**Quality Criteria for a Bandoneon**

**Peter Adler writes**

Okay. Peter Adler, California. Playing/owning: 6 months. Research: 18 months. Preferred music (for bandoneon, anyway): tango, modern classical. Although, I've been corresponding with a chromatic accordion player in Boston, who tells me that the "acordion" part in Brecht/Weill's Dreigroschenoper is actually for bandoneon...

Peter's criteria, based on personal observations and discussions with Raul Jaurena, Hector Silva, Lisandro Adrover, Hugo Diaz and Dale Meyer:

1. Remove the ends on both sides and examine the reeds. Is there any rust? Is it surface rust, or a deeper encrustation? This will have to be dealt with promptly, and may be costly (and effect the quality of the sound).
2. While you're in there, examine the leathers; are they dry and curled? Have they come loose from the reed plates? This suggests that the instrument may have been exposed to extremes of climate, which may have done damage to wooden parts as well.
3. Are there any internal components (levers, valve covers etc.) which seem radically different from the others? This indicates that someone's done repairs to a damaged or flawed component. Ask why this was done; the problem may recur.
4. Examine the soundboards (the spruce plates to which the reed blocks are attached). Are they cracked/repaired/patched? This type of damage suggests that the instrument has been subjected to variations in humidity. If the soundboard isn't intact, it will probably never sound as forceful or resonant as it did before. Where did the instrument come from? Extended exposure to a dry climate is more damaging to wood components than exposure to a wet climate, although it's the opposite for metal components.
5. In an old instrument, cosmetic damage is almost a given. How extensive is the damage? Is there a lot of inlay or veneer missing? Is the instrument free of gunk and slime on its outer surfaces? A dirty instrument is one that the owner hasn't taken care of, and may indicate internal problems as well.
6. With the air valve closed, grasp the instrument by one handle let it hang down (carefully!) ([please read the note](http://www.inorg.chem.ethz.ch/tango/band/band_node22.html#bd:bellowtest)). This determines the airtightness of the bellows. If the lower end drops quickly, the bellows are leaking. If it drops slowly/not at all, the bellows are fairly airtight. Leaky bellows take power and volume away from the instrument, which robs you of energy/strength (try playing one for a while; it takes a lot of strength to move that bellows. Once you've done that, you want to be sure that effort isn't being wasted); it can be expensive to repair or replace a bellows, even if you can find someone competent to do it.
7. My experience is that almost all instruments sound better a) after you've been playing them for a while and b) once you play them for a bit in warmer weather (70 degrees Fahrenheit and above). These things help the reeds respond more quickly and with less pressure.

These principles probably won't help you tell a good instrument from a great one, but they should help you tell a good one from a lemon.

**Christian Mensing writes**

Christian Mensing, living in Zürich, play bandoneon since about 2 1/2 years and take lessons with Roland Senft, Zuerich. (it is the first music instrument I learn - besides some intents with a guitar) I like most type of instrumental music depending on my frame of mind from baroque to Schoenberg, jazz, latin music (also floklore), tango... (with a big music collection since about 1969) Passed from my first instrument, an 142 tone ELA with aluminum reed plates to my actual 152 tone AA Premier with zinc reed plates. Some experiences in tuning.

*Criteria I feel important to consider the quality of a bandoneon*

**General overview**

One may be influenced by the outer view of an instrument. Indeed this may tell you some history. Is it a seldom played exposition instrument with a nearly new outfit or a well used one? A bandoneon must be played! Think about such famous players like Anibal Troilo with his black box! While never played instruments never where manipulated along the history they still have to be "softened". Anyhow the instrument must be in order. There are some tecnical aspects wich will be independent of your taste, others determine the sound and this your decision. Some suggestions for checks follow.

**Air Consumption**

is composed by the overall tightness and the quality of the reeds.

It means the airloss having all valves closed: the sum of the airloss through the bellow, the leather seal arround the base, the main valve and all the button valves. You may distinguish the airloss closing and opening the bellow: At higher closing pressure weak valve springs may allow some air passing the air channel. Under normal playing conditions however this is not really important since a hight spring force will interfere your play. No instrument is absolutely tight.

*to check*

hang the instrument from one side while the own weight will open the bellow. 1 cm /sec is a very good good tightness. ([please read the note](http://www.inorg.chem.ethz.ch/tango/band/band_node22.html#bd:bellowtest))
(my instrument with a brand new bellow makes 0.8 cm/s - 1/3"/s)

*the bellow*

old bellows often are damaged at the bottom side. - staccattos!

*to check*

close the bellow with force and try to hear where the air comes out. I pass my lipps along all parts and feel the wind. This may indicate even small leaks.

**Main Venting Valve**

is hold by a spring easy to change but which should not be too strong. When the leather seal is good the spring force may be low. The lever guide is often abrased. Some levers don't open the valve too much so this reduces the amount of air passing through. (important for people playing on opening)

**Response & Eveness**

is in my opinion a key criteria. You have to distinguish response pressure and response time. While a high tone needs more pressure to start the vibration a low one needs more time because of the inertia, specially for the weighted reeds. The response depends mainly on the proper adjustment of the "air slot" which changes the tuning and therefore must be done before tuning. This air slot is formed by the reed standing out of the base plate and is nescessary for the initial deviation of the reed against the air stream by the Bernoulli effect. So a too narrow slot will prevent a reed to vibrate, a too broad one requires more air (consumption!). - see [*Plates & Sound*](http://www.inorg.chem.ethz.ch/tango/band/band_node22.html#bd:reedboard) below -

The quality of the reeds is also defined by the space left between the reeds and the plates which was the main tecnical problem in former times. (today lasers do the job) Because of the different dilatation of materials very good plates do not work below 5'C.

*checks*

increase gradually the pressure for the tone under test and hear if the base tone comes together with its octave. (All tones - 4 exceptions - are composed by the base and an octave chorus) Find tones with bad respose and compare them together with a semitone in the same manner. For best eveness all neighbours should come nearly together. Consider the pitch dependence!

**Tuning**

The absolute tuning of bandoneons is usually at a = 445 Hz, somewhat higher than other instruments. Pianos in concert halls are tuned to 442 Hz. But because of the drop in frequency with increasing force, this matches perfectly well. Something different, and easier to check is the tuning in respect to the octave: Different from other reed instruments the bandoneon is tuned absolutely even, that is the octave tone is exactly one octave higher. Any mismatch will result in a beat not typical for this instrument. For a tuner it is hard to realize since differences of a few cent will be audible. Because of the pressure dependence of the pitch (the higher the pressure the lower the pitch) the variation of pitch for both reeds with pressure should be coherent. The election of the suitable material for the pair of reeds is one of the main know how of a bandoneon builder. A tuning, that means changing the characteristics of a reed, modifies this pair.

*check*

play the tone under test with increasing force and attend to vibrations. If you already know the keyboard, play the same tone on the left and right side and open your ears. If you are advanced you may play fifths.

**Reed Quality**

The sound you hear may be interfered by strange noise or dull. This is not so simple to describe since there are a lot of originators and requires an experienced tuner to analize. You should have a look to the reeds, perhaps with a magnifying glass, if there are

* no tuning furrows in diagonal -> unexperienced tuner
* no bent or waved reeds (except for the mentioned slot) (often tuned reeds tend to be very thin)
* no curled leathers and slightly covering the openings (slightly open is normal)
* no broken leather (don't replace leather by yourself, it's a special one)
* no glue visible
* no corrosion
* rivets tight but without deformed plates

The reeds you see when opening the instruments are only the closing reeds. Seldom a vendor will allow you to examine the opening reeds since you have to dismount the plates.

Changes in relative humidity curl the leathers. Poorly played instruments have hardened leathers -> always play ALL your instruments. New leathers take a while to be flexible enough to produce a good sound.

A trick from swiss oergeli players: During winter the airmoisture drops below the optimum of 55cases together with a fairly moist natural sponge - inside an open flask.

**Housing and Base**

When opening the instrument have a look to the wooden mounting base. This plate often is broken. But since the sound is not coming out from the wooden parts this means only extra air consumption and may be glued in the last case. Many players think it is of great importance the wood used for the housing. The fact is that the sound level of the housing is about 40 dB below that of the air flow. Therefore it has no influence on the final sound. However the housing of the left hand has an important damping effect to lower the sound level.

**Reedboards & Sound**

They are the heart of the instrument and the most valuable part and which defines the sound. This is nearly fix and the following thought only for you as an information. There is still a great discussion concerning the material of the reed plates. The fact is that aluminum plates are lighter in weight and are seldom attacked by corrosion. My personal opinion is the higher the steady mass (the plates) the clearer the sound. But this is valid only for excelent reeds. An unprecise tuning will overcompensate the adventages of zinc plates and a difference is not audible. A slightly bent reed can't close the air channel at its whole extension simultaniously and the sound will be diffuse. The same for incoherent vibration of the reed pair. The air slot (see respose) is an other factor determining the sound: For players of clasical music it should be adjusted as narrow as possible. This allows to play pianissimo. The sound changes to warm. Tango orchestra players prefer a more explosive response but have to forget the pianissimo and must use somewhat more air.

But don't ask a tuner to change all slots of an instrument! You can't pay that. (about 300 reeds!)

The sound is influenced by the material and the cut of the reeds itself. A soft steel will respond easier but the deviation is greater and therefore more dependant from the pressure. Specially for the very low tones a great deviation means an opening of the air channel twice a cicle: when the reed traspasses the back of the plate. The result is a more diffuse sound, particularily for fortes and fortissimos. A thicker plate whould help, but the weight! The sharpness of the sound depends on the balance of the reed pair. The reed has usually a groove somewhere between the rivet and the middle part. It is used for tuning but its place determines also the intensity of the sound. The intensity is a function of the effective channel area.

for check: see reed quality

**Conclusion**

After all: think about, there is no perfect old instrument left in the world. A fairly good instrument is better than none. If you beginner are older than 12 years, every year you loose not playing even a bad instrument reduces your chance. Remember: The first 10 years are the hardest.

Note:

Lynda Griffith, certified Accordion Family Instrument Repair Technician, Minnesota, writes:

With regard to critiques, most important on my list is the notion of testing for bellows tightness by holding one end of the instrument and allowing the other end to drop, presumably to see how fast the bellows will open with gravity. This is extremely injurious to any bellows driven free reed instrument as it forces air through places from which air is not supposed to leak! This practice, prolonged over one or more minutes will only serve to make the leakage worse!

A much better test, while holding the instrument in playing position, is to manually compress or open the bellows over a few seconds time frame and feel for leakage by way of the movement of the bellows or by feeling the draft of escaping air against the face or wetted lips. It still forces air through leaks, but does not prolong the agony and torture for the instrument! A skilled technician should be able to feel the leaks quickly this way.

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