# *NORTHUMBRIAN PIPERS SOCIETY*

## *BELLOWS TECHNIQUE, TESTS AND TIPS*

### DESCRIPTION

Northumbrian pipe bellows vary from 7" to 10" in length, with the most common size of 9" suiting most average adults. They are made with one piece of leather, not like accordion bellows, and if correctly made generally deliver at least a litre of air on each stroke, which is more than sufficient for the instrument. The stroke extends the bellows to 9". Some old sets were made with a 6" stroke, which is inadequate. It takes 4-6 strokes to fill the average bag to capacity.

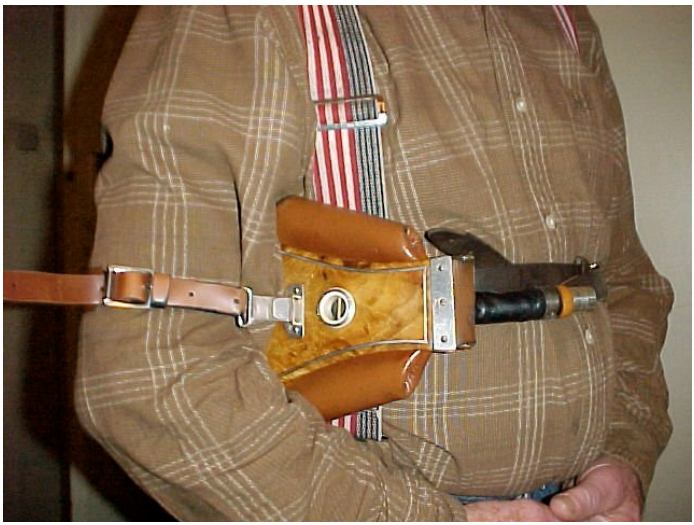
*Above: Traditional bellows by W. A. Cocks. (6" stroke)*

*Above: Modern 9" bellows with 9" stroke, by Colin Ross*

The air inlet valve is generally in the outer wooden cheek of the bellows.

**FITTING AND POSITION**

Position the belt round the lower ribcage - on the floating ribs, not the waistline. This positions the bellows to allow air through the inlet valve without obstruction from the arm or clothing.



The belt should be tight enough not to slip, but not so tight that it prevents normal breathing or speech. (A sizeable proportion of the population has a natural ledge to rest this on!) Very short-waisted ladies may experience some difficulty finding an appropriate / comfortable position. There are various fixes to deal with this.

The outside cheek of the bellows has a mechanism for attachment to the upper right arm. This varies considerably from maker to maker - but whether bootlace, leather strap or hook system of some sort, should fit snugly, and without allowing any clothing to obscure the air inlet, also situated in the bellows cheek.

When the bellows are in position and the arm strap fitted, the right elbow and lower arm should lie comfortably just below the bellows cheek. Very short-bodied persons may have some difficulty achieving this position, and compromises may be necessary.

The bellows outlet connector should attach to the blowpipe of the pipes securely, without the need for the player to hunch their shoulders, or stand / sit otherwise than comfortably erect.

"Standard" lengths of these two parts are designed for the majority build, but are not suitable for everybody, and may need adjustment or replacement to achieve and maintain a comfortable position.

**OPERATION**

To operate the bellows, extend the right elbow away from the body as far as the bellows will allow, and then bring in steadily. Air should flow through into the bag.

None should escape back out through the bellows intake valve, nor should the blowpipe valve of the pipes allow any return from bag to bellows. If either of these things happen remedial action is needed by the pipemaker.

The bellows should start to work immediately the stroke is commenced - there should be no "dead time". It should be a continuous, smooth action: jerks or hiccups in the stroke indicate a problem, most likely with the blowpipe valve, but possibly in the bellows outlet tube.
Once connected to the pipes, the stroke rhythm is 1, 2 and, 3 - out, in and, rest.

There are two basic techniques for bellows operation.

1. Inflate the bag using full strokes of the bellows (4-6); play until one stroke's worth is used, then top up as necessary. Time between top-up strokes depends on the airtightness of the system, the number of drones in operation, and the efficiency of the bellows. Normally it will allow a resting period equal to one or more complete strokes. This is comparable to the technique for mouthblown pipes.

2. Bag control directly from bellows. Once the bag is full, open the bellows again and commence playing. Bring the arm in as air is demanded by the flow of air through the reeds. At the bottom of the stroke maintain pressure on the bag with the left arm as bellows are fully opened again, then slowly bring in bellows, maintaining equal pressure on bag and bellows. The bellows need to be of good capacity and 100% airtight for this method to be used.

In practice a combination of these two methods is used in normal playing. Check the playing pressure and transfer of air from bellows to bag with a manometer. The ideal playing pressure is 15", but 14-16" is acceptable.

**COMMONLY OBSERVED FAULTS**

1. Too small a pair of bellows.
2. Bellows not airtight.
3. Inlet valve obscured, incorrectly placed (upside down), dirty or oiled.
4. Too frequent pumping with a short stroke.

**SERVICING BELLOWS**

To make bellows airtight, a dressing is best applied internally. This is a 4:1 mix of oil & beeswax.

Method:

- To prepare the bellows, remove the inlet valve, and plug the outlet connector
- Fill bellows with at least half pint of dressing at 200°F (100°C)
- Open bellows fully, insert plug into inlet hole, and press in (but not too hard - plugs can dislodge at high pressure!)
- Shake bellows for about five seconds.
- Remove plug from outlet connector (over a suitable container)
- Blow excess dressing out through outlet connector
- Wipe off any excess that has come through the stitching
- Clean solidified dressing from inside of outlet connector
- Remove the inlet plug, and replace the inlet valve.

NB. The inlet valve should be tied with suede side to valve, and should NOT be oiled.

To fill in stitching holes use a mixture of beeswax and rosin softened with oil. This stitching wax mixture may be made with a 1:1 mixture of beeswax and rosin with a small amount of oil. It should have the consistency of thick vaseline when cold.

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