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Microphone Techniques and Sound Reproduction Considerations for the Double
Second Steelpan.

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ABSTRACT

This Caribbean Studies Project explored the inconsistency of the reproduced sound of the Double Second Steelpan in live performance and recording environments. Seven Sound Engineers and Twenty Professional Steelpan Players were interviewed about their experiences in working with the Double Second in both live and recording environments. Five Steelpan Tuners were interviewed about the acoustic function of the Double Second and how it relates to the sound of the instrument when amplified. All their perspectives were compiled and referenced throughout the body of the study. The interviews of Steelpan Professional Andy Narell, and Sound Engineers Michael Low Chew Tung and Mark Wright have been placed in the appendices.

Results from interviews concluded that feedback and leakage on stage were some of the main challenges of reproducing the sound of the steelpan. This study also revealed that skirt noise might be a contributing factor to feedback and, if controlled, could improve the amplified sound of any steelpan. Some tuners have been experimenting with alternative skirt design and materials. Most interviewees agreed that placing the microphone above the pans sounded better in most scenarios and have achieved success to some extent placing the microphones below as well.

Pickup methods, which researched and tested magnetic transducers, were successfully implemented in two steelbands in the late 1980s by Professor Brian Copeland. Results for that research provided a solution for steelpan amplification, and although it was successful, financial difficulties prevented mainstream distribution.

Keywords: Steelpan Amplification, Double Seconds, Microphone Techniques, Live Performance, Steelpan Recording.

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INTRODUCTION

The Steelpan, also called steel drum, or pan, is the newest acoustic musical instrument to be invented in the twentieth century (Taylor). It is classified as a percussion instrument because “the player provides the energy to initiate a vibration by striking the instrument with a stick or similar device...the energy is supplied in a short, sharp burst” (“Creating musical sounds”). It is made from recycling fifty-five-gallon oil drums that are sunk using a ball-peen, or a pneumatic hammer. It is then grooved to separate the notes, shaped to make the playing surface, pre-tuned, and finally burnt to balance the alloys in the metal that would have been offset by the making process. The making of the steelpan has progressed from the ping pong and du-dup to having an entire family of steelpans modelled after a western orchestra.

“The very first pitched steel drums were made from smaller metal containers and were convex in shape...they were still in their experimental stages and had no intentional pitches” (Remy).

The steelpan has gone through several innovations since its invention. Some electronic advancements include the Bertphone and amplified pans¹ created by legendary steelpan tuner²and innovator Bertie Marshall, the Piezo-electric pickups and Lectrapan by Professor Brian Copeland, the Percussive Harmonic Instrument by Panadigm, the ePan by Salmon Cupid, and most recently the Ensoul Pan Pickup. These innovations still struggle to be adopted mainstream.

The Double Second or Alto Pan ranges from E3-Eb6 or F#3- C#6 (see fig. 1.) in the scientific pitch notation system comparable to the range of notes of the piano. The length of the

¹ Amplified pans were pans with guitar pickups attached to them used on Highlanders Steel Orchestra in the 1960s by Bertram Marshal (Slater).

² A steelpan tuner or pan tuner is a person who makes steelpans. Long ago, they would go through the entire preparation process by themselves. Nowadays, the preliminary process of sinking, grooving, and burning is sometimes outsourced.