

SBT RUYAN ANI ASSESSMENT.PDF

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To: **K. Torrence** Date: **September 27,**

From: **R. H. Moffitt**

Subject: **Operational Analysis of SBT Ruyan Atomizing Nicotine Inhaler**

Summary
Several samples of the "SBT Ruyan Atomizing Nicotine Inhaler" (fig. 1) were disassembled to determine their operating principle and associated control functionality. The discussion section below details the findings.

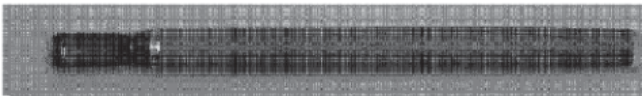


fig. 1

Discussion
The SBT Ruyan electronic cigar/cigarette was disassembled for determination of its operating principle and electrical characteristics. Most of the internal components of the device were partially or completely potted or encapsulated in a hard, plastic-like material. The disassembly of the first device was destructive and resulted in a non-functional device. Based on the nature of assembly, it is clear that the device was not designed for servicing. Learnings from the destructive disassembly enabled a second device to be disassembled with functionality preserved. The device appears to be manually assembled based on the component interconnection methods and circuit board soldering.

In addition to the replaceable mouthpiece with attached flavor containing cartridge (fig. 8), the device consists of (starting at the mouthpiece end): an aerosol generation chamber, a flow sensor/activation switch, two small circuit boards with surface mount electronic components, one replaceable lithium ion battery, and an LED indicator and pushbutton at the tip end.

The evaluation of the electrical circuitry revealed that the circuit contains no programmable logic based components (figs. 3 and 4). All of the circuitry is of an analog nature – power resistors, diodes, capacitors, etc. There is no evidence of ultrasonic operation such as the presence of piezoelectric materials or ultrasonic supporting electronic circuitry which is in contrast with some device literature that refers to an ultra-miniature pump and aerosol generator by a 2.2 MHz ultrasound wave.

Operational and Control Description:

The flow sensing mechanism is a flexible diaphragm with an attached magnet that, upon application of sufficient air flow, deflects and allows closure of a reed switch (fig. 6). The

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