

VOCAL VOWELS

MAINTENANCE INSTRUCTIONS

GENERAL INFORMATION:

Vocal Vowels includes plastic models of five different shapes that mimic the shape of your vocal tract when you make the sounds of ee, eh, oh, oo and ah. A bellows on the exhibit is compressed to produce a flow of air which passes by the reed of a duck call making a quacking sound, just as the air from your lungs makes your vocal cords vibrate. Like your vocal cords, the reed produces a complex sound made up of many different frequencies. When the reed is placed at the end of one of the plastic models, only some of the frequencies resonate within the model's cavity producing the distinctive sound.

An adjustable vowel chamber is provided to allow the visitor to experiment with the shape of the vowel chamber. Four different templates are also provided that set the chamber to pre-determined sounds.

General Cleaning:

The cast vowel chambers must be cleaned with plastic cleaner and a soft wipe. **NEVER** use alcohol or petroleum products on them! The glass in the variable vowel chamber may be cleaned with glass cleaner. The finished or painted surfaces of the exhibit may be cleaned with a mild soap solution or general purpose cleaner. The Plexiglas panels should be cleaned with a plexi cleaner and a soft wipe that will not leave scratches, (we suggest Wype-All™).

Changing the bulbs:

An access panel underneath the vowel chambers provides access to the lights. Rotate the bulbs one quarter turn to remove them from the fixture brackets.

Hose replacement:

The hoses from the bellows to the duck-calls are medical oxygen hoses. They eventually fatigue and require replacement. The hose clamps on each end are simply loosened to allow the hose to slide off.

New oxygen hoses can be cut in half to provide the length needed; 38" (1 meter).

Reed replacement:

The duck calls use a plastic reed that eventually fatigues. The reeds are accessed by first removing the four screws in the magnet housing. The wood duck-call is held in the plastic housing with two set screws. Loosening these will allow the duck-call to slide out. (The hose may have to be removed in order to push from the other end.) A piece of cork retains the reed in place. Push the cork out and insert a new reed into position. Re assembly is the reverse of this procedure, however do not over tighten the set screw in the plastic housing. The plastic can easily be broken from the force of the screws.

Filter cleaning & replacement:

The air filters for the bellows are located in the rear of the exhibit. They should be checked annually and cleaned (vacuumed) or changed as needed.

Variable Vowel Chamber maintenance:

The variable vowel chamber should provide many years of service without having to disassemble it. Cleaning inside the unit should be done by blowing air through openings. If disassembly becomes necessary, it is important to a few things about the design. The chamber has thirty moving slats that slide on glass. The slats consist of 15 white acrylic, and 15 white acetyl units to enhance their wear characteristics. These materials come in different thicknesses and it is important to note their relative positions to align with the templates. The first one to the left is the thicker white acrylic, then a thinner acetyl with every other slat being the same. (This makes the last one on the right a thinner acetyl piece.) There are two set screws in the right side that adjusts a spacer to regulate the clearance between the slats. These screws control the overall width and alignment of the slats, as well as the clearance between them. They have been pre-set to match the templates provided.