About The Author
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Alex first picked up a bass when studying engineering at university, and his quest for sonic perfection led him to found Barefaced Audio, while also leading The Reluctant, an alt-ska/funk outfit.

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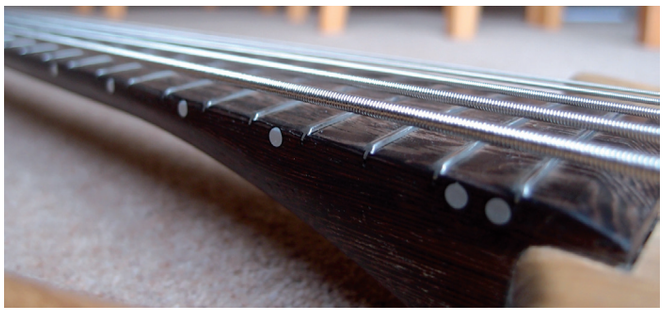
This column is brought to you in association with Barefaced Ltd who manufacture high-output speaker cabs for the gigging bassist. Barefaced have recently launched their new Big Baby and Big Twin cabs, the most accurate and extended range bass cabs ever made. An archive of previous articles plus a glossary of terms can be found at **www.barefacedbass.com**

Tone Starts At The Instrument ...



... and you need your bass to be set up as well as possible for the way you play. Setting up a bass (or guitar) is a fairly straightforward process but one that many bassists prefer to leave to their tech – and unless you visit that tech repeatedly you're unlikely to get the optimum set-up for your playing style. A common request is for techs to set up an instrument to get the lowest possible action without buzzing – but that depends on who is playing the instrument, how hard they pluck, where they pluck, the direction they pluck in and whether they use fingers, pick, thumb, if they slap, and so on.

Fret Stoning

You'll never succeed in setting up an instrument properly if the frets (or the fingerboard if you're fretless) aren't perfectly flat from top to bottom of the neck – this is definitely a job for a tech, and while they're at it they'll give your instrument a preliminary set-up; consider that set-up a starting point, not the definitive set-up for your style.

Nut Depth, Relief And Saddle Height

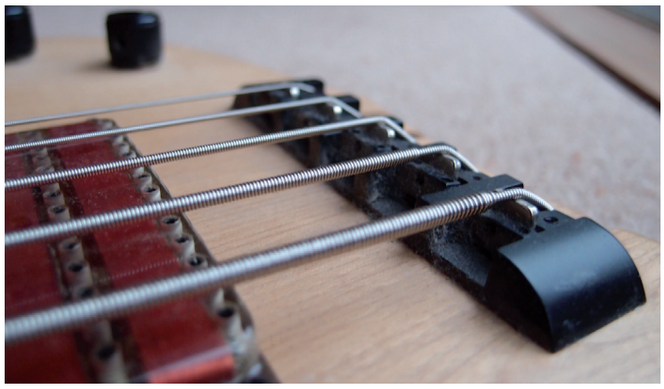
Nut depth is how deep the nut slots are cut in the bone/brass/graphite/wooden nut. Some basses have an adjustable nut which uses Allen screws to move up and down so you can tweak this easily (but they can have a habit of slipping over time), while with conventional nuts the only way to adjust them is with a file (to cut them deeper), or with the careful application of superglue to build them up again (although this only goes so far), or by shimming the nut. To check the height of your nut, fret each string at the second fret and look at the clearance above the first fret – you want this to be fairly even from string to string, with the lower strings having more clearance than the higher if need be. If you have a zero fret then there isn't much tweaking room, short of stoning that fret lower or refretting it to go higher.

Relief is the bend in the instrument's neck – to check this you fret the first fret and last fret and look at the clearance at the middle of the neck (somewhere around the ninth fret). As a starting point you only want a small amount of relief. If you put on lighter-gauge strings you'll need to loosen the truss rod a bit (otherwise the neck will lose all its relief), while if you put on heavier-gauge strings you'll need to tighten the truss rod a bit (otherwise you'll have too much relief). Only ever adjust the truss rod by a quarter turn at a time – and push or pull the neck in the direction you want it to move at the same time. Then let it settle for some hours before checking and adjusting again. Be patient or you could snap your truss rod!

Saddle height is the adjustment of the string height at the bridge end. As with the nut height, you want this to be fairly even (fret at the 15th fret and check the clearance at the last fret), erring towards being higher on the lower strings.

Getting The Action Right For You

The 'action' (i.e. the distance you have to push each string down at each fret to 'stop' the note – 'stop' is a term from stringed instruments, hence the 'double-stop' term for playing two notes at once) is the result of the combination of bridge saddle heights, neck relief and nut height, in descending order of importance. If the action is too high at a certain string/fret combination it will feel too stiff. If the action is too low it will feel too soft and/or there will be fret buzz. This is all very personal – it's about setting the bass up for you and only you; give that bass to someone else and they'll say the action is too high or too low, that it's too hard to play or that it buzzes too easily, but that doesn't matter one whit. It's all about you! If the action is too high across the whole neck, bring the bridge saddles down; too low, move them up. If it's the right height down near the nut but too high further up the neck, tighten the truss rod to straighten the neck (reducing the relief); too low further up the neck, loosen the truss rod. If it's the right height at the middle frets but too high near the nut, cut the nut lower (just a tiny bit at a time!); too



low near the nut, shim the nut or fill in the nut slots. Don't make drastic changes with any of this – wood takes time to settle and every time you change a setting the neck will move fractionally – be patient!

Buzz

It doesn't matter if you have fret buzz if you're happy with how the instrument sounds with that amount of buzz. Too much buzz and you'll choke off the low frequencies too much, but a lot of bassists set their instruments up to have a reasonable amount of buzz when they're playing their hardest notes. I set my bass up to never buzz unless I'm deliberately making it buzz (by playing aggressively up near the neck and plucking so the string moves in towards the body rather than parallel to it).

Consistency Is The Key

Your goal is to get your bass to behave the same from the lowest string to the highest string, from the open strings to the last fret. It should feel similar and sound similar in every position and on every note. This should all be done acoustically in a quiet room (assuming your hearing is decent). Your bass also needs to be in tune on every note (or as close to that as is possible) – changing the set-up will also change the intonation.

String Spacing – A Contentious Issue?

The norm with string spacing is for them to be spaced equally, centre to centre, but that doesn't make a lot of sense, and the more strings on your bass, the less sensible it is. If you keep the centre-to-centre string spacing equal, then as the strings get thicker, the gap between them gets narrower. When plucking your strings, especially if you pop notes, your fingers have to fit into the gap between the strings. Therefore, if you have side-to-side adjustment on your bridge saddles it makes sense to adjust your strings for equal edge-to-edge spacing. To do this accurately you'll need a set of callipers but a millimetre rule should be good enough.

When you fret your strings your fingers press on the top of the string, directly above the centre, so it makes sense for your string-to-string spacing at the nut to be centre to centre. I have to thank the great Anthony Jackson for this tip – being the inventor of the 6-string bass (or contrabass guitar as he likes to call it) he spotted this issue which had been overlooked by 4-string players for decades.

String gauge?

A long-term bugbear of mine, right from when I started playing, is that however perfect I got my action and however hard I worked on my technique my bass strings never felt evenly balanced – the lower strings tending to feel looser, the higher strings tending to feel tighter. Every time I tried a 5-string this seemed particularly bad with the low B string. The norm for so-called 'medium gauge' (do 'heavy gauge' strings actually exist?!) is 45, 65, 85, 105 or 45, 65, 80, 100, with low B being 125 or 130. I managed to find one maker doing 'balanced tension' strings which were 44, 61, 85, 110 and they felt much better. When I went to 5-string I would put together hybrid sets which matched up gauges from different packs to get a more balanced feel and tone. More recently I've come across a manufacturer doing a huge range of very well-balanced strings, and having put a set on my 5-string I can confirm that they both sound and feel even with a really nice tonal balance from the huge B to the skinny G – not thin on the top and boomy on the bottom. The question is, why is hardly anyone doing this?

So with a standard medium gauge set the average tension is 43.5lb, with a variation of ~20% – that variation is similar to the change in feel when you drop your E a whole step (two semitones) down to D. With that balanced-tension set the average tension is 43lb with a variation of ~2%. Don't you think that your bass neck would be happier with the same tension across it, rather than more pull on the top strings and less on the bottom strings? And don't you think your fingers will play better if all the strings respond similarly to your plucking?

Open- string note	Medium standard		Medium light standard		Medium balanced	
	Gauge (inches)	Tension (pounds)	Gauge (inches)	Tension (pounds)	Gauge (inches)	Tension (pounds)
G	0.045	42.8	0.040	33.7	0.043	42.1
D	0.065	51.3	0.060	42.9	0.058	43.8
A	0.085	48.4	0.080	42.0	0.079	43.0
E	0.105	40.3	0.100	36.5	0.106	43.2
B	0.130	34.5	0.125	31.4	0.142	42.7