fi Choice editions were the end product – the paper magazines themselves. One has to wonder how long a downloaded file will survive today.

Jimmy Hughes

Speaker placement

Published in November 2002 (HFC 234)

25 Speaker placement profoundly affects tonal balance and stereo soundstaging. Increasing spacing maximises left/right separation. However, taken too far, the impression of instruments and voices being 'placed' at specific random points between the boundaries defined by the speaker enclosure is lost.

Subjectively, the stereo soundstage will only extend seamlessly from left to right if you achieve a good solid central image. Play a mono recording to

test this. If it's working correctly, you should experience the music coming from a tight narrow point midway between the two loudspeakers. If not, then check the cables between the speakers and the amplifier for correct phases/polarity. Then experiment – angle the speakers towards your listening seat; move the speaker enclosures closer together or further apart. Your goal is to have a precisely defined central image and an integrated stereo soundstage, with broad left/right extremes, a solid focused centre and everything in-between.

“Your goal is to have a precisely defined central image and vivid stereo soundstage.”



Shorting unused outputs

Published in December 2002 (HFC 235)

24 Back in the seventies, many quality Japanese amplifiers came supplied with shorting plugs – blanked-off RCA-type phono plugs that had their positives and negatives connected together.

You plugged them into unused audio inputs, though at the time no-one seemed to know why – there was nothing mentioned in the instructions. Years later, it was realised that 'shorting' unused inputs actually improves sound quality,

making things sound tighter, firmer and cleaner in the process.

Alas, few (if any) modern amplifiers are supplied with shorting plugs. But you can make your own. Simply get a phono plug, and solder the pieces of wire between the signal pin and earth. Insert plugs into all unused inputs on the back of your amp.

Also 'plug' your CD player's unused digital output, but take care with analogue output sockets like Tape Out – if these are unbuffered, you'll lose volume and worsen sound quality by shorting-out.

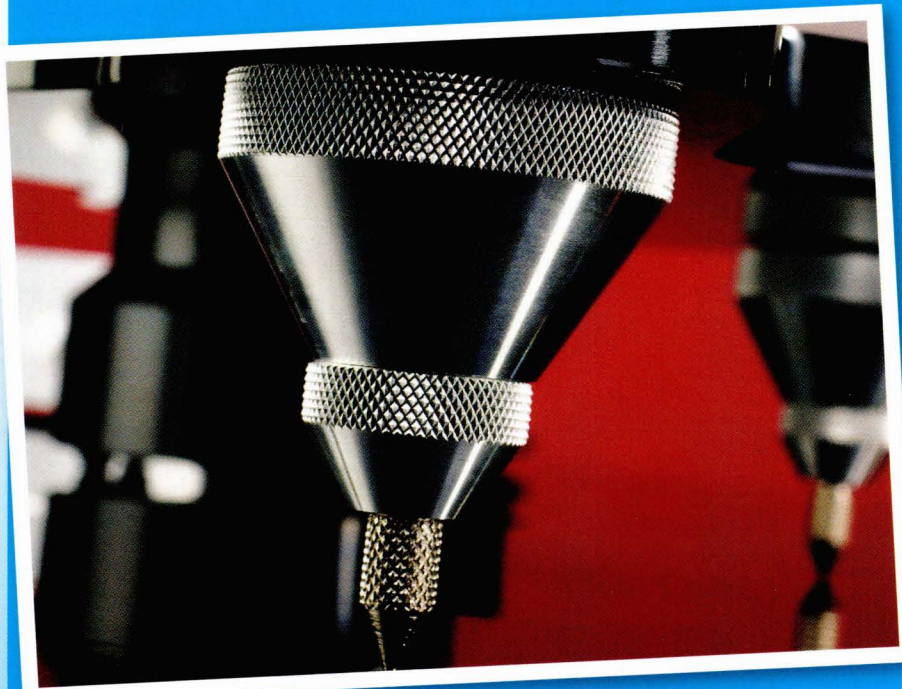


Spike adjustment

Published in *Awards 2002 (HFC 236)*

23 Spiked feet can be a mixed blessing – the increased tightness and control are palpable, but there is a danger that you might sacrifice a certain relaxed ease and natural warmth. If you're using spikes and want to get the best out of them, careful adjustment is critical. This means setting the relative height of each spike exactly so that there's no rock or play – not easy when four points are used. To find the correct height, use a spirit level and make your adjustments without load.

With a speaker stand, remove the speaker and adjust the spikes so that the stand sits firmly on the floor, then tighten the locking nuts. Put the speaker in place and check for movement. This should eliminate situations where the spikes are slightly out of kilter, but the mass of the item supported disguises this by distorting the shelf or frame. It's especially important with shelves which are made from glass or other hard materials.



Talking over the music

Published in June 2003 (HFC 242)

22 Ever noticed how some hi-fi systems sound 'loud' in the aggressive, unpleasant sense of the word, even when played at fairly low volume levels? Some listeners want their music to sound forward and penetrating. But

being played, indicates a quality hi-fi system. The louder you can play things without having to shout to be heard over it, the better the system. Real musicians playing live without amplification in a good hall rarely seem 'loud' – yet the sound has a scale and presence even the best hi-fi struggles to

“Quality reproduction should exude an air of ease and transparency.”

quality reproduction should exude an air of ease and transparency that makes loud passages thrilling and immediate without being overbearing.

An easy way to test this is to talk as the music plays. Being able to speak in a normal conversational voice and still be heard clearly over the music, while simultaneously listening to what's

match. Of course, if you are listening to amplified music of any sort, this talk test quickly proves impossible. The sheer volume of PA electronics (or even a 20-watt valve guitar amplifier driving a couple of 300mm drive units) will soon out-shout any speaking voice and the same effect is often replicated when the music is played at home.

Optimum tracking force

Published in July 2003 (HFC 243)

21 Nearly all pick-up cartridges come with a fairly broad range of useable tracking weights – say from 1.2g to 2.2g. But how to decide which value

A low tracking weight usually gives a brighter, leaner tonal balance, greater liveliness, and increased sharpness and attack. Setting the playing weight towards the upper limits recommended ensures

“Secure, stable tracking is the basis of good LP sound and should be the first priority.”

represents the optimum? While there are certain audible benefits to be had by adjusting the playing force so it leans towards the minimum value suggested by the maker, in the long run it's often better to veer in the opposite direction.

superior tracking of loud complex passages, break-up or distortion. Bass will be fuller and heavier, with a smoother treble and lower surface noise. But secure, stable tracking is the basis of good LP sound and should be the first priority.

Find the optimum volume

Published in August 2003 (HFC 244)

20 Although the volume level at which we listen to music is very much a matter of personal choice, there is usually an optimum setting that brings the sonic picture into its sharpest focus. Although there are supposed standards to CD output, this ideal volume varies from player to player and recording to recording. Played too loud, music can become hard-edged

A natural, believable loudness depends to a large extent on the tonal balance and acoustic perspective of each recording. For example, music recorded in a large spacious hall often sounds most convincing when played at medium/low volume levels. Close, forward recordings should be played louder to highlight the impression of immediacy and attack. A good hi-fi system convincingly recreates an acoustic impression of

“A natural, believable loudness depends on the acoustic perspective of each recording.”

and aggressive, but played too quietly, it can lose colour and impact.

space and depth, or crisp dry detail; whatever's most appropriate for the recording being played.



Tone controls and when to use them

Published in September 2003 (HFC 245)

19 There was a time when all amps had tone controls. Then, from the late 1970s onwards, it became less fashionable to offer bass and treble adjustment. Thankfully, many modern

If your system sounds on the thin side and overly forward, try a little treble cut and some bass lift. Conversely, if things sound a little dull and heavy, then try cutting the bass slightly and lifting the treble. Often, combining slight correction at both

“If your system sounds on the thin side, try a little treble cut and bass lift”

amplifiers are not so hair-shirt as their counterparts of the past, and limited degrees of tonal adjustment are offered – along with a button that switches the tone controls out of circuit for purists!

ends of the frequency spectrum (say, a little bass lift coupled with a gentle treble cut) brings the sound into a truer balance tonally, than the separate adjustment of bass or treble alone.



Selecting tracks on a CD player

Published in October 2003 (HFC 246)

18 Here's a strange one. For some reason which I've been as yet unable to fully fathom, virtually all CD players (irrespective of make, cost, or vintage) sound best when you select a track from 'Stop' and go straight to it. Using either forward or reverse 'Search' or pressing and releasing

'Play' to start the music. Listen carefully, then press 'Pause' to stop the music. Now release 'Pause' and listen carefully again. The music should now sound fractionally quieter and less vibrant. Test again by pressing 'Stop', then 'Play' – the sound should improve. Yes, this sounds crazy, but it really does work... try it.

“All CD players sound best when you select a track from ‘Stop’ and go straight to it.”

'Pause', seems to take a little of the freshness and brilliance from the sound. Try this experiment.

Chose a well-recorded CD – something with presence and lots of overtones – press

Fortunately, it doesn't seem to matter which track you choose or how you select it, so long as you cue from 'Stop'.

Otherwise, we'd all be limited to playing discs through from track one!

Subwoofers

Published in November 2003 (HFC 247)

17 When you add a subwoofer to your hi-fi system, there's a tendency to adjust it so it's perhaps a shade louder than it ought to be. It's only natural after all – having paid good

effect is less obvious. Often, you'll find 'less is more' and that by reducing the sub's volume level to near-inaudibility, you paradoxically get a bigger effect. Not necessarily in terms of room-shaking bass, but a subtler tonality with greater

“By reducing the sub's volume level, paradoxically you get a bigger effect.”

money for the darn thing, you want to be reminded of its presence – literally and as often as not pretty much constantly.

So... go for it! For a while at least.

Indulge yourself for a few weeks. But, when the novelty wears off, try turning the sub down so its

spaciousness and depth. How do you know you've got the 'correct' volume level? Easy! The sub won't draw attention to itself, yet there'll be a distinct loss of richness and dynamics when it's switched off. If you can hear the sub rumbling in the room, it's set way too high.

Speaker grilles

Published in February 2004 (HFC 250)

16 Nearly everyone assumes speaker grilles are sonically a 'Bad Thing' – they may make the speaker look more stylish and attractive, but always make the sound worse. It's certainly true that most speakers sound sharper and more open with the grilles removed, but is that necessarily a good thing?

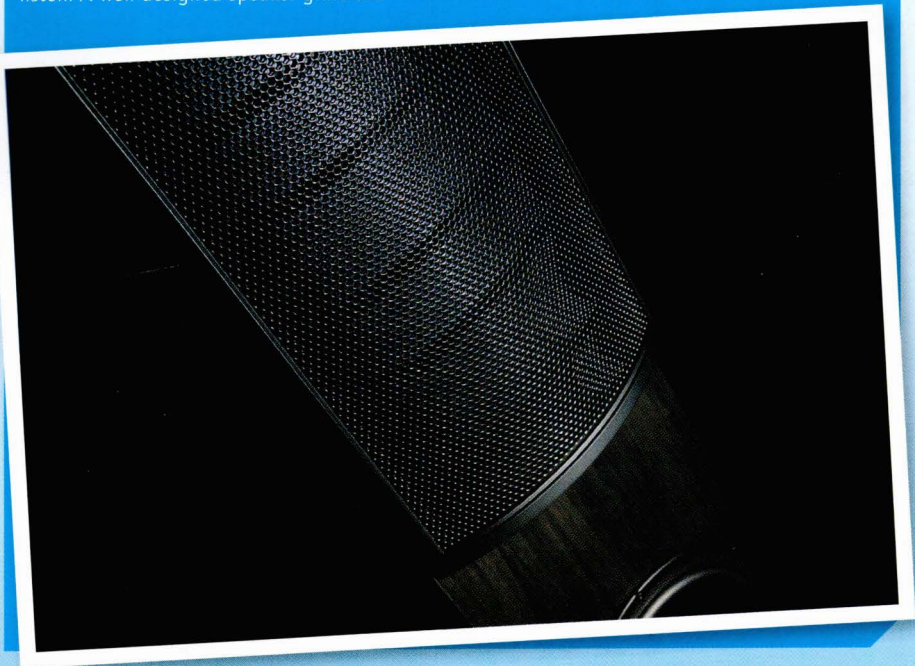
help create a more homogenous and integrated sound, with better balance between bass and treble extremes. If you always listen to your speakers minus the grilles, try digging them out and reinstating them.

Spend an evening listening to music (make that a *relaxing* evening – avoid making A/B comparisons!) and see if

“Many hi-fi systems sound so sharp, you risk cutting your ears when you listen.”

Many hi-fi systems sound so sharp, you almost risk cutting your ears when you listen. A well-designed speaker grille can

things sound more enjoyable and easier to assimilate with the grilles in place.



Wintertime spring cleaning

Published in December 2006 (HFC 288)

15 It's been said on a regular basis (even in previous *Jimmy's Tweaks*), that it's important to periodically treat your equipment to a good clean and general tightening up. It's amazing how many systems scrub up so nicely, just a few minutes work can put off that next purchase.

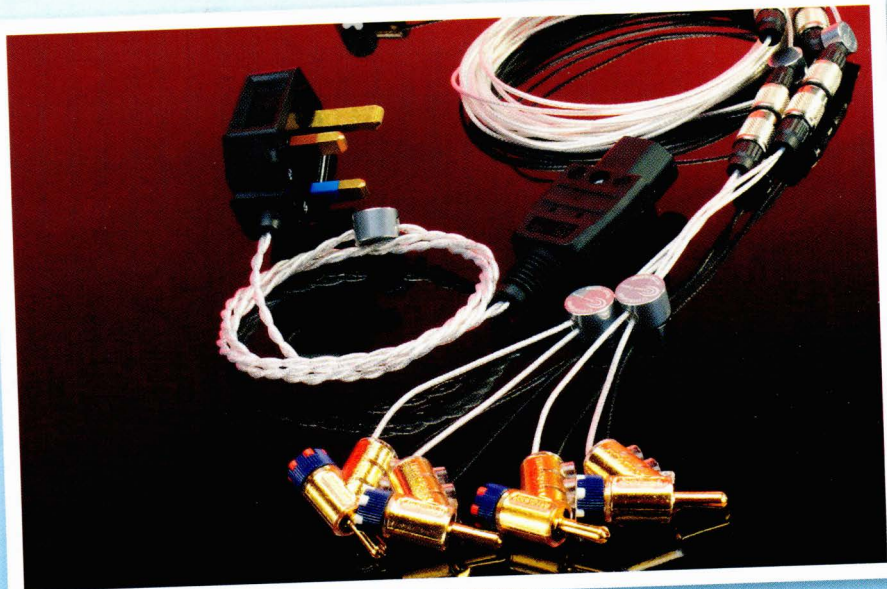
better still – get good quality 'cold welded' crimped plugs fitted.

Now, tighten every bolt and spike in the system and ensure all tables and stands are level. You can even do the same to electronics with exposed bolts and screws – it's surprising how many come slightly loose over the years.

“It's important to periodically treat your equipment to a good clean and tightening up.”

Turn everything off at the mains. Plug and unplug every component a couple of times. If you have bare wire terminals, strip back some more wire to expose fresh copper or –

You can even tighten the surround screws on loudspeakers, but remember to take great care when being adventurous!



Over-egging

Published in April 2004 (HFC 252)

14 Let's say you buy a set of the latest spiked feet, or perhaps a snazzy equipment support platform. You try it, and it significantly improves the sound of your hi-fi system. So much so, you do a few feverish calculations to work out how much it would cost to put the same feet or platforms under each item in your system.

“Often, what you end up with is an exaggerated, over-the-top result.”

But – is that the right thing to do? It's logical to assume that because it worked once you'll get six times the improvement by buying six more. Unfortunately it doesn't always work

that way. Often, what you end up with is an exaggerated over-the-top result. Why? Because the effect each change makes is cumulative in precisely the same area. You end up over-egging the pudding.

It's not that the perfect accessory has gone bad, but simply that too much of a good thing can be worse than too little. If one product is improved, borrow a second

sample for the next product, and so on. Listen out for changes – good and bad – with each successive addition. And watch out for the point when enough is enough.



Play it all

Published in May 2004 (HFC 253)

13 Sometimes you'll see a loudspeaker described as being "great for rock 'n' roll", for example. And then again you might find another that's described as being best suited to classical music, or even "perfect for afro-jazz-fusion" (these descriptions can get quite narrow). Of course, different types of music can place completely different sorts of demands on the equipment you're using. The person who listens to mainly chamber music at moderate volume is going to have completely different requirements to someone who likes rock played at ear-splitting levels.

It's impossible for any electronic product to be all things to all people, just as it's pretty much impossible for an instrument to do the same. Would Jimi Hendrix have been as noteworthy if he'd recorded *Electric Ladyland* on an Spanish guitar? Would Glenn Gould's famous Bach renditions worked if played on a Hammond organ? However, we can get very close to this ideal with good audio. A good hi-fi system is one that copes successfully with extremes – delicate and refined for naturally recorded acoustic instruments, and big and bally for rock. The more your system encompasses such extremes, the better it is.

“The more your system encompasses such extremes, the better it is.”

Which output should I use?

Published in June 2004 (HFC 254)

12 Many transformer-coupled valve amplifiers offer speaker output terminals of differing impedance. The idea is to match the amplifier to your loudspeakers. So, if you've got eight-ohm speakers, you'd use the eight-ohm output terminals. Theoretically, the 'correct' impedance match is the one that gives the

loudest sound, that would be the most suitable match for your speakers.

However, nearly always the lowest impedance tap (usually four ohms) gives the best sound, tending to be tighter, cleaner and better controlled. Why? Because you're driving your speakers from the lowest source impedance. Unfortunately, the penalty is a slight loss of

“Theoretically, the 'correct' impedance match gives the greatest volume level”

greatest volume level. So, if the amp in question offered output impedances of four ohms, eight ohms and 15 ohms, with 15 ohms giving the

power – not always something you can accept with tube amps. This perhaps explains why many 'valve-friendly' speakers are four ohm loads.

Lights out!

Published in July 2004 (HFC 255)

11 Although the Display-Off facility on many CD players (and some amps too) is often included for reasons that are more aesthetic than sonic, it's nevertheless the case that sound quality improves when the lights go out. Why? Well one reason is that the light places a very small drain on the

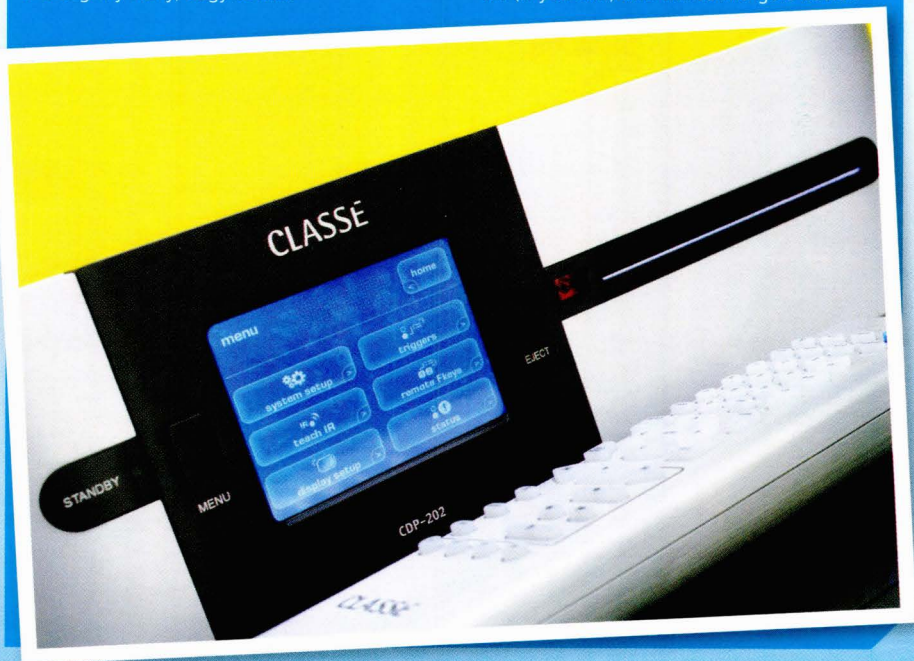
power supply. But a more significant reason is that lights create noise which finds its way to the supply rails. The result is a slightly fuzzy, edgy sound.

Get rid of the lights and sound quality improves, becoming firmer and cleaner with superior focus and fine detail. It's probably true to say that the adverse effects of lights and displays is far less than it used to be, as manufacturers take steps to minimize any potential problems. But you can often still hear some benefit

“It’s nevertheless the case that sound quality improves when the lights go out.”

with the lights switched off. Try it!

The same applies to digital audio outputs, if they are unused. Switch them off (if you can) and the sound gets better.



Take care of your ears (1)

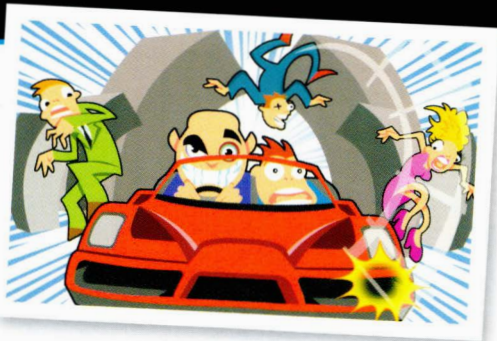
Published in August 2004 (HFC 256)

10 Suppose you're about to visit a hi-fi dealer in order to audition some equipment, and you're traveling by car. It makes very good sense to arrive early, if possible, in order to allow your ears time to adjust. Cars can be quite noisy. So a journey lasting an hour or more can noticeably affect your hearing. The effect is soon over, but

“Cars can be noisy; a journey lasting an hour or more can noticeably affect your hearing.”

even so, it's likely to be at least half an hour before your ears recover their sensitivity and bandwidth.

Exposure to high-ish levels of noise tends to mute the ear's high frequency response, making it difficult to listen critically. Sometimes, when your



ears are still recovering from a bout of noise pollution, listening to hi-fi can actually be painful and unpleasant – particularly if you play something

too loudly to compensate for the ear's temporary loss of sensitivity. So give your ears time to adjust and settle down, because you'll choose a better class of system if you do.

Take care of your ears (2)

Published in September 2004 (HFC 257)

9 If you're demonstrating hi-fi – or simply listening alone – it's a good idea to start with music that's fairly simple and not too demanding. Your ears need time to adjust.

Unfortunately, this goes against our (not really) better judgment, which seems intent on rolling out the big guns the moment you sit down. Immediately putting on a loud dynamic complex piece to impress a friend (or yourself) has the exact opposite effect if your ears aren't ready. In much the same way your eyes adjust to bright light, ears alter their sensitivity according to levels of ambient noise.



As ambient noise drops, the ear's sensitivity increases, making it possible to hear things with increased subtlety and fine detail. This is one reason why hi-fi systems sound better late at night; ambient noise has decreased and your ears have regained their sensitivity. But this means if you roll out the power chords, the death metal and the *1812 Overture* as an opening gambit, it will take longer to be able to listen more discerningly.

Take care of your ears (3)

Published in October 2004 (HFC 258)

8 If you love good sound, suffering from bunged-up waxy ears can be hell. Invariably, one ear tends to sound more bunged up than the other, which leads to a lop-sided stereo balance, and unpleasant 'pressure' effects. Somehow, being able to hear less well out of one ear is worse than

to keep your ears free from infection, but it can work against you. In drastic cases the only answer is to have your ears syringed.

This is an uncomfortable experience and needs to be undertaken by an experienced medical practitioner. But the difference afterwards is phenomenal. Although your hearing (for a few

“This is uncomfortable and needs to be undertaken by a medical practitioner.”

being able to hear badly out of both – it creates a sense of unbalance as well as the restricted hearing. Cerumen (ear wax) is a natural defence

weeks at least) is a mite too sensitive, it soon adjusts. The simplest, least expensive way to upgrade your hi-fi.



Making hi-fi and home cinema meet

Published in February 2005 (HFC 263)

7 If you try to slot home cinema into a hi-fi system, it's wise to remember that sticking a conventional cathode ray tube TV between your speakers can ruin the sound. It destroys the central image and, worse still, those internal speakers inside the TV act as passive radiators, influencing the sound of the hi-fi system for the worse. The sound is slightly improved by swapping the CRT set for a wall-mounted plasma or

consider switching to 'phantom' and let the main speakers take over the centre speaker role. You could also do without a subwoofer, for the same reason, although subwoofers do hold their own charm for audiophiles, it must be said.

Since this particular Tweak was published three years ago, a lot has happened both to hi-fi and home cinema. Many of today's cinema systems

"A dedicated centre speaker will undermine stereo, even when not in use."

LCD monitor, but the internal fans and speakers (if fitted) do your hi-fi no favours.

A dedicated centre speaker will undermine stereo, even when not in use. Unless it's a must-have,

feature a relatively quiet flat screen TV on the wall, well away from the speaker axis and only use two speakers, all of which is great for hi-fi. Of course, the quality of those £15 DVD players is not so great...

"Mens sana in corpore sano"

Published in February 2008 (HFC 303)

6 Juvenal's famous Latin phrase translates as 'a healthy mind in a healthy body' and it's perhaps one of the most important tweaks to any hi-fi system. Let's start with the healthy mind bit... music has powerful mood-enhancing abilities, so listening to Billie Holiday singing *Gloomy Sunday* when you are chock full of melancholy is not a good idea. On a more trivial level, although music can cheer you up, don't expect your hi-fi to sound good while it's doing so. If you are listening to your hi-fi to unwind from a long, hard day at the office, begin the process with a long bath. It works!

Now the healthy body part – in general, the healthier you are, the better your hi-fi sounds. This is especially true of alcohol consumption – a glass of fine wine may well enhance the music listening experience, but eight pints and a curry will do nothing but harm. Especially when you come to, only to discover you've been listening to AC/DC on repeat at full volume all night... and so has the rest of the street.

Fortunately though, you don't need to be able to run a marathon or bench-press a Land-Rover to appreciate good music on great hi-fi!

Evaluating upgrades

Published in January 2003 (HFC 237)

5 Although first impressions are important, don't get too carried away by the excitement of the moment when you are ringing the changes. It's easy to be over-impressed by alterations that trade listenability for superficial 'improvements' in hi-fi terms.

reaction. But pay particular attention to your response a day or two afterwards. If, a few days later, you arrive home, eager to switch on your hi-fi system, and immediately think "That sounds great!", chances are, you have made changes that really are for the better.

“Don't get carried away by the excitement of the moment when ringing the changes.”

Your new sound may be more lively and exciting but is the music as communicative and accessible?

When evaluating things like component changes, or a set of replacement cables, by all means take account of your initial

Every change has novelty value, and you need time for the novelty to wear off before being able to make a considered long-term judgement. This is why the home demonstration, if possible, is vital.



Choral music

Published in November 2005 (HFC 273)

4 Each type of music has its own special requirements when it comes to being reproduced successfully. But some kinds of music are more demanding than others. In the pioneering days of shellac 78s, the solo human voice proved very compatible with the limitations of early discs and horn gramophones. So, many of the earliest records are of solo singers.

By way of contrast, massed choral voices proved very difficult and demanding, creating severe intermodulation distortion and unpleasant tonal 'hardening'. Although modern hi-fi systems cope much better, music that contains massed voices still poses a stiff challenge. The dynamic power of a



large choir can be awesome, and the combination of lots of individual voices (each with slight pitch differences) can make all but the best systems sound congested and edgy. Speaker coloration is made embarrassingly obvious, too. So, if your hi-fi system can successfully reproduce choral music, it'll cope with anything!

Beating the boom (1)

Published in March 2007 (HFC 291)

3 Boomy bass is one of hi-fi's occupational hazards and many systems suffer from the problem. It might seem counter-intuitive, but adding a subwoofer can often help to tame the bottom end, making it sound tighter and cleaner.

“Boomy bass is one of hi-fi’s hazards, and many systems suffer from the problem.”

You'd think that extending the bottom end by adding a sub would exacerbate any bass boom problems you might have, but (paradoxically) the opposite is often the case. Most subs have a phase switch, and the 'correct' setting is to have

this match the phasing of your loudspeakers. If, however, you switch the sub to the opposite phase (reverse absolute phase) you can effect a degree of upper bass cancellation over the frequencies that both sub and main speakers cover. This can be incredibly effective at

controlling bass boom – even in situations that are almost a lost cause. Some hi-fi manufacturers use this canny little trick when demonstrating their equipment in boxy boomy hotel rooms during shows.

Beating the boom (2)

Published in June 2007 (HFC 294)

2 If you've a problem with your system's low frequencies not sounding as clean and tight as you'd like, it's natural to explore possible cures that relate to the bottom end. Adding a subwoofer is

control, as well as making your system image better and sound more airy and holographic.

The supertweeters only need contribute a tiny amount of sound – I use a set of Townshend's myself, and have them set on 1, the lowest

“It's amazing how adding a good set of supertweeters improves bass tightness.”

one option, or perhaps a new set of speaker stands. But also consider something that might not seem like a suitable remedy; add some supertweeters! It's amazing how adding a good set of supertweeters (like Townshend's Maximum Super Tweeters) improves bass tightness and

possible setting. Don't increase the output of the supertweeters in the mistaken belief that their influence will be increased accordingly. I find the reverse to be the case – that they have a more profound overall effect when they're set to minimum. Very strange!

The ultimate tweak – de-tweaking your system

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1 Every now and again (well, once a decade or so) it's time to really take out all your pent-up frustration on the tweaking products. If you are the kind of person who can never quite settle, changing this, adjusting that, there's a lot to be said in going all Cultural Revolution on your hi-fi. Okay, maybe not the full *Little Red Book* version... there's no need to parade 'reactionary' amplifiers in the street, but it's no bad thing to strip away every single modification out of the system and go right back to basics.

Sometimes, by adding tweak upon tweak you can drift far from an accurate presentation of music. By stripping back to the original system, you can see how far you have gone and whether every tweak was worth the effort. Then, you can have the fun of working out which ones to put back! And so the

cycle of tweaking goes around again. When you finally rip out all those past tweaks, it also gives you a chance to remember all hi-fi's long-forgotten fads!





Pick of the Tweak

So there you have it! 50 of the best – and some of the weirdest – tweaks you can think of. Is it worth trying the lot? Of course, but not at once... that way lies madness. Fortunately though, many of these tweaks follow a similar pattern – tighten this, straighten that, clean and organise, test and test again. Whether it makes a sonic difference or not, it can't hurt to have your speakers level and equidistant, with tight locknuts and clean speaker terminals. Best of all, tweaks like this are free... all they take is time, and possibly the odd skinned knuckle.

These simple free tweaks have a two-fold benefit. Soon, it will be spring-cleaning time, and attacking your terminals with some audiophile version of Duraglit and cleaning your hi-fi equipment shows that you are doing your bit (it also prevents domestic management from hosing down your equipment in spray polish with added silicone). It's also a way of feeling like you are engaging with your hi-fi without ending up at a dealer and hitting the credit card.

Okay, some of these tweaks might be 'left field'. In fact, some of them might be in another field altogether (aligning the screws on your mains plug, for example). But from a strictly scientific perspective, we are already in uncharted territory by simply buying anything more exotic than bell-wire as loudspeaker cable. In that sense, the impetus to buy better speaker cable is no more or less odd than ensuring all your mains screws are in alignment. So, the best thing we can suggest is to try these tweaks out. If you can hear a difference, and you like the difference, go for it. If not, no harm done.

Of course, always remember that a hi-fi system is connected to the mains and if you are poking round your system, always remember to switch it off first. You and high voltages are not compatible. Some amplifiers are surprisingly easy to damage too... all it takes is a short circuit connection between the speaker cables. Similarly, remember that the power amp is the first thing to turn off and the last thing to turn on – disconnecting the phono cables on the preamp while the power amp is still powered up can damage speakers. And always approach the inside of hi-fi equipment with caution, even if powered down. Not only will your actions void any warranty, not only do capacitors store charge after the amp is disconnected and could give you a nasty jolt, but you might build up a static charge that can kill the logic circuits of any product. If you aren't an electronics engineer by trade (or inclination), fiddling round inside your

“The best thing we can suggest is to try these tweaks out.”

expensive hi-fi is at best an exercise in wallet-draining vandalism, at worst a suicide attempt.

Even the connections should be approached with caution. Never, ever yank cables from their sockets, especially as some connectors unscrew or have a disconnecting system. Tug on these and you could pull the cable out of its plug, or even pull the socket board out of place, turning your hi-fi component into an expensive brick. **HFC**

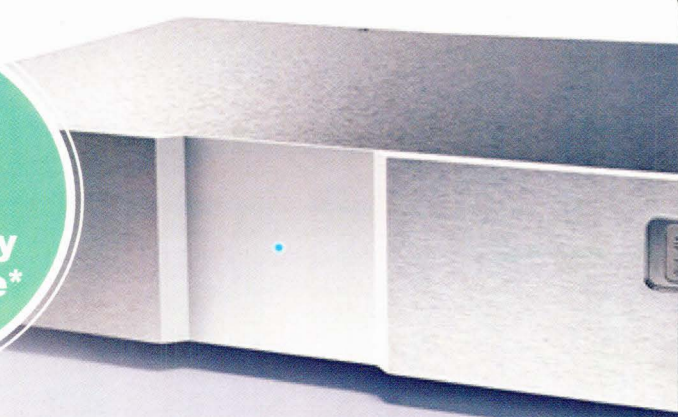
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