The Soprano Ocarina

Ocarinas rank amongst the most ancient musical instruments in human history. They have been played for over 10,000 years and are still being played in various forms all over the world and in nearly all cultures, from South America to Europe and China. Ocarinas are what is known as vessel flutes, because they are closed at the bottom and not open like, e.g. recorders. Sound is produced by blowing across a hole, causing the enclosed air to vibrate. Small finger holes change the tone pitch. Strictly speaking, the air current is channelled by a mouth piece and wind pipe to the sound hole which is why they are also described as beak flutes. Ocarinas are usually made from fired clay, but may also be produced from hollow pumpkins or nuts etc. The idea for the ocarina probably stems from two cupped hands forming a round blowing instrument in which air was blown through the small hole created by the thumbs pressed against each other. In 1853, the 17 year old potter's apprentice, Giuseppe Donate, from the Italian town of Budrio, began to perfect the then common small bird pipes and extend their tonal range. He shaped his instruments in a longitudinal form and called them ocarina (little goose). The ocarina rapidly beat a triumphant path around the world. It was available in all registers, from sopranino to double bass and ocarina orchestras delighted audiences from Paris to New York. Today the ocarina is one of the most popular amateur instruments. In England, David and Christa Liggins have developed their Ocarina Workshop, an extremely successful form of early instrumental teaching based on the ocarina and which has proven its worth in many schools.

Contents: • 1 Pre-punched sheet of cardboard, 0.5mm • 1 Song sheet

You will also need for assembly:

- Standard solvent based all purpose glue, e.g. UHU, Evo-Stik Impact, B&Q All Purpose Glue. Do not use water-based glue: it softens and warps the cardboard, and doesn't stick properly to the printed surfaces. Solvent based glues also dry much faster.
- Some sticky tape
- A rubber band
- A sharp knife with a fine point (thin carpet knife, craft knife, scalpel), to cut the thin holding tabs of the pre-punched parts.
- A cutting board or mat, made from hardboard, plastic, or wood. Self healing cutting mats are ideal as the material re-closes after each cut.

Tips for successful construction – Please read before commencing!

- In order to ensure good results and for straightforward construction, the building instructions have been broken down into 14 steps. Read each step from the beginning to the end before commencing and allow yourself about one hour for the construction (depending on experience). The more care you take, the better your Soprano Ocarina will sound and look.
- Every part has its name and part number printed on the front. The part number consists of a letter and a number: the letter denotes the part of the ocarina it belongs to, the numbers denote the order of construction. The part number can be recognised by its rectangular frame, e.g. B1 . Only remove the parts as you need them.
- Places needing glue are marked in grey. They also bear a symbol with a part number and an arrow to show which part will be glued on this grey space. If you would like the glue to set quickly, cover one side with glue and press the parts together so that the glue covers both parts. Pull them apart again and blow a couple of times over the glue. If you now push the parts together again, the glue holds instantly.
- We recommend that you do not tear the parts out of the cardboard sheet, but cut through the thin connecting tabs to make sure that the edges stay smooth. Frayed edges can be cleaned with a nail file or with our AstroMedia File Set.
- All folding lines are prepared by perforations. If they are to be bent "forwards", you have to fold them towards you when looking at the printed side of the part. If they are to be bent "backwards", you need to fold them away from you. You get a straighter fold if you position the folding line over a sharp edge.

BUILDING INSTRUCTIONS

Step 1 Remove the three identical parts of the inner base [A1], [A2] and [A3] from the cardboard and also the small discs from the finger holes. Then glue the three parts on top of each other to form a block. The edges and finger holes must match exactly. We recommend pressing the block against the worktop with a weight while the glue sets, to assure that it is entirely flat.

Note: *The finger holes need to be exactly flush and their openings kept free of any escaping glue to ensure a good pitch of the individual tones.*

Step 2 Now glue the slightly larger part of the inner base [A4] with its unprinted side onto this block. Make sure that the finger holes match exactly and that the edges project equally on all sides. This way, a surrounding step is formed between the three smaller parts [A1+A2+A3] and the larger part [A4] of the inner base.

Step 3 Fold the grooves of the inner side wall [B1] backwards and join the ends edge to edge with a piece of sticky tape on the back. This way a closed octagonal ring is formed.

Step 4 Lay the inner base [A1+A2+A3+A4] on your working surface so that the projecting part is underneath and the surrounding step is on top. First without glue, press the octagonal ring of the inner side wall [B1] onto the step of the inner base to check its fit. Then glue the ring firmly into this position. This way, an open-top enclosure is formed, the base of which projects out slightly from the side walls.

Note: *Should some glue escape and smear over the surface, it is not a problem, as all surfaces will later be covered with further layers.*

Step 5 Fold back the grooves of the outer side wall [B2] and glue it as a second layer onto the inner side wall. Make sure that the two edges of the outer side wall do not meet in the same place as the sticky taped joint of the inner side wall.

Note: *With this second side wall layer the overlap of the surrounding base step is used up.*

Step 6 Glue the three identical parts of the inner top cover [C1], [C2], and [C3] on top of each other to form a block. Then glue the unprinted side of the slightly larger part of the inner top cover [C4] onto this block. Make sure that the finger holes are matched exactly and also that the step around the rim has an even width.

Note: *The overlap at the narrow side of part [C4] is the position of the future mouth piece. The rectangular sound hole in part [C4] is slightly shorter than in the three smaller parts of the inner top cover, so that one side of the sound hole is only one layer thick. This lip is called the "labium". It agitates the air current and thus creates the sound.*

Step 7 Now place the inner top cover on the open enclosure formed by the base and side wall, first without glue. The edge of the side wall again fits into the surrounding edge exactly and the overlap of the inner top cover thus disappears.

Important: the mouth piece protruding from the top cover must point to the side of the enclosure closest to the two holes on the base.

Glue the inner top cover firmly into this position. The ocarina enclosure is almost finished now. Only the windway is still missing to allow it to produce sound.

Step 8 Fold the 8 side tabs of the outer base [D1] backwards. The small extension with a hole, attached to one tab, is folded forwards. This part will later become a cord holder. Place the outer base on the base of the ocarina enclosure, first without glue. The finger holes in the outer base are a little bit larger than those of the housing. This make accurate coverage by the fingertips much easier when playing the ocarina. The holes of the outer and inner bases must be positioned exactly on top of each other. Glue the outer base firmly into this position.

Step 9 Now glue the 8 side tabs of the outer base onto the sides of the enclosure. The small extension for the cord is not glued and projects out from the enclosure at right angles. Fit a rubber band around the tabs while the glue sets.

Step 10 Fold the 7 side tabs of the outer top cover [D2] backwards and the small extension for the cord forwards. Place the outer top cover onto the inner top cover of the enclosure. Again, the holes in the outer top cover are slightly larger and must be centred exactly over the holes of the inner top cover. The narrow rectangular cut-out in the mouth piece is part of the windway. Glue the top cover firmly in this position. Note that the thin lip that forms the labium directly adjacent to the windway is not covered and should not receive any glue on its base. Also, no glue should penetrate the wind pipe. Then glue the 7 side tabs to the enclosure side wall. Their ends join edge to edge with the tabs of the outer base. The extension for the cord is not glued yet.

***Note:** The base and top cover of the ocarina now consist of 5 glued cardboard layers. Once completely dried this makes them nearly as rigid as plywood.*

Step 11 Fold the groove in the mouth piece support [D3] forwards and glue it under the mouth piece so that it forms a bracket. This way it also acts as the missing side tab of the outer top cover.

Step 12 Glue the two reinforcement pieces for the cord holder, [D4] and [D5], first on top of one another and then between the two cord holder extensions.

***Note:** The cord holder now consists of four cardboard layers and is therefore extremely sturdy. The ocarina may thus be worn on a cord around the neck.*

Step 13 Glue two of each of the windway side walls [E1], [E2], [E3] and [E4] on top of each other and then onto the narrow strip of cardboard to the right and left of the cut-out for the windway on the outer top cover. The windway side walls are now 3 cardboard layers thick, a good 1.2 mm.

***Note:** If you wipe off the glue escaping from the inside of the windway, you can apply it to the side wall edges to increase their resistance to humidity from your breath.*

Step 14 Glue the two windway covers [E5] and [E6] with their unprinted sides together. The windway cover is then glued onto the windway walls so that its rectangular cut-out points towards the ocarina finger holes and its printed side faces upwards.

Your ocarina is now ready for use. Congratulations!

How to play your Soprano Ocarina

Tonal range: The AstroMedia Soprano Ocarina features 8 holes, 6 on top and 2 underneath with a range of 9 tones. The entire C major scale may be played, plus one more tone, the high D.

Holding: Hold the ocarina with both hands so that the side with the 6 holes faces up and the mouth piece points towards you. Place the ring finger, middle finger and index finger of your right hand on holes no 1, 2 and 3 and the ring finger, middle finger and index finger of your left hand on holes no 4, 5 and 6 (Fig. 1). The left thumb then automatically rests on hole 7, the right one on hole 8 (Fig. 2, as seen from below).

Blowing: Close all holes and gently blow into the mouth piece. Channel the air current at the start and finish by moving your tongue as if to say "tyyt". Lower tones are blown more softly, higher ones with greater force. As is the case with many wind instruments, a tone becomes higher or lower depending on how strongly or gently one blows into the mouth piece. This way the tones of the ocarina may be fine-tuned, so to speak.

Playing scales: Cover all holes as described above. This tone is the lowest, a C. Now open one hole after the other in the numbered sequence and the C major scale is played. When you open the last hole with the right thumb, you reach the high D. (Fig. 3 and 4).

Playing semitones: Semitones are required in some songs, e.g. F# between the G and F, or Bb, between A and B. You can lower the B to a Bb or the G to an F# by covering a further hole (Fig. 5). Other finger combinations are also possible to achieve the same effect. Experienced musicians can in this way work out the fingering for all semitones.

You may however also increase an A to a Bb or an F to an F# by leaving the last hole half open (Fig. 6). And, of course, you always have the option of changing the tone by altering the force of the air current. Try it out for yourself!

Years of enjoyment with your ocarina: Due to its multilayer design, the cardboard Soprano Ocarina is exceptionally sturdy, not much can therefore go wrong. Its only natural enemy is an excess of humidity. As this is contained in one's breath and may condense on cool surfaces, the cardboard of your ocarina is covered with a moisture-resistant finish. You should nevertheless sometimes allow it a little rest to dry. By trial and error you will soon find out how long you can play without break.

Have fun with your first tunes!

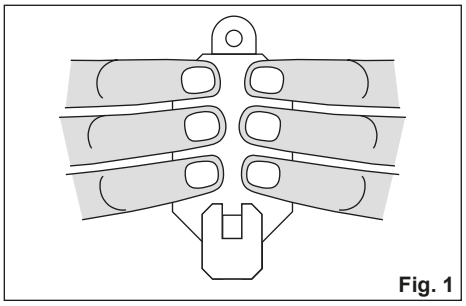

Fig. 1

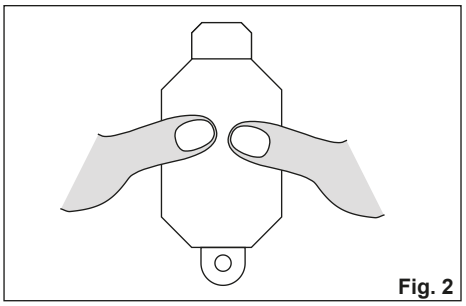

Fig. 2

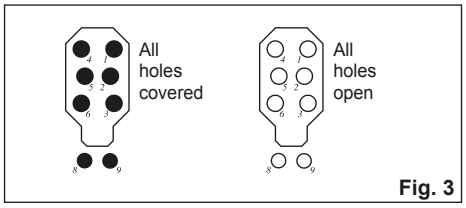

Fig. 3

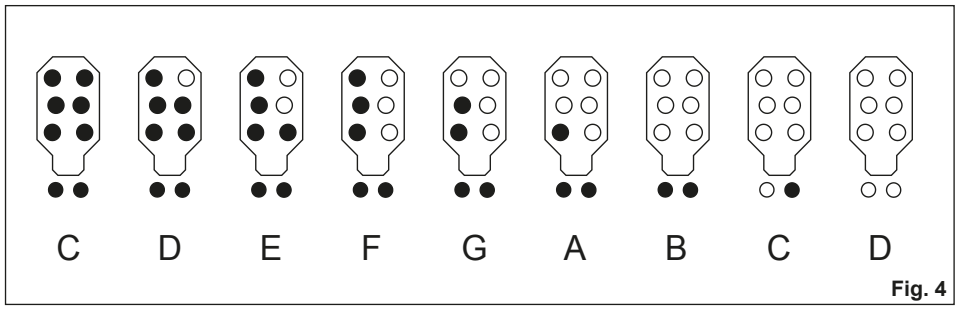

Fig. 4

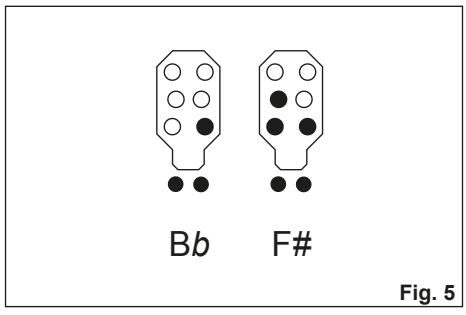

Fig. 5

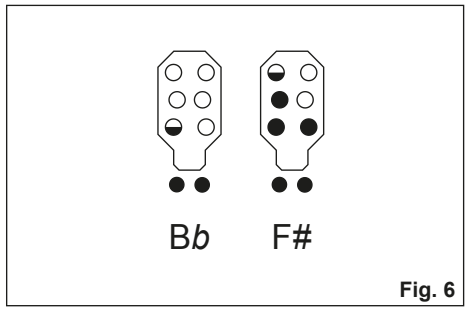

Fig. 6