

Technical Description of The Tenor Drone of the Great Highland Bagpipe

By William Thomas Bailie © 1999

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Introduction

The tenor drone is one of the drones that provides harmony to complement the melody provided by the chanter on the Great Highland Bagpipe. The Great Highland Bagpipe (GHB) has three drones: two tenor drones and one bass drone. The tenor drones are tuned one octave lower than low A on the chanter, and the bass drone is tuned one octave lower than the tenor drones. These drones turn the bagpipe into a self-harmonizing instrument.

The tenor drone consists of two cylindrical sections. The top of the lower section (the tuning slide) is designed to fit inside the lower end of the upper section, giving the assembled tenor drone an overall length of about 380 mm, depending on the amount of overlap. The amount of overlap will vary, but is usually about 25 mm. A 10mm hole is bored through the length of the drone, which widens at the bell and in the region of the tuning slide. Rings are carved into the outside of the drone, forming a pattern known as the combing. Combing provides a better grip on the drone than unadorned, smooth wood would allow. Combing also can be used to identify the drones manufacturer, as each bagpipe maker uses a distinct pattern of rings.

Materials

The primary material used in the manufacture of tenor drones is African Blackwood. African Blackwood is preferred by bagpipe manufacturers because it is a very dense hardwood. Hardwood is used because it gives the drone a loud and clear tone. Drones made of other types of wood are very susceptible to cracking due to swelling and shrinking. African Blackwood also gives the drone its distinctive black colour.

The ferrules and projecting mounts are made of various materials, depending on the preference of the manufacturer. They may be of ivory, silver, nickel silver or imitation ivory (plastic). These items protect the wood parts from splitting. Drones incorporating valuable materials such as ivory or silver are naturally more expensive than drones that use nickel silver or imitation ivory ferrules and projecting mounts, but the material used has no effect on the tone of the drone.



Figure 1: The Tenor drone (Exploded View)

The Upper Section

The upper section of the tenor drone is a cylinder that measures 205mm in length. A 10mm diameter hole is bored through its length.

The Bell

The bore hole widens to form a 35mm diameter cavity at the top end. This cavity is called the bell. The bell improves the tone of the drone by focusing the sound. The bell is capped by a ferrule to protect it from splitting. The bore hole widens to 22mm in diameter for its lower 70mm of length. This widening allows insertion of the tuning pin of the lower section of the drone.

The Lower Section

The lower section of the drone is a cylinder that measures 230mm in length. A 10mm diameter hole is bored through its length. The hole maintains a constant diameter through the lower section, except for the lowermost 3mm, which are slightly widened to accommodate the reed.

The Tuning Slid

The upper 75mm of the lower section forms the tuning slide. This portion of the drone has an outside diameter of 18mm, narrow enough to fit inside the wide lower portion of the upper section. The tuning slide is designed to move up or down, allowing the piper to tune the instrument. The tuning slide may be covered by a silver or nickel silver tube. This tube serves no musical purpose, and is only for decoration.

The Pin

The lowermost 30mm of the lower section is called the pin. The pin is designed to be inserted into the stock on the pipe bag. The stock is a 130mm long hollow cylinder of African Blackwood that is tied to the pipe bag. The stock serves as the interface between the drone and the rest of the bagpipe.

Hemp

The upper 25mm of the tuning slide are layered with hemp cord to a thickness that provides an airtight seal between the upper and lower sections of the drone. The pin is layered with hemp cord to a thickness that provides an airtight seal between the drone and the stock of the pipe bag. The hemp cord must be treated with beeswax or pitch. This treatment prevents the hemp from absorbing moisture. If the hemp is permitted to absorb moisture, it will be susceptible to rot and, in extreme cases, could swell and split the wood of the drone. The fit must be sufficiently tight that the drone does not come apart on its own, but not so tight that the position of the upper section cannot be readily adjusted by the piper. A fit that is too tight increases the risk of splitting the wood of the drone.

Projecting Mounts

Projecting mounts are added to the lower section of the tenor drone. These may be made of the same wood as the drone itself, but are more commonly of silver, ivory, nickel silver or imitation ivory. The material used affects the cost of the drone, but not its tone. Projecting mounts protect the drone from impacts and reinforce the wood against splitting.

Happy Piping!

Source: <http://www.ucalgary.ca/UofC/students/clubs/PBHD/bagpipetenor.html>

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