

# Guitar Technical Services

PETER ALLEN

PHONE 01926-499012 [www.guitartechnicalservices.co.uk](http://www.guitartechnicalservices.co.uk) email: [guitar\\_technical\\_services@msn.com](mailto:guitar_technical_services@msn.com)



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## **Technical Advice for Purchasers of New Acoustic Guitars**

Buying an acoustic guitar is always difficult, whether it is brand new or second hand, because the layman can find it difficult to work out the good from the bad. The first question is - does it sound good? If it does, then the biggest concern is whether the Geometry is correct.

The main issues are:

### **1. Relief or curve in the neck**

Sighting the neck from the headstock towards the body can be difficult but if you have keen eyesight you should be able to tell if there is a curve in the neck by pressing the 1st or the 6th string down at the 1st and 12th frets. There should then be the thickness of a sheet of paper between then string and the 6th fret - this is less than the thickness of an 8 gauge plain string! Adjusting the truss rod can rectify some curve/bow in the neck but too much curve may require straightening the neck with heat - a job for a skilled technician.

If this test is OK, move on to the 2nd Test.

### **2. Checking for an up-turn over the body section**

Again, using the 1st or 6th string, fret the first and last frets and see if a gap appears underneath the 12th fret (it should be just touching). This test will determine either a bent neck (see 1st test) and/or an up-turn at the end of the fretboard..

The opposite situation may occur, where the fretboard dips away towards the body. There are a few internet articles about the "14<sup>th</sup> fret hump" and this is not in itself a problem, unless the frets are high in this area, which can be seen from our test. Normally a slight dipping away/fall-away is caused by the clamping of the fretboard to the sound-board in manufacture and is OK because, as the frets get nearer the bridge, they do not impede the string vibration. Remedying an upturn can be done by removal of the frets in the upper section, reducing the fingerboard wood and then refretting BUT this exercise is pointless if "Check No. 3" also fails, so do test 3 (below) as well before making a decision!

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### 3. Now the worst - Checking the neck to body angle

If this test is incorrect - see the following - you will have a high action which will cost a fortune to put right. The best way to check this would be to slide an 18 inch steel ruler along the frets until the underside touches the bridge-plate but as most shops and sellers would have a fit over this, we will use the following, alternative method!

Use the 1st or the 6th string to assess whether the neck is at the correct angle by slackening one of them enough for the string to be pressed down in front of the saddle, all the way down to the wooden bridge-plate and then, at the same time, fret the same string at the first fret. If the string touches the 12<sup>th</sup> fret you're ok, depending on how high the saddle already is. Occasionally the fitted saddle may be too tall for the bridge-plate and if this happens or the saddle needs to be taller, you are in trouble as the strings will pull the saddle forwards. If the string does not touch the 12<sup>th</sup> fret it may show the need to reduce the height of the wooden bridge-plate in order to lower the saddle.

With a gap showing at the 12th fret, pressing the string in front of the bridge-plate wood will show how much the wood needs to be reduced for it to be rectified. Some bridge-plates are too thin to start with and in this case it would be 'game over'.

For the purpose of this article I am assuming the guitar is new. For older guitars, the neck may well have been fitted correctly at manufacture but, over time, the use of heavy gauge strings - like 13 to 56 - and humidity may have caused the sound board to belly up, causing a high action. In this case, the body has 'technically' moved but it will most likely still require a neck-reset to correct the matter.

#### Note:

If point 2, above, is already wrong it will cause this test to be inaccurate as the string will be touching the end of the fingerboard, rather than the 12th fret. In this case, push the slackened string down and sideways so it runs along the side of the fingerboard. This will give an indication of how much upturn there is from the 12th fret to the end of the fingerboard and a rough idea of how much wood will need to be taken off the bridge plate to rectify.

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## Neck to body angle rectification.

The neck to body angle can be rectified by removing the neck and re-fitting it, however many mass produced necks are not made to be taken apart and doing so is likely to cause damage, which means rectification of that in addition to the 'neck reset'. This comment does not apply to necks bolted on like Taylor and Simon & Patrick etc. which make easy work of neck angle rectification.